Chapter 14. Insights Regarding Institutional Frameworks and Research Capacity[1]

In Chapter 5, we considered stakeholders in the research landscape, including experts and institutions (RQ13). However, it was not possible to identify leading experts based on the U-publications alone. The reason for this is that most authors and instituti- ons — and indeed funders — only appear once or twice, making it difficult to detect patterns. Given the limited information about institutions more generally, it was unsur- prising that information on institutionalised research capacities and frameworks was similarly limited. It is therefore hard to be conclusive about the institutional frameworks in which researchers operate, and how they influence the development of the educa- tion system or increased research capacity. Of course, it is possible to extrapolate about what TVET-specific institutional frameworks exist; for example, on the basis of related fields like general education research – of which TVET research could be considered to be a sub-field. If we take general education research as our scope, this would suggest that the framework conditions with respect to the sub-field of TVET research are likely to be characterised by high student numbers, and by staff focused on teaching high numbers, quite likely by means of rote learning.

However, while we might extrapolate such conclusions, they cannot be fully trusted as they are based on simple, albeit logical, generalisations. More direct exploration of the topic is needed if we are to have a greater sense of confidence in our conclusions about TVET-specific institutional frameworks and research capacities. To that end, this chapter discusses the insights obtained from participant responses in our focus group sessions and interviews that might add more certainty to conclusions on the current topic. The first section (14.1) presents insights regarding 'institutional frameworks and research capacity', with the subsequent section (14.2) focusing on participants' 'TVET research interests' and their highlighted 'current and emerging research topics' within the TVET sphere. The greatest research interest addresses poverty reduction and improving living conditions through vocational training. The research questions considered in this section are RQ3.a, RQ22.a and RQ22.b. Each collection of insights is organised to address the research questions that could not be comprehensively answered by the

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1 Citation for this chapter: Haßler, Haseloff, et al. (2020). *Chapter 14. Insights Regarding Institutional Frameworks and Research Capacity.* In: Haßler, Haseloff, et al. (2020). *Technical and Vocational Educa- tion and Training in Sub-Saharan Africa: A Systematic Review of the Research Landscape.* VET Repository, Bundesinstitut für Berufsbildung, Bonn, Germany. https://doi.org/10.5281/zenodo.3843368

literature review alone. Those questions are presented at the beginning of each section for reference.

Research questions considered in this chapter

The research questions considered in this chapter are listed in the box below.

Research questions considered in this chapter
[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'?)
[RQ13.c] What institutionalised research capacities exist in TVET research in sub-Saharan Africa?
[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, specialist 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, specialist 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?
[RQ22.a] For which areas within the TVET system (in the countries/regions) is there an urgent need for research support?
[RQ22.b] Need for research: For which research questions is there still the greatest need for research (including RQs on the improvement of TVET)?

Conclusions of this chapter

There are many answers to the research questions regarding how institutional framework conditions can be influenced to increase research capacity and performance (Section 14.1.) (RQ13.c, d, e and RQ15). The responses suggest that the chief changes in framework conditions that are needed to increase research capacity are increased financial and material resources, clear leadership, foundational research and support, and greater skills training and professional development (Section 14.1.1.). Currently, there are insufficient funds for conducting research, for providing competitive salaries to highly skilled researchers, as well as for sharing research through avenues such as conferences (Section 14.1.1., 14.1.2.). Having more conferences, or other events and tools that facilitate networking and the sharing of ideas was also, in itself, a suggested way in which institutional frameworks could be improved to increase research capacity

and performance (Section 14.1.2.). Greater opportunities for networking also help serve the function of filling current skills gaps. Through networking, researchers may be able to request the expertise of regional and international researchers who may have the skills that might be lacking in their institution or research group (Section 14.1.2.).

Concerning the second topic addressed in this chapter – the research interests and motivations of participants and the current and emerging TVET research topics in the region, the responses were also diverse. The information provided by the U-publications enables us to identify some areas that need research support (to answer RQ22), and the areas of interest that participants described wanting support for (Section 14.2.). The greatest research interest addresses poverty reduction and improving living conditions through vocational training (Section 14.2.1.). Participants expressed interest in research exploring the integration of theoretical and practical elements of TVET, the dual training system, increased focus on the professionalisation of the workforce and professional development with respect to TVET, further collaboration between countries for the advancement of TVET and TVET beginning in primary and secondary schools (Section 14.2.1.). Greater access and equality within the TVET sphere, as well as the exploration of the relevance of TVET to everyday life were also expressed as research interests (Section 14.2.2.). They further noted that in order to stimulate greater interest in TVET, there is a need for greater funding, capacity building and networking (Section 14.2.2.). This was suggested alongside changing the perception of TVET as leading only to low-class occupations and as not being a university-level pursuit.

The research topics that they indicated as current and emerging (RQ3) related to, and went beyond, the research interests described above. Namely, they highlighted research into greater access and equality in TVET as an emerging topic, as well as links between theoretical and practical elements in TVET. Research topics confirmed by the Structured Community Review (SCR) in particular, are:

- **Perception of TVET.** The Participants stressed the need to change the narrative around TVET, presenting it in a different, more positive light (Section 14.2.2.).

- **Curriculum design.** There is a perceived need for more research to develop curriculum design. A simple transfer of TVET curriculum concepts working in other places is not seen as suitable for SSA (Section 14.2.2.).

- **TVET teacher education.** Teacher education and continuous professional development for lecturers are seen as important ongoing research topics. Moreover, the researchers want particularly to understand what encourages or leads teachers to choose working in TVET (Section 14.2.2.).

- **Employment and industry.** Increasing unemployment generally on the one hand and unemployability of TVET graduates on the other is a matter of great importance in most countries in SSA. In this regard, researchers see a need for research about the weak cooperation between industry and TVET institutions and the lack of workplace learning and internships (Section 14.2.2.).

- **Equality in and access to TVET.** Inequality, and disadvantages for women and vulnerable groups in TVET as a fact, has been acknowledged in the research.

Researchers call attention to the necessity of following up research and on implementing findings into practice (Section 14.2.2.).

- **Green TVET.** Vocational training as part of the education system has to deal with questions of sustainability and ethics. Researchers see their efforts in connection with the UNESCO/UNEVOC activities regarding the Sustainable Development Goals. The aspiration of many of them is to turn TVET into a development accelerator in this regard (Section 14.2.2.).
- **Policy.** Participants of the SCR recommend evidence-based TVET policy guidance, and research on policy implementation. Furthermore, they noted that monitoring and evaluation of TVET programmes with the aim of securing its adequate implementation, are urgently needed (Section 14.2.2.).
- **ICT.** Integrating ICT with TVET, specifically the implementation of e-learning in TVET and learner management systems, were cited as areas of particular research interest (Section 14.2.2.).

14.1. Insights into institutional frameworks and research capacity

In this first section, we explore the insights gained from participants on institutional frameworks and research capacity. Participants reflected on and responded to questions concerning the challenges affecting institutional performance in research, teaching and networking, amongst other areas. However, the responses did not stop at describing these challenges, but went further to suggest solutions to them.

14.1.1. Institutional frameworks and research capacity

This section considers RQ13.c, RQ13.d and RQ15a,b. When describing the institutional framework conditions of research development in SSA (RQ15) and institutional research capacities (RQ13), most of the comments made by our community of participants related to the challenges associated with insufficient institutional framework conditions and research capacities. Those challenges most frequently centred around the shortage of funding that could support the local knowledge production appropriately, in all of the participants' countries of origin. Participants reported that governments usually allocate some budget for research but that this budget is insufficient; research in TVET is generally seen as a neglected area. As a result, sub-Saharan African researchers rely heavily on international funding and cooperation to be able to carry out research projects or to broaden the scope or depth of their studies. However, the overall lack of funding affects the availability of appropriate equipment, researchers' salaries, conference attendance (knowledge and experience sharing), as well as the number and scope of studies that can be carried out.

Beyond funding limitations, a lack of clear leadership was another challenging condition raised with regard to institutional frameworks. Gabriel Konayuma of the Ministry of Higher Education in Zambia, for example, noted that what is holding TVET research back in Zambia is the lack of an agency or institution that clearly and authoritatively drives

the TVET research agenda. He emphasises, however, that this has its roots in the country's wider cultural context:

> *"People do not see the benefits of research. They do not really understand*
> *what the importance would be"* (Gabriel Konayuma, Ministry of Higher
> Education, Zambia).

A third point, with respect to institutional frameworks, was made by Doris Mtemang'ombe (Malawi Polytechnic, Malawi) when she highlighted the limited support available in identifying key research areas to develop in Malawi, and the lack of essential foundational research upon which more targeted studies can be built. She called for *"something [research] that will help us and from which we can build on"*. The need for updated labour market analysis, which could be used to better contextually review the curriculum at their institution, was cited as an example. Mtemang'ombe continued:

> *"What is happening in industry? What are the skills? What do we have? How*
> *are we going to build business-TVET partnerships without knowing this?"*
> (Doris Mtemang'ombe, Malawi Polytechnic, Malawi).

System-wide institutional framework conditions aside, interviewees also raised a number of points concerning institutionalised research capacities on the personal level. Importantly, the issue of funding—already noted in the discussion of institutional framework conditions—naturally affects researchers at the personal level. Researchers have limited access to funding, which curtailed the breadth and depth of research that they were able to pursue. Apart from funding though, participants also noted the lack of training and professional development opportunities available to them. This point was also raised in the literature that we found. ⬆Davis, et al. (2008), for example, speaking on agricultural education and training, found that current educational approaches in Mozambique do not adequately develop individual or organisational capabilities to innovate.

This has the effect of limiting the skillset researchers leave formal education with, and the skill sets that they are able to pass on to junior researchers. As another example, participants reported that in Madagascar, young TVET teachers are encouraged to further their education by obtaining a PhD, but do not have the opportunity to learn quantitative skills to work with large datasets. This means that the research produced tends to be descriptive — in the sense that it primarily recounts or summarises, e.g., features of the education system. Without access to data for deeper analysis or funding to undertake original research it is difficult to get the results published. Related to this is the need for support in writing research proposals for international funding applications. Therefore, while there is enormous pressure on researchers and young lecturers to obtain a further qualification (Masters/PhDs), across SSA there remains an issue of limited breadth in the degree courses available, especially in the area of quantitative research. Details of the qualifications of the participants in the SCR can be seen in Appendix 2, Section 3.2.1.

Despite limitations in the types of research published (descriptive versus more in-depth), and difficulties in obtaining further qualifications that provide students with a wide range of quantitative research skills, research still takes place and is published. Notably though, that research is executed mainly by universities across SSA, rather than by TVET colleges. This is most likely due to the fact that universities have comparatively better access to research skills and expertise, as well as to consulting opportunities. However, across the sector, even at better-resourced universities, institutional research capacity is reported as being small. In South Africa, for example, participants reported that one third of the country's 23 universities have a history of TVET research, and yet this is attributed to a small number of people specialised in the field. In other words, TVET research is carried out by interested individuals dedicated to TVET, with the relevant skill expertise, rather than by departments. Overall, the number of TVET experts in South Africa is limited: fewer than 20 individuals in South Africa, according to ⇡Papier (2017).

In summary, when considering the institutional framework conditions in TVET research that influence research performance, and thus answering RQ15, the participants in the interviews and the SCR noted that limited funding, a lack of clear leadership and insufficient foundational research and support were the key challenges. With respect to RQ13.c on institutional research capacity, funding was also understandably raised as a key issue, alongside limitations in the range of degree courses available to researchers. That may, in part, be the result of universities and TVET colleges having few experts who specialise in the field and who might be able to pass the necessary skills on. The institutional frameworks within which individuals and institutions operate do have room for improvement (RQ13.d), and that addressing the aforementioned challenges might potentially have a significant effect on the development of the TVET education system. Participants' suggestions on addressing these challenges is the focus of the following sub-section.

14.1.2. Improving research capacity and performance

Insights regarding research capacity were already discussed to some extent in the previous sub-section. Specifically, those insights were presented in terms of the associated challenges. This sub-section delves further into the community's insights on research capacity and performance, by exploring their views not only on what the existing challenges are, but on what could be done to address those challenges (RQ15.b).

The previous sub-section highlighted the fact that the availability of research funding was, in the view of participants, one of the main issues in SSA. It therefore should come as no surprise that the remedy presented for research development included the provision of the necessary financial and material resources. One might also recall that the SCR highlighted the limited breadth of research skills training to which postgraduate students, and consequently academics (or vice versa), had access, across SSA universities. Professional development in specific research tools and methodologies was consequently suggested as a way of filling those skills gaps. Junior lecturers need capacity building not only in research but in their speciality (i.e., in their technical subject) and in

pedagogical knowledge, too. Speaking on both the need for financial support and skills development, one of the SCR participants, Ewnetu Hailu Tamene (Jimma University), noted that in Ethiopia, junior researchers need support for carrying out data collection (accommodation, travel, research assistants, etc.), data management and analysis. Further, he also highlighted the lack of technical skills capacity to implement the findings of research that has already been done, limiting the impact of research on the continent.

Another issue in SSA regarding TVET research is that there are few incentives for highly skilled workers, including researchers, who may leave SSAAfrica for better salaries and jobs elsewhere. The limited ability to offer competitive salaries means that SSA also does not attract the skilled people needed from outside the region. It may therefore be the case that without adequate salaries, creating more highly skilled jobs will not solve the technical capacity problem. Increasing the technical capacity in the region can only be properly done through consideration of the broader economic context. Beyond the suggested need for greater financial support — if research capacity and performance challenges are to be addressed — there was an emphasis on having greater networking tools to connect researchers from different countries and institutions. A collaborative approach was seen as contributing to improved research outcomes; if the technical capacity cannot be sourced within Africa, cross-regional networks provide an avenue for accessing researchers with the requisite skills. The participants noted that researchers are keen to share experiences and best practices. The development of a platform where the relevant stakeholders could be contacted, interact, and get together was therefore suggested (see also Chapter 15).

14.2. Research interests and topics of the SCR participants

Having now discussed the institutional frameworks and research capacity regarding TVET in SSA, both in terms of the challenges facing institutions and their research, and the related solutions, this section deals with the research interests and motivations of participants, as well as current topics in their fields.

14.2.1. Insights regarding research interests

This sub-section details the research interests of the participants. Research interests were discussed in further detail during the focus group sessions of the SCR. The research interests expressed were fairly diverse. Participants were specifically asked, *"What are your research interests?"*, *"What types of projects motivate you?"*, and *"What research components would such a project have?"*

Research interests

Participants outlined a number of research interests concerning TVET in SSA. Chief amongst these was the pursuit of research into poverty reduction and the betterment of workers through TVET. Philipa Idogho, for example explained that,

> *"What excites me most as a TVET researcher is to see people who are useful to themselves through skills acquisition, and I am more interested in taking part in research that will create employment, especially to the teaming youth. I like to be helpful to society. This is what motivates me"* (Philipa Idogho, University of Abuja, Abuja, Nigeria).

A couple of participants both mentioned two other research interests. The first of these was an exploration of the professionalisation of the workforce and professional development. The second was the synthesis of TVET theory and practice – an interest that partially relates to a comment by Peter Changilwa about his interest in how TVET impacts people's everyday lives. He explained,

> *"Researching about those who make the very basic yet necessary 'tools' of life as opposed to philosophical theories is perhaps one of my motivations. TVET research is by default action research, and providing practical solutions to issues affecting the underprivileged who find their hope in TVET is a worthwhile engagement to me"* (Peter Changilwa, United States International University, Kenya).

Finally, mention was also made of interests in instructional leadership, and which factors attract students and their families to TVET. Succinctly, Amina Idris commented, in focus group 2, that,

> *"Areas of research that could solve societal challenges can be of interest, [the] results of which will bring about massive amounts of skills training for young people; curb the growing security threat; industrialisation of communities will go a long way to addressing youth restiveness; address the challenges of out of school children; improve female participation; standardise the informal sector"* (Amina Idris, National Board for Technical Education, Nigeria).

Research motivation

The types of projects that motivated the participants were also discussed. Specifically, we asked about what might persuade participants to join a TVET project, and what new project or initiative might attract TVET researchers from across SSA, themselves included. There was, unsurprisingly, some overlap between their motivations and research interests, and what they regarded as compelling projects. Vusi Maseko noted, for example, that,

> *"I would design a lecturer capacity-building project to ensure that lecturers are up-to-date with theory and [also] practical"* (Vusi Maseko, South West Gauteng TVET College, South Africa).

This relates to the interests in professional development and the synthesis of theoretical and practical elements of TVET, described above. The professionalisation of TVET, involving reviewing curricula and raising awareness amongst teachers, was also suggested. Finally, participants also suggested projects relating to the design of a dual

TVET system, collaboration between schools and companies, and comparisons of TVET systems between countries.

We also asked participants about the components that would be involved in the motivational research projects described above. This additional probing prompted further responses on what a motivational TVET project might entail. Notably, participants highlighted their desire for the training of community health workers or service providers on the use of information and communication technologies, as well as for research project components on how to introduce TVET in primary and secondary schools to help raise standards in African countries relative to the rest of the world, including the professionalisation of TVET:

> *"Professionalisation of training [...] includes many other aspects, such as reviewing curricula, training teachers to be aware of the new system and looking for collaboration between schools and companies"* (Deodonne Kunfuniwe, Inspectorate of Pedagogy for Industrial Education (IPIE), Ministry of Secondary Education, Cameroon).

The participants discussed not only what research projects motivate them, but also what might motivate other researchers to conduct TVET research themselves. Amongst the suggestions were: having greater financial rewards for conducting such research, creating more networking opportunities, and raising awareness of the need for research. The following discussion on the issue took place during the June 2019 focus group 2 sessions:

> **Vusi Maseko.** *There is an urgent need to create awareness that TVET research, especially by people in TVET, is necessary. They must be involved in research opportunities. Also, conferences targeting TVETs can get such colleagues to reach out and participate. Even what is currently going on is a positive move in the right direction.*

> **Facilitator**. *Please expand. There are three points (or, what did we get wrong?):*

> 1. *Awareness raising — there is an urgent need to create awareness that TVET research, especially by people in TVET, is necessary.*
> 2. *Conferences — as a way of engaging colleagues.*
> 3. *The current activities are a step in the right direction — how could it be made even better?*

> **Vusi Maseko (answering the first point).** *Many colleagues are not aware that they can contribute constructively to TVET research. They have the correct credentials and experience necessary but this wealth of knowledge is never tapped in their everyday work. We can change this sad state of affairs.*

> **Facilitator.** *How do we change it?*

> **Vusi Maseko (answering the second point).** *Some may be assisted to reach out and contribute by organising conferences that are TVET specific where they can showcase what they are doing ... let the world see their solutions to problems. There is so much going on in TVET that the outside world does not see.*

Participants also gave their opinions on what discourages or demotivates participation in TVET. In particular, they said that the perception of TVET as leading to lower-class occupations, alongside it not being associated with university-level qualifications, is discouraging. Inadequate research tools and facilities to conduct TVET research was suggested as a demotivating factor, as exemplified by the following focus group 2 discussion. Here, Amina Idris answers the facilitator's question (*"What do we need to do to empower people active in TVET already to become more experienced researchers?"*):

> **Amina Idris.** *To empower people that are active on TVET is very subjective. It depends on the motivational pattern of the TVET researcher. However, the major factor that discourages a TVET researcher is inadequate research tools or facilities. Once this is solved, there's hope that the concerned research fellow will be ok.*

> **Facilitator.** *When you say 'research tools'—what do you mean?*

> **Amina Idris.** *Tools such as equipment, records, reference materials, even finances to obtain items needed to ensure the genuineness of the research outcomes.*

14.2.2. Insights regarding current and emerging research topics

The SCR participants also remarked on a number of research topics relating to TVET in SSA that they regarded as current and emergent. One might recall that this topic has already been addressed in Chapter 6, where the focus was on what the literature review revealed the current and emergent topics to be. Here, we present the expert participants' perspectives (RQ3.a).

Research themes mentioned both as current and emerging themes were as follows:

- Perception of TVET
- Curriculum, NQF and skills development
- Teacher education
- Employment and industry
- Women in TVET
- Green TVET
- TVET funding
- Equality and access
- Policy
- ICT

Perception of TVET

The need to change the image of TVET is a topic that was frequently discussed in the literature (Section 7.3.3.) and it was also indicated by participants as a current and an emerging research topic. Participants stressed the need to change the narrative around TVET, presenting it in a different, more positive light. A better understanding of the perceptions of this level and field of education, and how these perceptions can be changed to increase the reputation of TVET, is therefore required. As it is, TVET is not seen

as an attractive qualification or career option. It therefore seems to be a reasonable assumption that an improved perception of TVET is an important condition for expanding TVET in some countries. Expanding TVET is important, for instance in Madagascar, where there is a need for a greater number of technicians and the strengthening of the technical capacity of graduates.

Curriculum, NQF and skills development

Topics concerning curriculum design and development, as well as the National Qualifications Framework, and, more specifically, skills development and transfer, were also mentioned by participants quite frequently. Changes in the curriculum were intended to include practical lessons to a greater extent, since TVET is generally perceived as being too theoretical, leading graduates to have trouble finding employment once they are out in the field. That this is a current research topic ties in seamlessly with the finding in the previous section that more solidly integrating practical and theoretical elements of TVET is both a research interest and motivation. The content provided in the curriculum is also reported as not relating properly to the needs of the companies.

Currently, the focus of this interest in the curriculum as an emerging research topic is specifically on curriculum design and implementation. The questions in this regard include what should be taught, in what measure, in what way, and using what kind of pedagogy. The perceived need for more research to support curriculum design relates to the more prominent advocating, recently, of an evidence-based approach. This is particularly necessary as there is an acknowledgement that the *"importation"* of what is working in other places is not seen as suitable for SSA; there needs to be an adjustment to SSA country realities for new curriculum design to be effective; the need to adapt the curriculum to the needs of industry is particularly highlighted in the work of Euler and Marin (⬆Euler, 2013; ⬆Mahrin, 2013).

The NQF is regarded as necessary in order to provide TVET graduates with opportunities for progression up to the highest level of education. Without an official qualifications framework, there is less chance of structured progression in TVET. The need for skills transfer and capacity building were usually mentioned in relation to hopes for countries' economic development. For example, Kipkirui Langat (Director General TVET Authority) reports that in Kenya, the aim for the next couple of decades is to have more and better infrastructure. However, companies state that they do not have the skills to support this development. Hence, the government is currently looking at supporting projects that include skills transfer.

14.2.3. TVET teacher education

Teacher education was also highlighted as a current research topic. The aspects of teacher education that are currently being studied in SSA include: what encourages or leads teachers to choose to work in TVET; teacher progression; and continuous professional development for lecturers. How to enhance TVET teaching and improve educators' competencies, including online teacher development, are also focal points of current research. Joy Papier (University of Western Cape, South Africa) states that

the last 10 years have *"opened a bag of worms"* (regarding TVET) because one cannot improve teaching and learning if teachers' education is not improved (⌑Papier, 2017). Hence, questions such as, 'How do teachers achieve subject expertise, gain experience in the workplace and become a teacher trainer?' are key areas of emerging investigation. She adds that some universities in South Africa have only just started offering an initial qualification for TVET college lecturers, and attention is being given to determining the kind of professional development programmes needed by TVET teachers. The University of Western Cape, for example, is offering an in-service qualification which is a post-graduate certificate. In another example, in Cameroon, colleges are at times unable to find people with the right skills to teach, and so improving the adequacy of teachers' qualifications and the quality of practical skills teaching is becoming a priority in the country. There is also a concern about how to regularly update trainers' competence, particularly considering the increasing need to re-tool TVET trainers for 21st-century workforce requirements. In this context, the attitudes of trainers and self-learners is emerging as a topic of investigation. The professional development of informal apprenticeship instructors also plays a role in countries where the informal TVET sector is strong.

14.2.4. Employment and industry

Increasing employability and economic development is a matter of great importance in most countries in SSA, and it therefore makes sense that this is an emergent and current research topic within the TVET sphere. Relatedly, employment, entrepreneurship, and the relevance of TVET content and methods to fulfill the needs of local people and industry, are other areas to which research efforts have been applied. There was a consensual yearning among the participants for a shift away from a supply-driven TVET to a demand-driven TVET.

Weak linkages between industry and TVET institutions have been commanding attention recently across SSA, and solutions that include the great number of small- and medium-sized enterprises are being investigated. Certain industrial sectors present better links with education providers than others. At her institute in Madagascar, according to Lova Zakariasy (Higher Institute of Technology of Antsiranana), civil engineering, naval engineering, energy and water system maintenance, finance, banking and insurance all have a good match with the labour market. However, for ICT this is not the case: while graduates find jobs easily, it tends to be in unrelated professions (such as sales). Similarly, there is a poor match between industry and TVET institutions in the fields of business management and tourism. Zakariasy informed us that the tourism industry in Madagascar needs more workers from secondary schools (e.g., as room servicers, cooks, servers), while the TVET programmes in this area focus on management (e.g., housekeeping, stewards, maîtres d'hôtel).

There was a consensus among participants regarding the emerging topics relating to employability. Cited by most was the necessity of carrying out market research, as well as creating regional and subregional occupational maps, with the aim of promoting demand-driven TVET. This is connected to a wish to improve the links between education providers, the TVET curriculum, and companies, to better address unemployment

issues and the lack of practical experience during TVET programmes. In this sense, developing entrepreneurship was also mentioned as a field of study that has been coming to the fore in recent years. However, Francis Teal (Centre for the Study of African Economies, University of Oxford and IZA, UK) is sceptical of this as he stresses that

> *"one of the problems in SSA is that you actually have too many entrepreneurs because the jobs aren't there. Why teach entrepreneurship? This is not going to provide people with a reasonable income in a saturated market".*

14.2.5. Equal access to TVET

Inequality in TVET has, up to now, been under-researched. Nevertheless, it is important to consider existing research and turn actionable findings into practice.

The need to promote the involvement of girls in TVET is now acknowledged in most countries, as girls and women are under-represented in that sphere. Doris Mtemang'ombe (Malawi Polytechnic) points out, however, that the work being done on this should not only be centred on girl students. She stresses the need to involve parents in the discussion as they have a strong influence on what their dependants are going to do in their career progression:

> *"We need to know what challenges children face to choose their career. This also interferes with the number of girls in TVET. We will need strategies to support them in their career choices."*

Notably, girls are not the only group mentioned by participants that is under-represented and vulnerable in the TVET sphere, and on which an increasing amount of research is being conducted. Benadeth Ezekoye (Okpara University of Agriculture, Nigeria) informed us that TVET programmes for immigrants is a new area of research in Nigeria, where a country-wide study is being carried out.

14.2.6. Green TVET

As highlighted in the introduction to this section, green TVET is also an emerging topic. As environmental issues are brought into the mainstream, education for sustainable development, along with the term, *'greening'* TVET, is becoming a more noticeable research interest. This topic was raised particularly in connection with UNESCO/UNEVOC activities that consider it a high-priority area (⇕UNESCO-UNEVOC, 2006). TVET as part of the education system has to deal with questions of sustainability and ethics. TVET research should therefore be encouraged in this regard. The aspiration of many researchers is to turn green TVET into a development accelerator. The literature review found one conference paper from 2012 that presented a project of sustainable green energy production from agricultural and poultry operations in remote villages in South Africa (⇕South Africa: Nigeria, Niger: South Africa: Ushimaru, 2012). Another publication, by ⇕Marope, et al. (2015) also discussed the topic in the context of *"Policies and policy measures to enhance the sustainability of development"* (p. 85).

14.2.7. Policy

Emmanuel Osinem (University of Nigeria) advocates the analysis and revision of education policies, creating clear and strong guidelines for promoting such practices in SSA. Undoubtedly, research on policies is a requirement in many countries. Based on the literature review and internet search developed in Phase 1 of this study, we concluded that evidence of the impact of policies, regulations or strategies was sparse (Chapter 6). Participants reported the lack of evidence-based policy guidance and research on policy implementation. Furthermore, they noted that monitoring and evaluating with the aim of securing adequate implementation, are urgently needed. As put by Peliwe Lolwana (University of Witwatersrand, South Africa):

> *"We do not know much about policies on TVET. The employment situation is working? We do not know much about our institutions. How are they working? How can we make them better? What interventions are needed? General capacity strengthening is needed. We need research on African systems and how they are being carried out."*

Relatedly, Kipkirui Langat (Director General, TVET Authority, Kenya) expressed the desire to develop a research policy on TVET. The Authority's priority is running a TVET system that is evidence-based so that the investment it makes has a lasting impact:

> *"Once the research policy is in place, we can decide what will be prioritised and what resources we have. We can only do research according to the resources we have."*

He explains that awareness of other government initiatives is required when planning for training and skills development, so that they can harmonise, for example, the foreign investment being made with TVET provision needs. On the other hand, Neil Butcher (Neil Butcher & Associates, South Africa), upon analysing where the trends are and how TVET systems can be more responsive, stresses that research needs to evolve. Africa has many young people, and social research should focus on what opportunities are available as a means of developing young entrepreneurs and helping them succeed.

14.2.8. ICT

As technological development accelerates, many of the participants recognise that ICT is an emerging subject that is increasingly requires further research to focus on it. Integrating ICT with TVET, specifically the implementation of e-learning in TVET and TVET data and learner management systems, were cited as areas of particular interest. Lova Zakariasy (Higher Institute of Technology of Antsiranana, Madagascar) also pointed out that even when TVET providers have sophisticated equipment, it is not used efficiently or optimally by students. The same occurs with digital education and ICT devices in schools. She is therefore interested in obtaining knowledge on how to make the best use of equipment as didactical tools.

14.3. Chapter bibliography

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

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