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Research Report

Skills for green and just transitions: Reflecting on the role of vocational education and training for sustainable development

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30 BRIEFING PAPER



**Skills for Green and Just Transitions.
Reflecting on the role of Vocational Education
and Training for Sustainable Development.**

Margarita Langthaler, Simon McGrath, Presha Ramsarup

Vienna, February 2021

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Contents

Index of Figures & Tables.....	3
List of Abbreviations	3
Abstract	4
1. Introduction.....	5
2. The conceptual level	5
2.1. The debates on green economy and green skills	5
2.2. The need to go beyond the VET orthodoxy	8
2.3. The way forward: Suggestions for alternative approaches to sustainability, skills and VET.....	11
2.3.1. Reflecting on approaches to education and ideas about learning	11
2.3.2. Greening institutions.....	12
2.3.3. Reorienting the VET system	13
3. The policy level.....	13
3.1. Donor approaches	14
3.2. Green Skills – everywhere but no-where: understanding how skills systems respond to the green economy: The example of South Africa.....	17
4. Conclusions.....	19
References	21
Authors	24

Index of Figures & Tables

Figure 1:	Overview of Green Skills Demand Study Methodology	8
Figure 2:	Change oriented, transformative, transgressive learning	11
Figure 3:	Greening VET institutions	12
Figure 4:	Step-by-Step Guide to implement ESD in VET institutions.....	15
Figure 5:	Policies related to the green economy in South Africa	18
Table 1:	Four discourses of the Green Economy (Death 2014)	7
Table 2:	Discourses related to the Green Economy (Faccer et al. 2014).....	7

List of Abbreviations

ADB	Asian Development Bank's
AfDB	African Development Bank
CEDEFOP	Centre Européen pour le Développement de la Formation Professionnelle (European Centre for the Development of Vocational Training)
EC	European Commission
EEA	European Environment Agency
ESD	Education for Sustainable Development
GDP	Gross Domestic Product
ILO	International Labour Organization
R&D	Research and Development
SDGs	Sustainable Development Goals
TVET	Technical and Vocational Education and Training
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO-UNEVOC	United Nations Educational, Scientific and Cultural Organization – International Centre for Technical and Vocational Education and Training
VET	Vocational Education and Training

Abstract

The human capability to learn is widely regarded as one of the most important resources for achieving an environmentally and socially sustainable and equitable society. Yet, traditional institutions of learning are lagging behind in transmitting such kind of transformative skills. As for Vocational Education and Training (VET), there is still little debate on what the systemic changes of a transition to a greener economy will mean beyond the provision of specific technical skills.

In this Briefing Paper, we aim at providing a critical overview of existing debates on skills for just transitions to a greener economy. In the first section, we will initially discuss the main notions of the green economies and skills discourses. Subsequently, the orthodox approach to VET will be critically analysed and we will outline suggestions for alternative approaches to sustainability and VET. In the second section, we will have a look at the policy level in summarising donor approaches and in giving a brief account of South Africa's experience investigating the responsiveness of the skills system to the green economy. Conclusions will sum up.

Keywords: Green economy, green skills, vocational education and training, just transitions, transformative learning

1. Introduction

The COVID 19 pandemic is giving us a window into the types of problems we will face as the environmental crisis takes hold. It has enabled an insight into some of the critical fault lines in our economies and societies and made us face the reality of chaos and immense suffering in our unequal society.

The pandemic has forced the recognition that environmental justice and social justice are intersecting struggles, and environmental issues have a direct impact on both economic growth and social wellbeing. Thus, making it clear unless we act fast and decisively environmental issues will exacerbate inequality, poverty and unemployment.

The context of this Briefing Paper thus explores what a transition to a greener economy will mean, what types of substantive, transformative and systemic change is needed and what implications it will have for vocational educational and training (VET).

The human capability to learn is today widely regarded as one of the most important resources for achieving an environmentally and socially sustainable and equitable society. Yet, traditional institutions of learning are lagging behind in transmitting such kind of transformative skills. As for VET, predominant conceptions are still very much tied to environmentally and socially unsustainable models of work and growth. There is still little debate on what the systemic changes of a transition to a greener economy will mean for VET beyond the provision of specific technical skills.

In this Briefing Paper, we aim at providing a critical overview of existing debates on skills for just transitions to a greener economy. In the first section, we will examine the conceptual level. Initially, we will discuss the main notions of the green economies and skills discourses that support the transition to a greener economy. Subsequently, the orthodox approach to VET will be critically analysed. In drawing on both expositions, we will outline suggestions for alternative approaches to sustainability and VET. In the second section, we will have a look at the policy level in summarising donor approaches and in giving a brief account of South Africa's experience investigating the responsiveness of the skills system to the green economy. Conclusions will sum up.

2. The conceptual level

2.1. The debates on green economy and green skills

Although the green jobs movement can be traced back to the 1970s, and its socio-political roots have been traced to various environmental, social, economic, and political goals, there has been a renewed impetus for its support since the financial crisis of 2008. The core idea has been that environmental sustainability can be a driver of economic growth. While there is no agreed definition of green jobs, the International Labour Organization (ILO) describes a Green Job as one that simply “reduces the environmental impact of enterprises and economic sectors, ultimately to levels that are (ecologically) sustainable (UNEP 2008: 5). This definition has always drawn critique as it centres on a notion of sustainability that is driven by corporate and political interests to really foster the sustainable economic growth of capitalism.

The all-pervading UNEP definition defines green jobs as work in agricultural, manufacturing, research and development (R&D), administrative, and service activities that contribute substantially to preserving or restoring environmental quality. Specifically, but non-exclusively, this includes jobs that help to protect ecosystems and biodiversity; reduce energy, material and water consumption through high-efficiency strategies; de-carbonise the economy and

minimise or altogether avoid the generation of all forms of waste and pollution (UNEP 2008: 36-36). This definition in a similar vein is critiqued by Gibbs and O'Neill (2014), who have argued that it perpetuates a business as usual, neoliberal economics, growth and reliance on technology, rather than promoting a real paradigm shift that focuses on holistic integration of social and environmental sustainability. They further argued that although this 'current greening' approach to growth and economics is green tinged, without constraints on consumption and demand we shall remain trapped in consumptive economies.

Central to the notion of transitioning to a greener economy is the notion of sustainability transitions. The persistent climate, financial, economic, political, problems our world is experiencing are often argued to be due to system failure (societal systems that are no longer working optimally). These problems differ in scale and complexity from the environmental problems in the 1970s and 1980s; hence they require much more than a simple response, like cleaner technologies or waste minimisation. The changes needed to address these contemporary challenges require substantive system breaks or system shifts; hence what is required are transitions in markets, transitions in user practices, transitions in policy and cultural meanings. Sustainability transitions thus provide insight into the dynamics at play within these complex societal systems and innovation processes as they move towards greater levels of sustainability. In general, a transition is a process of change from one state to another. Rothmans, Kemp and van Asselt defined 'transitions' as "transformation processes in which society changes in a fundamental way over a generation or more ... gradual continuous process change where the structural character of a society (or a complex sub-system or society) transforms" (Rothmans/Kemp/van Asselt 2001: 15-16). In 2016, the European Environment Agency (EEA) argued that to transform societal systems like food, energy, mobility and built environment will need "long-term multi-dimensional broad fundamental processes of change, based on profound changes in dominant practices, policies and thinking" (EEA 2016: 11).

Clarifying what a transition to a greener economy will involve has been surrounded by ambiguity and remains a contested terrain. The Green Economy has largely been a descriptive and normative discourse used by policy analysts and often as an empty signifier when agencies like CEDEFOP (Centre Européen pour le Développement de la Formation Professionnelle – European Centre for the Development of Vocational Training) argue that "green skills are becoming a part of almost every job" (CEDEFOP 2019) or agencies state that 'all jobs are green jobs'. However, here we draw on Ferguson (2015), Death (2014) and Faccar et al (2014), who provide some typologies that enable us to delve into more critical engagement with these discourses and give the discourse more discursive traction. Table 1 and 2 provide a comparison of two studies, which present framings of discourses on the green economy.

Ferguson's (2015) study encompasses three forms of green economy discourse: weak green economy, transformational green economy, and strong green economy. Weak green economy discourses have a macroeconomic trajectory of green growth and encompass unmodified Gross Domestic Product (GDP) as an indicator. Transformational green economy discourses reflect elements of selective growth often encompassing green consumerism and modified GDP as an indicator. However, both these categories still utilise GDP as a signifier of socio-economic development. Strong green economy discourses embody post growth or limits to growth as central to their macroeconomic trajectory and encompasses measures of welfare as a critical indicator. A significant rearticulatory move thus in Fergusons argument is to attach notions of well-being to economic security rather than to economic growth. His argument enables a continuum so that "transformative articulations of green economy provide the basis for a shift from the currently dominant weak green economy to a future strong green economy" (ibid: 27).

Table 1: Four discourses of the Green Economy (Death 2014)

<i>Green Revolution</i> : radical, revolutionary transformation on economic (and hence social and political) relationships to bring them in line with natural limits and ecological virtues.
<i>Green Transformation</i> : explicit focus on social justice, equity and redistribution (including intergenerationally) where economic growth is a means rather than an end.
<i>Green Growth</i> : green markets provide economic opportunities representing a recasting of the relationship between environment and economics with an emphasis on new markets, new services and new forms of consumption.
<i>Green Resilience</i> : essentially reactionary and cautious with an emphasis on environmental scarcity, climate change and resource depletion and the need to implement technological solutions to build local self-sufficiency / resilience.

Source: Mohamed/Ramsarup, 2020: 21

Table 2: Discourses related to the Green Economy (Faccar et al. 2014)

<i>Transformative Discourse</i> : incorporates critical perspectives calling for a more radical review of society's economic and broader developmental objectives.
<i>Reformist Discourse</i> : diverse agendas for a green economy, with an emphasis on the right combination of actions and long-term planning to achieve environmental benefits as well as stronger economic growth.
<i>Incrementalist Discourse</i> : defined by a broad acceptance of the prevailing macro-economic paradigm and a focus on greater use of market-based tools to drive a green economy transition.

Source: Mohamed/Ramsarup 2020: 21

Further conceptual challenges, that hinder the green transition is that 'Green' is notoriously fuzzy. It is used in normative ways that make it very difficult to define its meaning, it is treated as a homogenous construct without clear differentiation, it remains a socially constructed concept, intangible and often unobservable as it remains a latent demand (Ramsarup 2020).

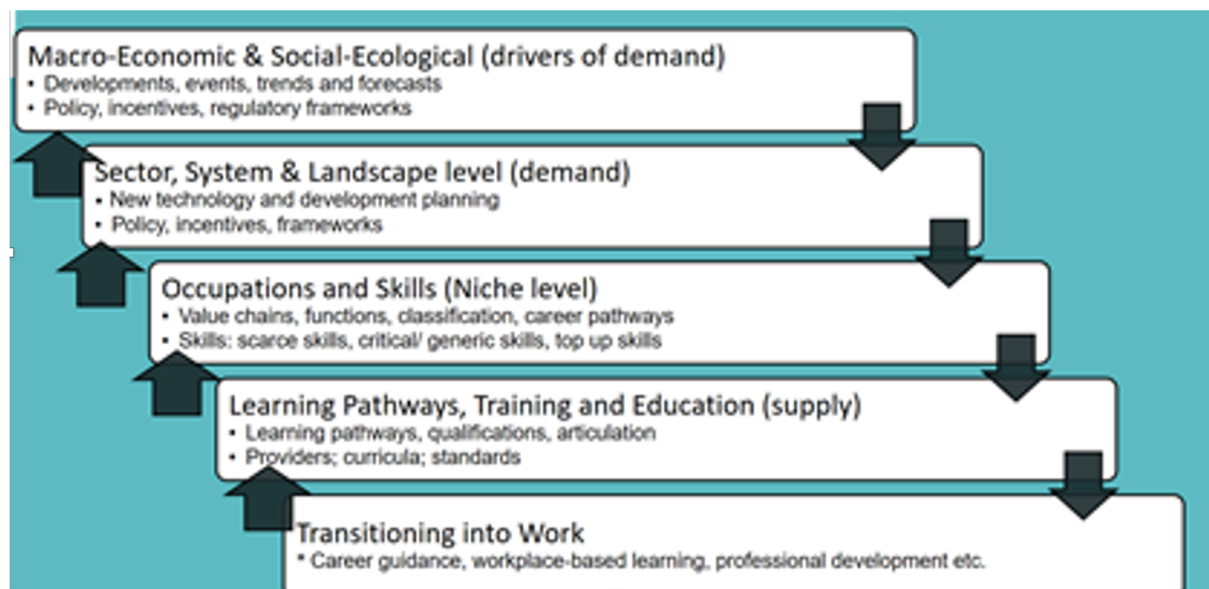
This has hence precipitated various iterations of the relationships between green jobs and green skills. CEDEFOP defines green skills as 'the knowledge, abilities, values and attitudes needed to live in, develop and support a society which reduces the impact of human activity on the environment'" (CEDEFOP 2012: 20). More generally, since the transition towards a sustainable economy is increasingly pervasive and horizontal across economic activities, green skills can be defined as the skills needed by the workforce, in all sectors and at all levels, in order to help the adaptation of the products, services and processes to the changes due to climate change and to environmental requirements and regulations (OECD 2014: 16).

Green skills and green jobs are often conflated; but the actual meaning of both green skills and green jobs is not fixed and varies across contexts, jurisdictions and organisations. The distinction between jobs and skills is important because the labour market dynamics of "greening" the economy are, and will be, complex into the future (OECD 2014). Green skill analysis offers a disaggregated level to examine and unpick these dynamics of where and how economies can be shifted.

Supporting green skills development is integral in the transition to a green economy. To understand the skills and capabilities needed to support the transition to a greener economy, we need to understand the necessary changes at multiple analytic levels, which are

constellationally related to all the other levels in the transitioning system (Rosenberg et al. 2020). Drawing on experience in South Africa, the figure below illustrates the multiple levels required, to surface and identify green skills, as their demand is latent. The figure further shows that to conceptually understand the greening of work and green skills needed (because they are future focused, latent and not clearly known), you have to study the interplay at different analytical levels as reflected in the figure below.

Figure 1: Overview of Green Skills Demand Study Methodology



Source: Rosenberg 2020: 35

This conceptual background attempts to provide a foundation for how we consider skills to transition to a greener economy and society. It is important that we frame our green skills agenda as a continuum, from simple approaches that focus on counting present day green jobs, to activity focused on eradicating a dependence on fossil fuels, to more circular economies and to transform our economy from inequality towards racial, gender, and class equality. We need to understand that the skills to transition is a slow, long term endeavour, that requires multilevel engagement with hidden structures and mechanisms, including history and power relations present, as often socio-economic lock-ins have deep historical roots.

2.2. The need to go beyond the VET orthodoxy

Faced with the scale and immediacy of the climate emergency, there is a need for a radical reimagining of approaches to VET. This is well-captured by UNESCO (United Nations Educational, Scientific and Cultural Organization), in its summary of the deliberations at the Third World Conference on TVET (Technical and Vocational Education and Training), with its call for a double transformation, although the environmental dimension is only a part of this (UNESCO 2012). Such a double transformation, firstly, seeks to move VET practices towards a more inclusive, democratic, socially and environmentally just educational practice and, secondly makes it fit to contribute to a wider process of building sustainable futures (ibid.). In particular, UNESCO has prioritised seeking to change public VET so that it is more inclusive of women, disadvantaged youths, migrants/refugees and people living with disabilities, in order to make VET more just in terms of access. Then it has sought to make VET institutions more green, both in how they operate and in their focus on the skills and occupations they seek to develop.

This UNESCO vision anticipated that the Sustainable Development Goals (SDGs) would provide reinforcement of this argument. However, whilst the overall language and philosophy of the SDGs does offer a vision for the way that VET could be reconceptualised, the most directly relevant SDGs (4 – Education and 8 – Employment) are not so helpful. SDG 4.3 focuses on access to skills and 4.4. is about “relevant skills” couched in terms of employability and entrepreneurship. The sub-goals under SDG 8 stress the need for sustained growth above 7 % in less developed economies (8.1); accelerated productivity (8.2); and the formalisation of the informal economy (8.3)¹. McGrath (2020: 2) argues that this “is consistent with previous visions of development that were sustainability-free”.

The SDG approach to VET runs the risk of reinforcing existing approaches to VET that not only have largely failed in terms of their own objectives but have also been complicit in unsustainable production. The VET orthodoxy sees people as individuals who are competing for employment and income through their investments in their human capital rather than full human beings who also exist in relation to others and to their environment. Moreover, the model simply has not worked. Large numbers of VET graduates around the globe are not getting the jobs and incomes that are supposed to flow from their studies. Productivity, employment and enterprise development are not flourishing as expected. This owes much to the failure to accept that the contribution that VET can make to economic success is always limited and contingent on enabling environments. In reflecting on SDG 4, Allais and Wedekind (2020: 324) note:

Governments in wealthy liberal market economies have been trying to ‘fix’ TVET for decades, without paying attention to the structure of the labour market, the way in which demand for skills is articulated, and the role that workplaces need to play in supporting the development of skills. ... [In Africa] Stagnant economies and deindustrialisation, with some exceptions, make it increasingly difficult to build TVET systems.

This is all even before the question of sustainability is addressed. Much of the VET being supported by government and donors is still related to extractive industries and practices that are accelerating the climate emergency.

From this perspective, VET needs to be engaging with questions outlined above regarding the complex nature of greening. VET responses that help current and future workers reduce waste and pollution; or which train workers to add new skills, for instance in servicing hybrid vehicles are of course “green” steps though they do little to transform work and will not be sufficient to tackle climate change and the environmental crisis. More radically, what is needed is the double transformation in which VET becomes fundamentally more democratic, just and sustainable *and* supports the fundamental changes imagined in the stronger green accounts above.

At the heart of the VET challenge is how it understands the work and the world-of-work for which it imagines it is preparing its learners. Formal VET often started in mining, and moved quickly to metals and motors. This unsustainable underpinning is still at the centre of formal, public VET over 100 years later. Alongside this is a notion of the “real” work that VET prepares for that is still highly stratified in terms of race, gender and class. And a notion of work as formal sector, full-time, remunerated that has always been a minority experience in the South and which is increasingly so too in the North with the rise of precarity. Lurking underneath the VET orthodoxy too is a notion from classical economics that work is not valuable in itself but is only useful as a means to income generation.

However, there is a long counter-tradition of seeing work more expansively that VET needs to draw upon if it is to be transformative and sustainable. In critiquing Adam Smith (1776), often

¹ See <https://sdgs.un.org/goals>

named as the “father” of Economics, we will draw on one of his significant successors, a Nobel Laureate in Economics. Amartya Sen (1975) argues that work has three aspects:

- the production aspect (the outputs of things that are needed),
- the recognition aspect (the self-identity, self-worth, and meaning that comes from being engaged in something worthwhile), and
- the income aspect (the livelihoods earned).

Not all work provides all three aspects to individuals. For instance, discrimination on grounds of race, gender or other factors (often working together) mean that many experience the labour market as precarious, indecent and abusive. This points us both towards the major challenge of making workplaces just and to thinking more about how work’s potential to fulfil wider human needs can be maximised. Whilst productivity, employability and entrepreneurship may be good, a transformative vision of VET also needs to consider how it supports people towards what they want to become, including how this relates to belonging to and being recognised as members of their communities (DeJaeghere 2017, 2019; Bonvin 2019).

Recent research in Africa (DeJaeghere 2017; Powell/McGrath 2018, 2019) shows that many young are engaged in activities that they and others consider valuable but which are not formally defined and remunerated as work. This reality leads Moodie, Wheelahan and Lavigne (2019: 23) to argue that work should be defined “broadly to be an activity which seeks to sustain an individual or society”.

Many people globally are not in formal employment. Even before we turn to the jobs of the future, we need to better understand the work of today. This includes both a consideration of sustainable livelihoods and informal work. The notion of sustainable livelihoods emerged from the rural development research community (Chambers/Conway 1992; Carney 1998; Scoones 1998). Scoones argues that sustainability here needs to be thought of in terms of increasing the resilience of individuals, households and communities; and strengthening their natural resource base. ‘Livelihoods’ are seen as including wage employment and subsistence activities.

It is also important to revisit older debates about education and training for the informal sector (cf. McGrath et al. 1995). Kraemer-Mbula and Monaco (2020) highlight the need to understand the complexities of what constitutes informal work and the informal sector. Recent research on skills for the informal sector (DeJaeghere 2017; Powell 2019) stresses the need to distinguish between different types of informal work and groups of informal workers, and to think of skills interventions targeted to their different existing resources and current needs.

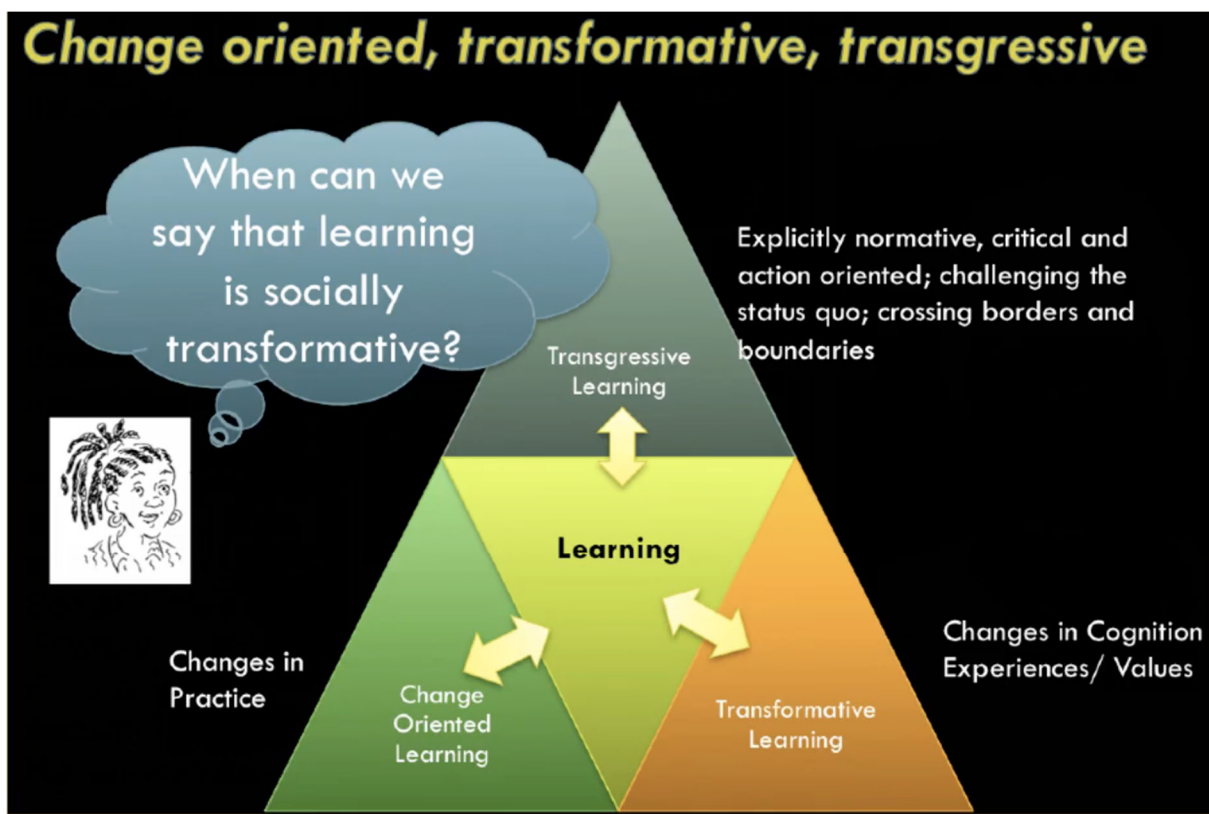
There continues to be a policy and programme fascination with transitions from school to work. However, these literatures help remind us that single, simple transitions are rare. Work happens before, during and after periods of formal learning; and informal and non-formal learning complicate the story further. Some work is aspired to; other forms are simply a means to an end. Some work doesn’t satisfy, for various reasons, and many, especially women, move in and out of work (and formal learning) because of live circumstances, caring responsibilities and societal expectations. There is often choice in these moves, but also frequently the heavy weight of necessity. If VET is to contribute to the more transformative versions of the sustainability debate, and to meet UNESCO’s vision, it needs to be grounded in these complexities.

2.3. The way forward: Suggestions for alternative approaches to sustainability, skills and VET

2.3.1. Reflecting on approaches to education and ideas about learning

In these contexts of risk, VET needs new ways to think about learning. It requires a view of learning that is radical and disruptive, and that moves beyond social reproduction of the status quo. Lotz-Sisitka (2017) explains that in the contexts within which we live, education cannot be reproductive of the status quo, it must become transformative. Her figure below illustrates some of the types of learning required to enable sustainability transitions.

Figure 2: Change oriented, transformative, transgressive learning



Source: Lotz-Sisitka 2017

Bengtsson (2019) argues that transformative learning focuses on the role of critical cognitive reflection and self-reflection as means of transformations of perspectives. Transformation in this sense relates to the transformation of already existent perspectives in reasoning. Transgression seeks to provide an alternative entry point, as its primary focus is on initially breaking with that which is to be retained, as it questions and abandons norm foundations to explore radically different ways of being.

Lotz-Sisitka (2017) expands on four ways of engaging in transformative and transgressive learning approaches all of which are relevant for VET: first, multi-stakeholder learning involving diverse voices, perspectives and actively engaging deliberation; secondly, embodied and empathic learning that encompasses inner reflection and listening, an ethic of care and empathy; third, learning that identifies and confronts contradictions, that frames new solutions and tries them out; and finally learning that helps to identify what is not there and what could be there and working to open new possibilities and put new practices in place. All of these present possibilities for how VET can reorientate its educational practices.

2.3.2. Greening institutions

As our earlier discussion makes clear, there is a wide range of possible “green” skills responses of varying radicalness. Given the complexity of the challenge, some of the less radical interventions may indeed be valuable if they are generative of further changes. However, there is a danger in them being portrayed as having done enough.

UNESCO-UNEVOC (United Nations Educational, Scientific and Cultural Organization – International Centre for Technical and Vocational Education and Training) have been at the forefront of thinking about green VET (see section 3.1). One important notion that was developed by their previous Director, Shyamal Majumdar, was that of greening VET institutions. He proposed a five-part approach.

Figure 3: Greening VET institutions



Source: Majumdar 2010: 6

The first dimension is about “practising what is preached”: if a VET institution is to instruct its learners about greener skills and production practices, then it is essential that it transform its own practices of campus management to be sustainable, most obviously around resource management, e.g., regarding energy, water and waste.

The second dimension is the curricular and relates to earlier discussions in this paper about the greening of existing occupations and the introduction of new green occupations. VET clearly has a role to play in developing and delivering programmes to produce the necessary skills.

The third dimension begins to look beyond the traditional confines of public VET institutions to consider how they can work with their local communities to spread sustainable practices. For many institutions, with their large fences and their sense of protecting their campus, students and equipment from the “outside world”, such an opening out to the community is a radical move.

The fourth dimension is also challenging: green research. It encourages VET institutions to be leaders of sustainable development research. This is most appropriate to the polytechnic level of VET institutions but highlights again the importance of institutions as active agents in developing skills for sustainable development rather than passively waiting for national policy directives.

Fifth, is an awareness that what is really required is culture change, in institutions, in individuals, society and economy. It points forward to the more radical forms of greening skills and society.

2.3.3. Reorienting the VET system

Much of the above is constrained by a range of VET governance issues. Although global VET governance reforms since the millennium apparently gave public institutions greater autonomy, the reality is that they were more often given local responsibility for failure rather than freedom to manage themselves (McGrath/Lugg 2012). Much of what Majumdar recommends, for instance, is not possible in many jurisdictions under current regulations that are built on top-down command and control approaches to how public institutions are run. In responding to the challenges of sustainable development, institutions need to plan and act locally whilst still benefitting from and contributing to national skills strategies. Of course, simply gazetting autonomy will not be enough as institutions will need the financial and human capacity to respond in the ways that Majumdar outlines. This is perhaps even more fundamentally about culture change, Majumdar's fifth pillar. It requires getting beyond the unhelpful market-state dichotomy and thinking about place-based social skills ecosystems in which VET providers act as part of viable networks with other actors, including industry and local government but also a range of community stakeholders.

The formal VET system was created as part of industrialisation, modernisation and the formalisation of both education and work, and remains very grounded in its history. However, this makes it poorly adapted for many of the challenges of the present and the future. We have already noted that the actually existing world-of-work for the majority is very different from that imagined by VET systems. The majority of VET learners in many countries simply will not transition to decent, permanent, formal sector jobs as the supply of such jobs is far too small. To be meaningful, VET must continue to prepare future workers in the formal sector but we need to consider much more seriously what it, or more radically other educational configurations, does to support the skills needs of those who are working or will work in the informal sector, in social enterprises and in rural subsistence economies. In all of this, the imperative to be more sustainable adds further challenges.

New technologies are often seen as a panacea in education, and this has been heightened by the COVID-19 lockdown. Many Ministries of Education and Training, understandably, have responded to lockdowns by trying to accelerate the digitisation of curricula, encouraged by technology entrepreneurs who see huge opportunities in this new market². Digitisation of curricula is a necessary and positive immediate response to the pandemic but, as Majumdar and Araiztegui (2020) stress, the medium-term challenge here lies in moving away from a transmission mode towards developing learners' capabilities to be autonomous and active. This needs the development of learner-centred tools, rather than simple digitisation of existing practices. Such an investment will make VET more resilient to future shocks. In such an endeavour, there is ample opportunity to ensure that a deeper greening approach is followed.

3. The policy level

Pushed by the global economic crisis of 2008/09, the green economy discourse gained momentum at the policy level from 2010 onwards. An early focal point was the UN Conference on Sustainable Development (Rio+20) in 2012. Policy discussions intensified over the following years with clear leadership from United Nations (UN) organisations. Since 2015, the SDGs appear to provide a potential platform for reintegrating economic and sustainability

² On the digitisation of education and VET see also Langthaler/Bazafkan (2020).

aspirations, although there is much critique of the limits to their radical potential (Ramsarup/Ward 2017; Hickel 2019).

The following section will first give an overview of donor policies in the field of skills to support the transition to a green economy. It will then outline the example of South Africa to draw attention to the complexities involved in putting policies into practice.

3.1. Donor approaches

In international development cooperation, the UN organisations, and among them the ILO, continue to play a leading role in the green economy and green skills debate. Some development banks are also quite active, while bilateral donors rarely refer to green skills as policy priorities.

There appears to be some consensus in the policy prescriptive literature that green skills encompass two sets of skills: On the one hand, these are specific technical skills, since green innovations are importantly technology-driven. In this dimension, digital and STEM (science, technology and mathematics) skills increasingly gain importance. On the other hand, transferable or crosscutting skills like creativity, problem-solving and cognitive adaptability are emphasised (Ramsarup/Ward 2017: 15). As we can see, green skills, as conceived of in the policy literature, almost exclusively pertain to the realm of high skills for high(er) level jobs.

In its recent Report “Skills for a greener future: A global view”, the ILO estimates that the transition to energy sustainability by 2030 will lead to the creation of almost 25 million jobs, while nearly 7 million jobs will be lost globally. Of these, 5 million can be reclaimed through labour reallocation and one to two million will need reskilling (ILO 2019: 22). To harness this job creation, massive investment in training will be needed. However, the ILO estimates that developing countries are especially challenged by the transition to more sustainable economies due to massive shortages of technical and professional workers.

The 2019 report builds on an influential 2011 ILO study in cooperation with CEDEFOP on the experiences of 21 developed and developing countries in adjusting their training provisions to meet the new demands of a greener economy (ILO 2011). At the policy level, many of the features reported then are still valid today. The 2019 report points out that comprehensive and coordinated approaches to skills for green jobs are still lacking in most countries. Some countries have well defined environmental and skills policies, others are strong in only one of them or do have weak policies in both sectors. What appears to be missing all the way are coordinated policies between these two sectors and a longer-term strategic perspective (ILO 2019: 34).

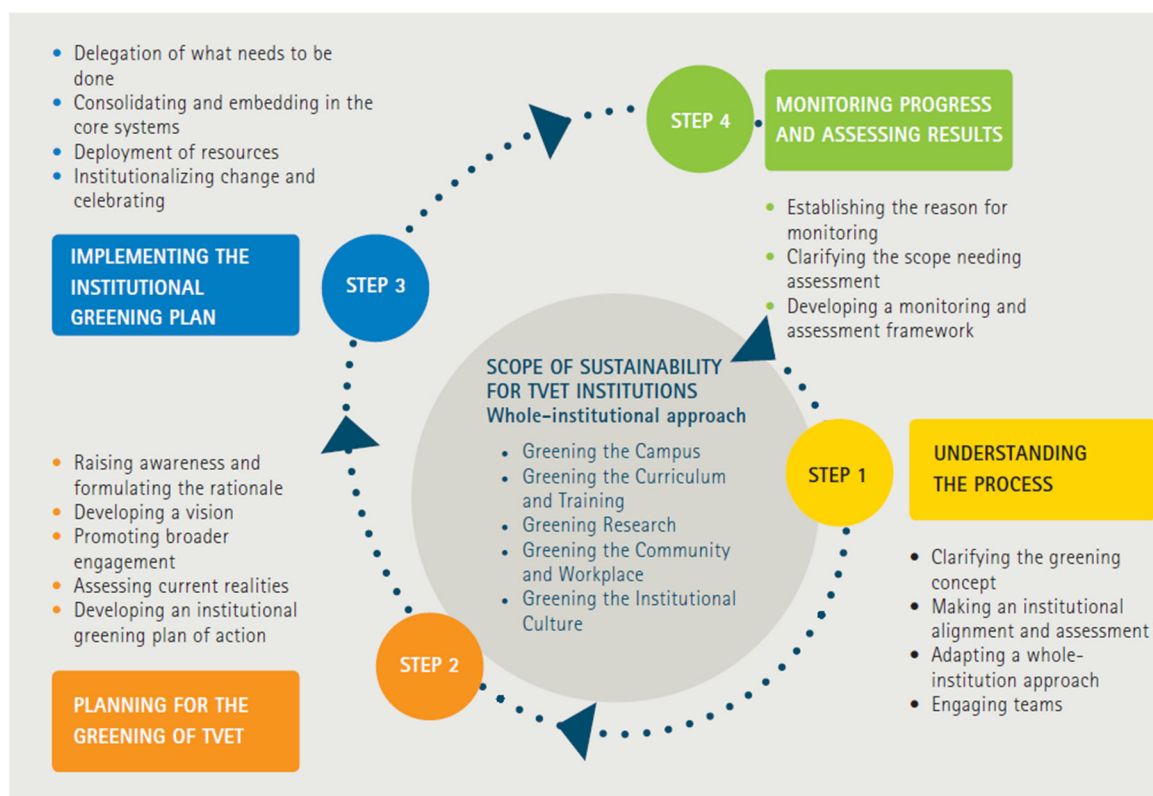
In addition, the ILO stresses the need for a broad policy dialogue between social partners including the private sector and trade unions or other bodies of workers’ representation. In order to ensure just transitions green skills policies also need to be complemented by active labour market policies and social protection system, among others (ibid.: 41).

As described earlier, **UNESCO-UNEVOC** has been in the frontline in the global green skills debate. In its Strategic Plan 2018-2022, it points out three thematic priorities, the transition to green economies and sustainable societies being one of them (UNESCO-UNEVOC 2018: 11). UNESCO-UNEVOC stresses the important role TVET has to play in ensuring that individuals are equipped with the knowledge and skills they need to be able to contribute to green economies (UNESCO-UNEVOC 2017: 18). The global framework for UNEVOC’s sustainability interventions are the SDGs, and VET is supposed to be aligned with and integrated into the Global Action Programme for ESD (Education for Sustainable Development).

From a conceptual perspective, this means that VET has undergone a significant change. From the narrow task of providing training for industry and occupation-specific skills it has broadened its endeavours to include workforce development, lifelong learning for sustainable development, developing skills for decent jobs and inclusive growth as well as responsible global citizenship (ibid.: 29).

At the implementation level, UNESCO-UNEVOC advocates a four-step approach (see figure 4 below) building on and expanding its earlier approach to greening VET institutions (see figure 3).

Figure 4: Step-by-Step Guide to implement ESD in VET institutions



Source: UNESCO-UNEVOC 2017: 12

The **African Development Bank (AfDB)** has explicitly defined green growth as a policy priority in its 2013-2020 strategy (AfDB 2013). Green jobs and skills are not directly mentioned, but rather implicitly incorporated. In its skills section, the strategy strongly refers to VET's alignment with private sector needs and employment thus decoupling, as in many policy documents, the skills discourse from the environmental needs. At the operational level, the AfDB has set up a few funds to support green growth projects and is involved in the Global Environmental Facility (Rademaekers et al 2015: 55).

A focus on environmentally sustainable growth is also part of the **Asian Development Bank's (ADB)** long-term strategic framework (2008-2020) (ADB 2008). Green jobs or skills are not explicitly mentioned. However, ADB finances much research on VET, skills development and environmental sustainability (e.g. McLean et al 2018; Pavlova 2018, 2019). At the operational level, the ADB provides financial and advisory services to its member countries to help them with green transitions and it funds projects that mainstream VET or capacity development into environmental interventions (Rademaekers et al. 2015: 52).

Some other agencies, e.g. the **World Bank** or the **Inter-American Development Bank**, do not prioritise green growth in their strategies; rather they have mainstreamed this topic into other areas. Typically, environmental issues are treated separately from employment and skills issues thus failing to build strategic interlinkages between these sectors (Rademaekers et al. 2015: 48ff).

The **European Commission** (EC) has a strong focus on green growth in its domestic policies. Its latest skills agenda focuses its action 6 on skills to support the green and digital transitions (EC 2020b: 12). Environmental concerns are also strongly included in the EC's international cooperation and development policy. Its 2011 Agenda for Change (EC 2011) defines inclusive and sustainable growth as one of two priority areas. In its recent strategy for Africa (EC 2020a), the EC refers to a "partnership for green transitions and energy access" as one of five strategic partnerships between the EU and Africa. However, as pointed out for many agencies above, there is little interlinkage between the environmental area and skills. The latter are mentioned under the partnership for digitalisation and under that for business development, either strongly focussing on the alignment of education and VET with the private sector, while the partnership for green transition does not make any reference to skills and VET at all.

Although many **bilateral donors** support projects involving green skills there is little explicit work at the policy level. An exception to this is the **German GIZ**. When referring to green skills, German development cooperation focusses on resource efficient technologies and renewable energies. A technical paper on VET and the green economy (BMZ 2013) recommends increasing coherence between national sustainability policies and VET through appropriate environmentally focused VET strategies, intensifying dialogue with the private sector on green skills needs, integrating environmental protection, resource efficiency and renewable energies into curricula, improving teacher training and greening VET institutions. However, green skills do not appear to be a priority to German development cooperation. Rather, they are mentioned in some strategy documents as desirable synergies with Germany's work in the environmental sector (BMZ 2017, 2015). At the operational level, GIZ funds many projects that involve skills development for green growth.

As a rare exception in donor discourse, the GIZ has done some work on green skills in the informal economy. Its toolkit on learning in the informal economy includes a short section on green skills (GIZ 2019: 128-129) referring to the difficulties and contradictions in trying to transplant formal sector skills policies to informal settings. The risk for formal sector workers to lose their jobs through green economy initiatives (e.g. in the waste management sector) is also acknowledged. GIZ recommends knowledge exchange through platforms and networks as well as to adopt gradual and contextualised formalisation strategies.

To sum up, while donor approaches differ in many aspects there are still important similarities. At the conceptual level, they do not question the growth orthodoxy in favour of more fundamental transformations of production and consumption patterns. There are nuances here, however. Importantly, the ILO, due to its mandate as a labour organisation, strongly stresses the dimension of decent work, social dialogue and social security systems to be integrated into green economy efforts. The need to consider equity issues and dialogue is integrated to a greater or lesser extent in many approaches. However, these nuances in the green economy concept do hardly translate into transformed skills and VET conceptions. As an exception, UNESCO-UNEVOC embeds its green skills discourse in reflections on VET purposes broadening up from providing training for occupation-specific skills to contributing to sustainable ways of work and life. This is even more explicit in UNESCO's 2012 Conference Document "Transforming TVET" (UNESCO 2012) calling for a transformation of VET towards a broader understanding of its role in sustainable development (see section 2.2. above).

At the conceptual level, it is also noteworthy that, again with a few exceptions, there is little reflection on informal work, its role in transitions to sustainable societies and the skills

requirements of the people working in this sector. Accordingly, the well-being of communities and the skills required to achieve it, as well as the potential contribution of specific (sustainability) skills and knowledges located in these communities do receive little to no attention in donor discourses.

At the strategy and policy level, most organisations fail to appropriately interlink the environmental and the skills dimensions in their policies. Rather, both are running in parallel, with skills policies mainly focussing on aligning with private sector needs and digital transformation.

At the operational level, activities focus on stepping up training for specific “green jobs”, mostly in the energy and resources sector, on strengthening dialogue with the private sector in terms of skills requirement assessments, on improving teacher training and on integrating environmental topics in VET curricula.

3.2. Green Skills – everywhere but no-where: understanding how skills systems respond to the green economy: The example of South Africa

In South Africa, efforts to prepare for a transition to a greener economy started some years ago. Yet, green economies, and climate resilient development pathways while widely talked about, still need to be developed. Studies both in South Africa and internationally all show that there are significant systemic issues that influence how pathways are / can be constructed for emergent green economies and sustainable development. This South African case example illustrates how despite strong policy mandates, and extensive general statements for the need for green skills, country studies reveal deep disjunctures between the emergent environmental policies and mandates on the one hand and skills policies and education and training systems on the other .

The responsibility and coordination of the green economy is comprehensively and inherently co-operative and involves a wide range of government departments and agencies. Central to the transition are enabling policies and institutions The figure below helps to illustrate the scope of policies and institutions integral to the green transition in South Africa all of which are essential to support a greener economy.

Figure 5 shows that the envisaged transition is an ambitious one and will require a comprehensive policy mix. But simultaneously this will necessitate transversal engagement across the education and training system, as sustainability practices are located across schooling, higher education, and occupationally directed training. This emerging green economy scenario will further burden the currently overextended and inefficient skills development system.

Despite expanding mandates, skills planning and provisioning for environmental skills development that support a green transition in South Africa has been inadequate, ad hoc, fragmented, reactive and inefficient (Ramsarup 2017). Studies collectively estimate shortages of over 800 environment-related scientists and 1 500 environment-related technical skills in the public sector alone. Furthermore, the education and training system was unprepared for the emergent demand for environmental engineers to support strategic infrastructure projects of government, which has resulted in skills supply systems being unprepared to meet the emergent demand for these critical skills. Lotz-Sisitka and Ramsarup (2020) further argued that traditional research orientations were not adequate for identifying green skills demand, transitioning, occupational analysis, or green skills supply. This is because many of the green jobs are themselves still emerging, and because green skills are often ‘latent’ and not yet articulated in terms of green work, and the greening of work. Additionally, green skills transitioning between education levels and into work is complicated by the fact that the qualifications and workplace demands are poorly aligned as these are often ‘new’ or under-

developed. Green skills occupations are poorly defined in the national system of occupations, as there is as yet under-developed understanding of the nature of green work, greening of work, and green jobs. Hence the educational needs to support the transition has shown up some critical disjunctives in the skills supply systems and the need for the co-evolution of environmental policy systems together with education and training systems (Rosenberg et al (2020)

Figure 5: Policies related to the green economy in South Africa



Source: Ramsarup 2017

Drawing on the disjunctures raised from investigating the responsiveness of the skills system, Lotz-Sisitka and Ramsarup (2020) attempted to provide some insights to enable a re-visioning towards a more joined-up system for green skills provisioning in South Africa. They argued for the need to develop:

- *Stronger integrative frameworks and tools for skills system development;*
- *Adopt a more systematic approach to aligning green skills with SDGs and national development imperatives;*
- *Adopt a systemic approach: Despite an extensive and complex green / sustainable development mandate, to date no adequate co-ordination mechanism has been established for the national planning and development of green skills in South Africa;*
- *Adopt a policy-in-practice approach to develop skills systems. One of the challenges of green skills research is that much of what needs to be done is not always known in advance, as the environment and sustainability policy landscape has been rapidly emerging alongside emerging experience and knowledge of green skills research. This requires that we adopt a policy-in-practice approach to environmental and sustainable development research and learning. This allows possibilities for research to influence policy and practice (Lotz-Sisitka/Ramsarup 2020).*

4. Conclusions

As this Briefing Paper has shown, debates on sustainability transitions and their implications for VET are complex, operate with notions whose meanings vary across contexts and comprise a variety of conceptual and theoretical approaches. They also differ in the way they envisage sustainability transitions from incrementalist to transformative visions. It is important to allow for the variety of approaches to shape our understanding of sustainability. Likewise, we should frame agendas of skills for sustainability as a continuum encompassing small steps embedded in existing economic and social patterns as well as more radically transformative actions that aspire at just and sustainable societies.

In terms of VET, what appears of utmost importance is a shift at the conceptual level to move understandings of VET beyond the orthodoxy of industry-based economies and formal, remunerated employment to root it in the complexities of real-world work. Especially, but not exclusively with a view to the Global South, this needs to comprise notions of informal, precarious and subsistence work as well as work for sustainable livelihoods of communities.

Such a conceptual shift could lay the foundations for the emergence of a new VET culture that effectively contributes to sustainability transitions. This involves greening of VET institutions at different levels, introducing new ways of transformative learning as well as reorienting VET systems to respond to the skills requirements of those outside formal work. To act sustainably, national skills strategies need to be complemented by locally embedded and oriented VET.

Policy and practice do not always resonate with the complexity of these debates. Despite more than a decade of discourses on green economies and green skills, the environmental and the skills dimensions are poorly interlinked in most domestic development or donor policies and practices. What is still at the forefront in skills terms is the expansion of training for specific green jobs. This remains very much in line with the productivist VET orthodoxy.

The example of South Africa illustrates the enormous challenges of holistic sustainability transitions. Despite strong mandates and discourses, the traditional disjunctures between environmental and skills policies have proven hard to overcome. Emergent demand of environment-related skills has overstrained the existing education and VET systems and

resulted in inadequate, fragmented and inefficient skills provisioning. What is needed, therefore, are multi-level frameworks that are integrated and well-coordinated and apply a systemic approach. International development cooperation should seek to support such approaches.

At present, there is no clear post-productivist vision of VET and its potential role in green and just transitions, not least because much of the skills needed for such a transition cannot be predicted, but will emerge over time. However, we agree with McGrath and Powell (2016: 18) in their plea for a transformative vision of VET grounded in a view of work that is decent, environmentally-sensitive, solidaristic and supportive of learners' agency. Such a reimagined VET will help in developing comprehensive pathways of green and just transitions.

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