TE|SF

Transforming Education
for Sustainable Futures

Skilling for Sustainable Futures: To SDG 8 and Beyond

A TESF Background Paper

What's the purpose of this paper?

One of the well-established purposes of education is to support the economy, whether at individual, enterprise or national level. However, the quest for sustainable futures at the heart of this network's vision and activities requires us to raise serious concerns about both the ways that the economic function has come to dominate education and the unsustainability of the economic models that education is called on to serve. Therefore, this paper will take a critical stance on the education – economic development relationship as reflected in current economic models.

Transforming Education for Sustainable Futures has placed a critical engagement with the SDGs and related cross-cutting inequalities at the heart of our approach (Tikly et al., 2020). In particular, we take up three SDGs as core to the network's research questions, one of these being SDG 8. Here is the text of SDG 8:

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. (UNGA, 2015, 14; UNDESA 2020) (See Box 1 for full Goal, Targets and Indicators)

Whether economic growth can be sustainable is a matter of considerable controversy (cf. McGrath and Powell, 2016; Tikly et al., 2020). Leaving that debate aside for the moment, there is language in the resulting targets about 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), that is consistent with previous visions of development that were sustainability-free. In much of the target text, the dominant rhetorical move is to argue that we can both accelerate growth and reduce its environmental impact. The indicators are even less obviously sustainability-oriented, reflecting the huge biases of existing statistical data capacity towards business as usual.

However, other elements of SDG 8 do talk more to the emerging TESF vision, albeit in more modest ways. The notion of decent work (8.5), in particular, is crucial as it points towards an expansive vision of human development and not just economic growth. This is linked to some engagement with notions of inclusion and with migration and modern slavery issues.

Thus, it appears that SDG 8 is of relatively little value for us as a guide to how education should support the SDGs. It is necessary, therefore, to look beyond this goal and to read the SDG vision in its most expansive form as being our starting point.

As this concern with expanding our vision of what education for sustainable development (ESD) means, or, in our formulation, transforming education for sustainable futures, motivates all of our work, here it is necessary to delimit what this paper is about. Let's start with what it is not about. The network's broad discussion of the education – sustainable development relationship has begun in the foundations paper cited above. This draws in turn on our existing work (e.g., McGrath Sund Powell, 2016; Lotz-Sisitka et al., 2017; Wals and Benavot, 2017; Tikly, 2020), which offers an account of what a postcolonial ESD might entail. Elsewhere, we will also dedicate another of these background papers to the notions of ESD contained within target 4.7 (Brockwell, Sprague and Mochizuki, Forthcoming).

My focus in this paper is not directed at providing a comprehensive review of debates about education and economic development (see McGrath, 2010 and 2018 for a discussion of those literatures). Whilst TESF is interested in commissioning research that takes any aspect of this relationship in more sustainable directions, my ambition here is more modest. Here, I will focus on how skills development for all, but especially marginalised groups, can be transformed to support decent, sustainable livelihoods as part of just transitions. In TESF, we stress the agency of communities and individuals whilst noting the effects that structure has on their lives. At the heart of our emergent account of skills for sustainable livelihoods, therefore, is a commitment to practices and policies that respect the voices of those who are typically most readily silenced in conventional skills debates (Powell and McGrath, 2019a).

Some contemporary debates about skills and sustainable development relate to sub-goal 4.7 and are covered in another background paper, as noted above. Here my attention is on vocational preparation for decent, sustainable work. This notion of vocational preparation, however, is a deliberately broad one. Rather than the usual conflation of all such preparation with formal vocational schooling, here the notion encompasses formal, informal and non-formal vocational learning taken across a wide variety of settings. Public skills provision is only a tiny fraction of the totality of skills development that goes on in TESF countries. Private-for-profit providers, religious organisations, NGOs and CBOs all provide forms of off-the-job or alternance (time in class punctuated by time in industry) models. Firms of all kinds, parastatal and transnational, formal and informal, large and small, are major actors in skills development though the levels of formality of their processes vary hugely. Although public vocational education and training (VET) is looked down upon by elites as being for 'other people's children', in reality much of it is beyond the reach of the poorest and most excluded. Indeed, this is often exacerbated by intersectionality. For instance, Dalit women have far lower than average participation rates in both formal VET and formal employment (Velayudhan, 2018). Crucially, public skills provision has tended not to reach the poorest of the poor and those with disabilities, whilst gender parity at programme and institutional level is largely absent.

It is vital, therefore, given TESF's vision that we look beyond the formal and the public to include vocational learning in formal and informal workplaces; in subsistence, communal and commercial farming; in public, private and third sector vocational providers; and through self-initiated vocational learning by individuals or groups. In this vision, vocational learning is seen as occurring at all levels of education, as understood by national qualifications frameworks (NQFs). Indeed, this belief in vocational learning as spanning all levels is a key NQF principle in those TESF countries where such frameworks exist. Nonetheless, whilst this understanding of vocational learning is broad, this paper does prioritise those forms of vocational learning that are outside the most established elements of the educational system, general schools and universities. This should not be seen as implying that TESF is uninterested in commissioning research in these areas, however, as long as it fits within the broader TESF vision.

In discussing such skills, we must acknowledge that such preparation has been grounded historically in unsustainable approaches to production (McGrath, 2012). Indeed, the dominant account of skills emerged in support of carbon capitalism, and most of its current internal transformative focus is on responding to the 'Fourth Industrial Revolution' (cf. Avis, 2020 for a critical educationalist's reading of this). TESF stresses that any sustainable future must be just, and so we must also acknowledge the ways in which access to skills has historically been unjust in terms of race, gender, class, etc.

In the rest of this paper, I will begin by considering what is wrong with current approaches to skills for employability. Situating that critique largely in a view that the orthodoxy misreads the purpose of skills development, I will then move on to an alternative reading of the 'world of work' with which skills development is supposed to be helping people to engage. I then consider two key terms introduced above without definition: sustainable livelihoods and just transitions. This leads on to a brief discussion of emergent approaches to thinking about skills, with which some of the TESF collective have been involved (cf. McGrath et al., 2019) before I set out some questions that can help those planning to bid to TESF in this area to shape their proposals.

What's wrong with current approaches to skills?

Recent work on African skills development has pointed to its highly fragmentary nature and the role that colonial and neo-colonial extractivism has played in this (McGrath et al., 2019; Allais, 2002a). The Indian case is not dissimilar, with fragmentation being driven also by size and federalism. Amongst the TESF countries, India and South Africa

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BOX 1: Sustainable Development Goal 8

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Targets and Indicators

8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries

8.1.1. Annual growth rate of read GDP per capita

8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors

8.2.1 Annual growth rate of real GDP per employed person

8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services

8.3.1 Proportion of informal employment in non-agriculture employment, by sex

8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead

8.4.1 Material footprint, material footprint per capita and material footprint per GDP

8.4.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP

8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities

8.5.2 Unemployment rate by sex, age and persons with disabilities

8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training

8.6.1 Proportion of youth (aged 15-24 years) not in education, employment or training

8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms

8.7.1 Proportion and number of children ages 5-17 years engaged in child labour, by sex and age

8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment

8.8.1 Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status

8.8.2 Increase in national compliance of labour rights (freedom of association and collective bargaining) based on International Labour Organisation (ILO) textual sources and national legislation, by sex and migrant status

8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products

8.9.1 Tourism direct GDP as a proportion of total GDP and in growth rate

8.9.2 Number of jobs in tourism industries as a proportion of total jobs and growth rate of jobs, by sex

8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all

8.10.1 Number of commercial bank branches and automated teller machines (ATMs) per 100,000 adults

8.10.2 Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider

8.a Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-related Technical Assistance to Least Developed Countries

8.a.1 Aid for Trade commitments and disbursements

8.b By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization

8.b.1 Total government spending in social protection and employment programmes as a proportion of the national budgets and GDP

(UNGA, 2015, 14; UNDESA 2020)

have relatively large public skills systems that emerged through colonialism and early import substitution industrialisation, although most commentators unfavourably contrast the modest size of the Indian system with the huge size of the economy (e.g., King, 2012; Rao, Sahoo and Ghosh, 2014; Pilz, 2016). There are pockets of excellence within this, particularly where historical relationships with industry have proved robust. However, this is far weaker in more rural areas in both countries. Neither Rwanda nor Somalia/Somaliland developed significant public vocational skills systems in the same period (see Tikly et al., 2003 in the case of Rwanda).

As in the North from where these models were derived, the Indian and South African skills systems (if the term is used rather elastically given the fragmentation of skills formation in both cases) were built for a Fordist economy underpinned by carbon capitalism (Di Muzio, 2015). Key sectors for skills development in both were steel, railways and cars. Over time, parts of these systems initially designed for craft workers were upgraded to focus on technologist education through institutions such as polytechnics (technikons in South Africa, now universities of technology) and institutes of technology (as in the Indian Institutes of Technology). In India in particular, elements of this skills infrastructure became very high status.

What's wrong? Skills system fragmentation

The limited spread of industrial development by the 1960s across much of the global South, though not India and South Africa, led to new waves of skills development that contrasted with this upward trajectory. As schooling expanded far faster than formal sector employment, the fear of large-scale youth unemployment, and its possibility of leading to delinquency and political protest, led donors, NGOs and governments to focus on vocational senior secondary schools, an increased vocational offer in general schools, and non-formal skills programmes.

Within the public VET system there was also growth over time of specialist colleges for agriculture, hospitality, nursing, etc. that fell under their own line ministries. Subsequently, some of these have been incorporated into the public VET mainstream but others have remained outside that system, such as the South African agricultural colleges.

Over time too, there has been a growth of private-for-profit vocational education and training. As this is profit-driven, it tends to concentrate in areas of low cost and high demand; in urban centres and on business and information technology. In the latter, its willingness to offer international industry-recognised qualifications rather than national qualifications gives it an attractive niche amongst middle-class clientele, for whom it is often seen as part of an out-migration strategy.

As noted above, there are many diverse forms of vocational learning that take place in enterprises. Even within particular sectors and firm sizes this can vary by different enterprise business strategies and their resultant approaches to labour utilisation. Some large employers (historically including the parastatals in India and South Africa, cf. McGrath, 1996; Rao et al., 2014) and some strong sectoral collaboration networks (e.g., automotive in India, cf. Okada, 2004; and sugar in South Africa, cf. Petersen et al., 2016; Wedekind, 2019) have developed their own training institutions whilst others have partnered with public institutions in classical apprenticeship models of day or block release. At the other end of the scale, traditional apprenticeship remains a large-scale route for vocational learning and labour market integration. In spite of urbanisation, and the very necessary skills needs related to creating sustainable cities (Parnell and Bazaz, 2020), very many learn skills within the contexts of rural processes of both on-farm and off-farm activities.

Whilst there are pockets of excellence in these complex and complicated systems, the overall picture is of weakness (McGrath et al., 2019; Allais and Wedekind, 2020). Allais' (2020b) critique of the failings of African skills formation applies broadly to India too. First, as noted above in the 1960s, she argues that industrialisation has been slower than imagined, resulting in few formal sector jobs and large pockets of survivalist activity. Second, this has undermined public VET as it could not resist pressures to massify but then cannot find 'real' jobs for its graduates. Third, the even more massive growth in secondary education has resulted in massified poor quality education. This both provides an inadequate basis for skills development and formal employment and leads to an unsustainable aspiration towards higher education in the hope of accessing the tiny number of professional jobs available (Zeelen et al., 2010; Allais, 2020a and b). This has driven rapid higher education expansion, with issues of 'educated unemployment' now manifested at this level too.

Southern public VET systems have been further undermined by the importation of a Neoliberal policy reform toolkit with its origins in new public management (McGrath and Lugg, 2012). Although there are always country-specific instantiations of these travelling policies (cf. McGrath and Badroodien, 2006), this typically includes new governance structures giving institutions more autonomy but which also control them through much clearer targets, quality assurance regimes and outcomes-based funding. These privilege the voices of the business community at local, sectoral and national levels. Concurrently, competency-based curricula and national qualifications frameworks were introduced. On top of these is an attempt to solve the excess supply issue by a focus on employability and entrepreneurship

that misreads the realistic possibilities of each in Southern contexts (McGrath et al., 2011; DeJaeghere, 2017; Brown, 2020a). This reform agenda continues to be pushed even though it has more than three decades of failure behind it, North and South.

> *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. (Allais and Wedekind, 2020: 324)*

Within public VET institutions, there are also major challenges of teaching and learning. Curricula are often outdated and slow to respond to pedagogical or production changes (SADC/UNESCO, 2013; Papier, 2018). Authoritarian approaches to pedagogy abound, and the renewed drive towards competency-based modular training is likely to reinforce this. Staff pay and conditions are poorer than in the schooling system and staff development and autonomy are weak (Yonemura, 2011; Muwaniki and Wedekind, 2019). Although many learners in public VET institutions experience multidimensional poverty, few institutions are well set-up to understand and address this (Papier and McBride, 2019; Powell and McGrath, 2019).

Other parts of the vocational system also have significant weaknesses. The neoliberal reforms revived vocationalised secondary education even though these had been widely critiqued by orthodox human capital economists as part of the 'vocational school fallacy' argument (Foster, 1965; Psacharopoulos, 1981). Whilst there is considerable excellence in enterprise-based training in many African medium to large firms, this is limited and industrial strategies have done little to address this. For 50 years, there have been recurrent attempts to intervene in the informal sector skills formation system yet there is little to show for this in terms of sustainable change (Palmer, 2020). Interventions rooted in donors' understandings of the world seem to be able to find very little purchase in the lifeworlds of informal sector actors. Equally, agricultural colleges have largely failed to address the realities of both small-scale agriculture and the emerging organic agriculture sector.

Both India and South Africa have embarked on major investments in skills development since the beginning of the millennium but these have had limited success (McGrath et al., 2004; Kraak, 2008; King, 2012; Mehrotra, 2014). Rwanda and Somalia/Somaliland never had the same levels of industrialisation to justify the development of major formal skills systems, whether through public colleges or formal sector apprenticeships. In spite of much rhetoric about engagement with employers, buy-in has been limited and labour market outcomes disappointing. At the same time, engagement with the backgrounds and aspirations of learners has been poor (Powell and McGrath, 2018, 2019a and b; Mathur, Sharma and Saha, 2014; Brown, 2020a).

In the face of all this, we are now asking skills development to make a double transformation (UNESCO, 2012): to transform its practices away from the problems identified above to a more inclusive,

democratic, postcolonial educational practice that is socially and environmentally just and capability-generating in itself *and* to contribute to a wider process of building sustainable futures. Before turning to the question of sustainable futures, however, it is necessary to explore a little further our understanding of the world-of-work for which skills learners are being prepared / reskilled.

How should we understand decent work and sustainable livelihoods?

Our current conceptions of work, like so many of our understandings, are locked into an industrial economy logic that is simply not fit for purpose either as an accurate description of present realities or a guide for our collective sustainable futures. The orthodox account, grounded in 18th and 19th Century classical economics, sees work as disutility, that is, it is not valuable in itself but is only useful as a means to an end, income generation. Moreover, Smith (1776) made a strong distinction between productive and unproductive work that continues to have power.

In contrast, 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).

He suggests that not all work provides all three aspects to individuals. Powell and McGrath (2019a and b) draw on his approach in exploring the work experiences of young South Africans. They largely experience the labour market as precarious, indecent and riddled with race and gender prejudice. As I shall argue below, work in the feminist economics tradition notes how women often are engaged in productive work but are denied commensurate income or recognition due to patriarchy.

Sen's critique of the orthodoxy leads to a stress on how work's potential to fulfil wider human needs can be maximised. As Bonvin (2019) argues, this is important for vocational thinking in that it emphasises a focus on what people want to become as a result of vocational participation, not how they can acquire 'employable skills' most efficiently.

Likewise, DeJaeghere (2017 and 2019) stresses the social dimension. From her work in East Africa, she suggest that one of the important capabilities for young people is about becoming, and crucially, being recognised as, an adult member of their community. Thus, the notion of 'decent work' needs to be protected and expanded. Formally, as defined by the ILO,

> *Decent work sums up the aspirations of people in their working lives. It involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and*

treatment for all women and men. (https://www.ilo.org/global/topics/decent-work/lang--en/index.htm)

As part of TESF, it is important to see what constitutes decent work in our country settings, whilst being mindful both of national law and the relevant ILO Recommendations. What the capability approach notes in this respect is that access to and status of many forms of work are unequal and structured profoundly by class, gender and race (Powell and McGrath, 2018 and 2019b). In so doing, it is located within the well-established interplay between the capabilities approach and feminist economics. Power (2004) argued that feminist economics was based on five key theoretical areas: of caring labour; well-being; agency; ethical judgements and intersectional analysis. These largely still apply. Feminist economists have argued that much of women's work is outside the formal labour market. Whilst much of it is indecent and accorded little social status or economic value, the 'formal economy' could not survive without it (Donath, 2000; Folbre, 2006).

Many of the young people that Powell and McGrath interviewed were engaged in activities that bring value to them and those around them but which are not formally defined and remunerated as work in the official sense. Indeed, Moodie, Wheelahan and Lavigne (2019: 23) argue that work should be defined "broadly to be an activity which seeks to sustain an individual or society". The value of these forms of work should not be lost in TESF.

The vast majority of those who are working in the TESF countries are not in formal employment. It is necessary, therefore, to break out of the unhelpful and inaccurate language used in the human capital orthodoxy (cf. Tikly et al., 2020). Even before we turn to the jobs of the future, we need to better understand the work of today. This will lead us to a discussion of two important concepts that have been pushed to the margins of the education-to-work transitions literature: sustainable livelihoods and informal work.

The sustainable livelihoods notion arose out of a wide set of traditions in researching rural development and started to coalesce in the early 1990s (e.g., Chambers and Conway, 1992). However, it was with the establishment of the new British Department for International Development in 1997 that the idea was catapulted to the development mainstream (Carney, 1998), remaining there for a decade or so. In a key paper from that time, Scoones (1998) lays out the core ideas around the two keywords. He argues that 'sustainable' has to be understood in terms of increasing resilience of individuals, households and communities; and an enhancement of the natural resource base available to poor people. 'Livelihoods' are seen as having three elements: more days of productive work (whether off-farm, in paid labour or in subsistence agriculture); less poverty; and enhanced capability. The approach then argued that there were multiple viable strategies to achieve these five objectives, each of which required different mixes of resources, including skills. Instead of the orthodox view of human capital investment for acquisition of a job, Scoones' model stresses the deployment of multiple capitals in pursuit of livelihood portfolios. Moreover, the achievement of such sustainable livelihood portfolios was seen as being shaped by the agency of rural people, by complex structural effects such as caste, class and gender, and by a focus on institutions, in North's (1990) sense of the 'rules of the game'. However, the approach has

subsequently been critiqued for being weak on power and inequality, particularly at the levels of household and community (Akram-Lodhi, 2018), and for a tendency to prioritise economic sustainability over environmental, and on individual or household livelihoods rather than the community level. These are issues that Scoones has sought to address in more recent formulations (Scoones, 2015 and 2016).

Skills development includes paths which are not normally defined and remunerated as work in the official sense.

It is also important to revisit older debates about education and training for the informal sector (cf. McGrath et al., 1995). Like sustainable livelihoods, the importance of skills for / in the informal sector captured the imagination of international development agencies for a period of time, before returning to a largely academic debate. Kraemer-Mbula and Monaco (2020) highlight the need to understand the complexities of what constitutes informal work and the distinction between this and the equally complex notion of the informal sector. For our purposes, some attempts to breakdown homogenous notions of informality are useful. A well-established distinction is made between necessity / survivalist / subsistence entrepreneurs and opportunity / 'real' entrepreneurs (cf., McGrath et al., 1995; DeJaeghere, 2017). From her work in South Africa, Powell (2019) suggests that survivalists can be further divided into five categories:

- core identity entrepreneurs, for whom their occupation is central to their identity and who aspire to graduating to opportunity entrepreneurship within their existing occupation;
- oscillating entrepreneurs, who may work for a time in food or retail but do not identify themselves with either their occupation or entrepreneurship;
- second stream entrepreneurs, who see this activity as a means of supplementing income and who are not yet convinced about it becoming core to their identity;
- scurrellers, who are the closest to pure survivalism, working to survive; and
- community empowerment entrepreneurs, who are responding to a community need and who may aspire to more formal NGO status.

The orthodoxy of school (or college) to work transitions is not even that realistic in its Northern heartland. What these literatures about sustainable livelihoods and informal work help to remind us is that, for many, there is no single, simple transition. Rather, there is work both before and during bouts of formal learning; there is working across multiple sites and even occupations/activities, and multiple routes of learning as people try to survive and explore new possibilities; there is leaving forms of work both because they are intolerable and in order to pursue something better; there is dropping in and out of both work and learning for reasons that are both related to these and to the wider dynamics of lives and responsibilities to and for others. There is much in all of this that is chosen and celebrated and much which feels necessary and involves loss. There is much that structures these complex individual journeys but also much agency. A rich account of the learning-work relationship needs to theorise this complexity far better than is currently the case.

Whilst focusing on the positive possibilities of work, it is necessary for us to be aware of the obverse. Much work in the TESF countries is unsafe, unfree and precarious: "a Monday through Friday sort of dying", in Studs Terkel's redolent phrase (1972: xi). As McGrath et al. (2020) note, how the positive and negative faces of work are experienced is rarely a matter of accident. Rather, it reflects the playing out of key characteristics such as class, gender and race, acting intersectionally.

All of this has implications for TESF's approach to skills development. The current orthodoxy mis-specifies what work is and has inadequate notions of decent, sustainable or just work. This makes it a very poor guide to what skills development should be doing. The TESF challenge, therefore, is to develop new research on how skills development can support the creation of better work according to improved definitions of what work is and can be.

What are just transitions and what do they mean for skills systems?

Swilling defines a just transition as

> a process of increasingly radical incremental changes that accumulate over time in the actually emergent transformed world envisaged by the SDGs and sustainability. The outcome is a state of well-being founded on greater environmental sustainability and social justice (including the eradication of poverty). These changes arise from a vast multiplicity of struggles, each with their own context-specific temporal and spatial dimensions. (Swilling 2020: 7)

For Raworth, Wykes and Bass (2014: 8), development is "green and just", when it is built on four principles:

• reduction of poverty and/or deprivation
• equality of opportunities or capabilities
• fairness of process
• limited disparity of outcomes.

Raworth (2017) developed these ideas further with her notion of the "doughnut", the space in which we can meet the SDGs whilst remaining within planetary boundaries (Rockström et al., 2009), a set of ecological limits across nine core earth systems. However, as Swilling warns, such changes are not in the short-term interest of the powerful and there are considerable dangers that either or both justice and transition will be resisted or subverted, as is clear from current opposition to approaches such as degrowth, circular economies and the Green New Deal. Swilling points to the real possibility of an unjust transition in which technocratic solutions to climate change combine with the use of increasingly pervasive surveillance technologies (Zuboff, 2019) and the plunder of the commons (Standing, 2019).

The concept of transitions has attracted huge attention in the past decade. Swilling characterises this literature as belonging to two very broad camps. First, there are those who seek to explore the possibilities for structural change brought about by the interplay between socio-technical advances and ecological limits (e.g., Perez, 2002; Grin et al., 2010; Gore, 2010). Grounded in science and technology studies and evolutionary economics, these authors look at how economies and societies evolve over the long-term and place more emphasis on the economic and technological than the environmental and social.

Just transitions include 'increasingly radical incremental changes that accumulate over time...'

Second, a more radical grouping who envisage a post-development, post-capitalist, post-colonial future (e.g., Escobar, 1995 and 2015; D'Alisa, Demaria and Kallis, 2015). Importantly for the TESF vision, some of these accounts draw on Southern philosophies such as *buen vivir* and *ukama*, which point to a relatedness, "that is not restricted to human relations but extends to the natural environment, the past, the present and the future" (Murove, 2009: 28). Whilst Swilling applauds both the critique provided by this second grouping and their imagined futures, he is more critical of their limited attention to how the desired change will come about.

Instead, Swilling calls for a syncretic approach that draws on both traditions. In his vision, quoted at the start of this section, the emphasis is on radical incrementalism as a response to complexity. He argues that we are engaged in a wide range of struggles and need to identify the evolutionary potential of these for helping to bring about a transformed future.

Scoones (2016) has a similar framing of the challenge of moving toward sustainability. He suggests that such moves can be technology, market, state or citizen-led. He argues, following Fraser (2005 and 2013), that what is needed is an emancipatory "triple movement" (Fraser, 2013: 119) that works across these four modes of transition to connect a politics of redistribution (highlighting inequalities of resources across groups) with a politics of recognition (focused on issues of identity and identification), and a politics of representation (with its questions of community, belonging, and citizenship).

These arguments from Swilling and Scoones chime with an educational perspective from within our TESF collective, through which Amsler and Facer (2017) call for the constructing of a radical anticipation of what might become:

> *liberating the future from the enclosures of capitalism and from the epistemological grip of the anticipatory regime is not a matter of identifying existing possibilities that can be successfully predicted given what is already known, but an experimental process of generating and enlarging the space of possibility itself through practices of critical, disobedient anticipation. (Amsler and Facer, 2017: 12-3)*

Whilst these literatures are positive in the sense of radical anticipation of what a better world can look like, they are also very clear regarding the challenges that face us globally. Indeed, there is a considerable danger that things will get worse instead, as well as, or before they get better. As our briefing note on SDG13 notes (Facer et al., 2020), therefore, we need to be thinking in terms of educational responses that strengthen adaption, mitigation and resilience to climate change.

The implications of these perspectives for TESF research activities are profound. They warn us away from conventional education-work research foci such as school-to-work transitions, and skills for employability / productivity / growth. Rather, the core focus becomes one of exploring how skills development programmes, of various kinds and in various locations, promote decent work that contributes both to sustainable livelihoods for individuals and communities, and to wider efforts to restructure work and economic activities so that we live within our planetary boundaries. Unfortunately, the discussion about the scale of the climate crisis and the inadequacy of our collective global response also points to the need for greater research attention to skills for adaption, mitigation and resilience.

What are fruitful skills research traditions?

It follows from our discussion thus far that old skills development theories cannot help us in imagining sustainable futures, grounded as they are in an unsustainable development model. What we require instead are radically different theoretical approaches and visions of possible development that are grounded in three things: first, the lived experiences and material conditions of those learning vocationally; second, genuine labour market possibilities that are aligned with decent work and human flourishing; and, third, a radical incrementalist stance that can imagine what is on the edge of being possible. This requires a balancing of agency and structure; and an insistence that both vocational learning and work are broad concepts that are not reducible to the formal sector.

McGrath et al. (2019) argue that there are a number of emergent skills research traditions in Africa (and to a lesser extent India) that might contribute to a rethinking of skills for just and sustainable futures. For the purposes of this paper, I will take three of these.

The first of the three fertile theoretical approaches is the internationally well-established political economy of skills tradition. This is a strong South African research tradition (e.g., McGrath et al., 2004; Kraak, 2008; Allais, 2020a and b) though less developed in the other TESF countries (but see Tikly et al., 2003 – Rwanda, and Carswell and De Neve, 2018 – India). This literature is very strong in reminding us about the historical evolution of skills systems and the resultant need to understand the limitations and possibilities of change. However, the approach has been rightly critiqued for too much of an emphasis on the nation state as the unit of analysis (Emmenegger, Graf and Trampusch, 2019). This points to the need to develop a multiscalar approach that acknowledges the importance of sectoral and place-based dynamics, which are often intersecting, as reflected in a South African literature (e.g., Kruss, Wildschut and Petersen 2019). In the context of the TESF countries, this account must also bring in more of the informal sector, and community and rural dimensions. Whilst the Indian literature on industrial skills is dominated by Human Capital Theory, there is a much stronger Indian literature on rural and informal skills (e.g., Gooptu and Chakravarty, 2019; Sundar, 2019).

Second, given the TESF focus on sustainability, we should draw on the emergent literature on skills development for just transitions (cf. McGrath and Powell, 2016; Rosenberg, Ramsarup and Lotz-Sisitka 2020), again most obviously developed in the South African context. Rather than talk about just transitions simply in abstract terms, this literature seeks to explore what types of skills, work and industries need to develop if the climate crisis is to be overcome, and how such transformations can be achieved. Importantly, this approach has been used across a range of sectoral types and different geographic settings. For instance, Rosenberg et al. focus on large, formal, urban industries such as paint manufacture as well as agriculture and the Extended Public Works Programme that is targeted at the rural unemployed. We need to engage also with the small, largely Australian, literature that looks at skills in the context of climate change but largely stands outside the mainstream skills literature (George et al., 2007; Nursey-Bray and Miller, 2012; Hemstock et al., 2017).

The third strand of skills research on which we want to draw is that of the critical capabilities approach to VET (e.g., Powell, 2012; Tikly, 2013; DeJaeghere, 2019; McGrath et al., 2020). This approach is closely aligned to TESF's philosophy, and sees vocational learning in the expansive way used in this paper. Rather than focused on narrow employment or employability, it sees these as means to a greater end of sustainable development:

> *that supports the rights, freedoms and capabilities of existing and future generations to live the lives they have reason to value whilst protecting and co-evolving in a more harmonious relationship with the natural environment of which human beings are an*

integral part so that natural and social systems may flourish. (Tikly et al., 2020: 22)

The critical capabilities approach seeks to balance structure and agency, asking both how factors such as multi-dimensional poverty and gender inequality have shaped vocational learners' lives and to what futures they aspire (McGrath et al., 2020). In this approach, the role of skills development is aligned to Tikly's notion of just development, being to support individuals' achievement of those outcomes that they have reason most to value. In DeJaeghere's (2019) recent work, the approach is also more explicitly engaging with relationality, an important strand of a range of Southern philosophical traditions and post-development accounts. Moreover, it is attuned also to arguments about a broad conception of work to encompass solidarity and non-economic rationales (Powell and McGrath, 2019a; Brown, 2020a). Across these accounts too there is an emphasis on what knowledges are afforded economic and social status, and which pedagogies best support effective, inclusive vocational learning (McGrath et al., 2019).

What should TESF's research agenda be around skills for sustainable futures?

Together, these approaches suggest a new agenda for research on skills for sustainable futures. Linking back to earlier concerns in this paper, it must address the challenges of just transitions, focusing on livelihood opportunities that are likely to decline, those likely to grow, and ensuring the reintegration into livelihood opportunities of those who are likely to miss out through these changes, now and in future generations. This requires analysis that sees local skills and work debates as always also related to global dynamics. It should consider how skills development can support new cultures of intergenerationally-sustainable production and consumption. This also requires a greater attention to and respect for voice, agency and aspirations. Nonetheless, we must never forget that access to and status of vocational skills and many forms of work are unequal and structured profoundly by intersectional disadvantage. Our research on skills formation needs to acknowledge the range of knowledges and skills that are already present within learners and communities, and build from these. We also need a new focus on transformational vocational learning. Finally, we need to think how various forms of skills development are managed (led and governed) in order to support transformations. Below, I offer some concrete areas that might be priorities for TESF research.

A youth focus

Formal employment is neither keeping pace with youth population nor with expansion of educational participation. Therefore, most youth will not find jobs in the formal sector. This reality has led to calls for entrepreneurship training to foster self-employment and the creation of micro / small enterprises. Starting an enterprise is not necessarily a guarantee of a secure or sustainable livelihood, as I noted above. Therefore, entrepreneurship education needs to be holistic, considering the kinds of skills demanded from and by youth with different levels of education, and focusing on their needs in making the transition to full adult membership of their communities (DeJaeghere, 2017). Social policies and supports are also critical to foster inclusion, mitigate loss, and support decent livelihoods.

Programmes need to provide marginalised youth with technical and business skills as well as social and financial skills. Furthermore, it is important to consider what youth value for their own wellbeing, with attention to their social inclusion as well as their economic outcomes. Researchers are seeking to work more closely with youth and their organisations as co-producers of knowledge, often in a capabilities tradition (e.g., Mkwananzi and Cin, 2020) but there is considerable scope for new work here that combines a youth-centric focus with the other skills research traditions noted above.

Focus on youth

Instead of assumptions about a simple, single transition from formal education to formal work or to sustainable entrepreneurship, young people have complex trajectories that take them in, out of and across, multiple forms of learning and working, often pursuing several activities simultaneously (Powell, 2019). We have some sense of this but more detailed mapping and theorising of these complex journeys will advance our understanding of how young people actually learn as they search for sustainable livelihoods.

Our understandings of learning are also too formalised. Young people learn innovatively and eclectically. Even in areas of limited connectivity, they use platforms such as YouTube. We understand such learning poorly. Whilst there is danger in intervening in these largely autonomous systems, it is worth researching the possibilities for strengthening such microlearning and making it more sustainability-oriented. As in the ideas in the previous paragraphs, it is essential that research be with youth and not on them.

Potential questions:

How do youth in the four TESF countries imagine their sustainable futures? What are they actually learning about skills for these futures? What new skills are they creating through their learning? How can this be enhanced? What are their, often complex and bi-directional, transitions between learning and work? How can we help them navigate these better?

Looking beyond formal sector employment

It is clear from the discussion above that formal sector, urban employment is unlikely to be the labour market destination of the majority of youth in the four TESF countries. We need more research on skills for other economies, something that has been neglected by the mainstream literature. There are signs of new work both on rural and informal sector skills (see, for instance, current work from another GCRF project, www.vetafrica4-0.com), but there is an opportunity for TESF to make a significant contribution here.

There have been initiatives designed to improve the sustainability credentials of the informal sector. These have consisted both of introducing new trades, such as installation and maintenance of photovoltaics, and seeking to make existing trades greener, for instance through improved waste management processes. Here too, there could be further research both regarding the efficacy of current practices and the potential for further development of this set of practices. For instance, as noted above, there is 'green skills' research in South Africa that looks at building skills for more sustainable rural work (Rosenberg, Ramsarup and Lotz-Sisitka, 2020; cf. www.vetafrica4-0.com).

Although occupational and environmental health standards exist across national jurisdictions, the adherence to these in most workplaces internationally is poor. This is most marked in informal sector settings and where workers are informally employed in sub-contracting chains from formal employers. Existing research suggests that the lack of compliance is not reducible to lack of information or the financial costs of personal protective equipment but is often a matter of workplace cultures (Alla-Mensah, 2018). There is a need for work that looks at how education and training might play a role in making informal sector work more decent and sustainable through building cultures of occupational and environmental health and safety.

The agricultural skills system has largely developed outside the education mainstream. Sustainable agriculture has new opportunities provided by growing urban middle-classes but also faces severe environmental challenges and land grabbing. It is important to understand better the potential spaces for small-scale commercial agriculture / collectives to be able to produce sustainably and generate decent livelihoods. This leads to questions about systems for generating and disseminating the learning required to maximise decent and sustainable livelihoods. Crucially, this requires engagement with indigenous knowledge systems and a rebalancing of the current gender bias towards engaging with men rather than women. There is some research on agricultural skills (e.g., Robinson-Pant, 2015; Rosenberg, Ramsarup and Lotz-Sisitka, 2020; Brown and Majumdar, 2020) but it remains an under-researched area.

Potential questions:

How do we help those already in the informal sector or entering it to access the skills they need to enjoy sustainable livelihoods? How can this been done in ways that improve inclusion? Given the longstanding challenges to occupational health and safety present in much work in the South, what can education and training do to promote work that is decent and safe? How can we best support agricultural skills development that promotes sustainability, that is grounded in local knowledges and that is inclusive of all scales of agricultural production?

A social skills ecosystems approach

A growing body of work talks about skills ecosystems in which learning occurs across firms, state agencies, communities and individuals in specific locations so as to drive regional innovation systems, providing a clear connection to TESF's focus on SDG 11, "make cities and human settlements inclusive, safe, resilient and sustainable" (Parnell and Bazaz, 2020). This approach is beginning to spread to the South, with ongoing projects in both South Africa and India (Brown, 2020b; Muhangi et al., 2020). In both urban and rural settings, there are little-understood networks of microenterprises and household producers that are potentially important sites of learning. Better understanding of such networks would strengthen our theorisation of actually-existing learning for sustainable livelihoods. Moreover, by focusing our gaze on the potential of these networks to be drivers of decent work and sustainability, more transformative practices may be encouraged.

Potential questions:

How sustainable and inclusive are urban and rural skills ecosystems? How can they be enhanced? What skills are needed to make cities and human settlements inclusive, safe, resilient and sustainable? How can these be delivered better? How can informal sector skills and enterprises be included in skills ecosystems in ways that build more effective learning and better work without undermining existing strengths of their own ecosystems? Given resilience is a key attribute of successful ecosystems, how can we support the development of further ecosystemic resilience to better deal with shocks such as are likely to emerge from further pandemics and from the worsening climate crisis?

Thinking about skills as an ecosystem

Transitioning skills and work

In moving towards cleaner production, we must remember that many millions are faced with the decline of old, dirty jobs, and are disadvantaged in the acquisition of new, greener jobs by multiple forms of marginalisation. There is a pressing need, therefore, to develop new accounts of how skills development can be more transformative whilst preventing further marginalisation and immiseration of many of its current participants. These must then inform new practices and policies. We are learning more about the skills needs for green jobs and how to respond to them (Pavlova, 2019a and b; Rosenberg, Ramsarup and Lotz-Sisitka, 2020) but there is less research that starts from those whose livelihoods are threatened or destroyed, which looks at their existing skills and the possibilities for quick transitions to sustainable livelihoods. Research in this area could be a major contribution from TESF.

Some TESF countries have large formal sectors and / or ambitious plans to grow these and formalise the informal sector. Therefore, we need to consider how skills can help the formal economy become greener, building on existing research in the network (Rosenberg, Ramsarup and Lotz-Sisitka, 2020). At the same time, there are efforts across the South to make formal learning providers greener in terms of programmes, curricula, facilities, etc. (Majumdar, 2011; Pavlova, 2019b). However, there is still much more to be done here and particular challenges of moving beyond 'flagship' formal firms and colleges, and of learning from strong non-formal traditions that are poorly documented.

Potential questions:

What can be done within learning systems to mitigate the negative effects of the greening of work and build towards just transitions for the most marginalised? How can we build on existing greening initiatives in formal learning and work institutions to better support the acquisition of green skills for sustainable livelihoods? What can be learnt from existing environmentally sustainable non-formal vocational training traditions?

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