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Implications for VET Research, Policy and Practice

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The state of vocational education and training

When you ask different actors with an interest in vocational education and training (VET) about its state, it is common, though not universal, to get complaints. Politicians and civil servants will typically bemoan the cost of public investments in VET and compare these unfavourably with the perceived social and economic benefits. Employers tend to complain about the inadequacy of curricula, the unresponsiveness of public providers and the workreadiness of graduates. VET leaders frequently bemoan inadequate state investment but also often express frustration at staff and their unions for their lack of flexibility. Staff, on the other hand, feel underpaid, under-resourced and increasingly overly constrained and undersupported by changes to curriculum, pedagogy and assessment. Learners are likely to complain about lack of facilities, including for extracurricular activities, and are often aware of a VET stigma. Moreover, they often know that there is a huge disparity in many countries between typical artisanal and professional incomes. In both their learning experiences and labour market outcomes, intersectional inequality plays out, and providers and the VET system are too often complicit in this. The stigma and income disparities are also widely perceived among parents and society at large. Thus, there is a powerful sense of VET not working.

Furthermore, as Chapter 2 demonstrated, the policy community have had successive waves of huge policy ambitions for the sector, resulting in a series of attempted transformations. As part of a wider international process that has its roots particularly in Australia and England, African VET systems have experienced recurring attempts at reform over the

last quarter century that repeat the use of the same set of policy tools, apparently oblivious to having used them before (Allais et al, 2022). If VET is not working well, then neither is VET reform. This book contributes some starting points in extricating VET from conceptions that constrain it. While we ground our arguments empirically in African cases and contexts, many of the issues that we have outlined are more widely relevant, whether this is the wider political–economy–ecology or the international spread of the VET toolkit. Thus, in this chapter, we are talking into the international VET debate.

On top of the internal issues with the VET system come further, existential, challenges. As we charted in Chapter 2, the educational logic of African Ministries of Education has led to massification of public VET provision to the point where graduate outputs far exceed the economy's absorption capacity, even before we address any quality concerns from employers. While pockets of excellence remain, often very tightly linked to actual labour market possibilities, the bulk of formal VET is largely detached from older notions of training for a specific job and even from likely employment. At the same time, it is failing to take seriously the ways and circumstances in which people work, and meaningfully engage in what types of education would be most valuable. Again, this is not an issue for Africa alone.

Moreover, many labour market projections suggest that formal productive sector employment is likely to decline, with potentially serious implications for the artisanal and professional areas served by conventional VET. Brown et al (2020) suggest we are heading towards the 'takeover' of human labour by robots and digitalization. While some will be able to respond through building digitalization competences, they suggest basic income grants are going to be necessary in the near future. The further decline of intermediate and higher skills jobs as a result of digitalization and automation, and the growing argument in favour of basic income grants, together pose a further existential threat to conventional VET. While this will have contextual specificities, the challenge for VET globally is immense (Avis, 2020; Buchanan et al, 2020).

Our political–economy–ecology critique of conventional VET (Chapter 3) points to the further threat internationally that many of the programmes and occupational destinations of traditional VET programmes are in areas that are most compromised by a move away from fossil capitalism. In South Africa, for instance, the automotive and mining industries were central to industrialization, the rise of public VET and the emergence of the apprenticeship system. However, these are not the mass employment and production sectors of a future just transition. While there is an important role for greening existing occupations, it will be vital to retrain existing workers for new technologies and economic opportunities including

renewable energy options (see, for example, Presidential Climate Change Commission, 2021).

Thus, VET as conventionally understood and established over the three generations articulated in Chapter 2 faces a challenging present and a complex, dynamically changing future, which this book seeks to inform. As outlined in Chapter 1, this dominant mode of VET is actually part of a wider regime that has existed for a relatively short period of time, compared to longer-term cultural patterns. Moreover, its dominance is less apparent the further one moves from metropolitan industrial centres, as our cases reveal. Vocational learning existed before it and will continue after this point in history.

While we are in a process of transitioning, however contradictory and hesitant this is, there will be a need to engage with currently conventional VET and seek to fit it for a better purpose while also potentially expanding its focus and reach and/or reimagining its purpose in ways that can respond more substantively to shifting conditions.

Adopting and expanding the social ecosystems for skills model

Reflections on adopting a skills ecosystems approach

As we noted in Chapter 1, the purpose of this book is not simply to critique but to explore the emergence of better approaches to VET. In it, we have drawn inspiration from the skills ecosystem approach. Though not uniquely, this approach has made an important contribution by making a spatial-sectoral shift and inserting a meso level analysis between previously dominant, but largely unconnected, micro and macro analyses. In so doing, it has reflected a wider trend towards understanding how actors operate within networks and the importance of evolving institutions that build collaboration and trust. It also reflects a wider place-based turn in educational research (see, for example, Gruenewald and Smith, 2014).

Finegold's formulation of skills ecosystems rather than equilibria provided a valuable elaboration of his earlier work, stressing how well-functioning regional and sectoral arrangements could emerge within wider contexts of dysfunctionality and distrust (Finegold and Soskice, 1988; Finegold, 1999). His four key characteristics (catalysts, nourishment, supportive environment and actor independence) remain important analytical and practical lenses for examining existing ecosystems and considering interventions therein. Indeed, an important factor in our initial case study selection was a sense that there might have been catalysts operating in all four settings. We also wanted to explore whether these catalysts could help strengthen the other dimensions.

However, as the project developed, it was Spours' work that seemed preferable to us as its emphasis on social ecosystems of skills reflected our concern to move away from privileging economic growth and towards the 'bringing together of a wide range of social partners around the relationship between working, living and learning' (Hodgson and Spours, 2018: 4). This move highlights the need to recognize that economies, labour markets and skills formation systems are embedded within wider social, spatial and ecological contexts in which a broader range of actors have legitimate voice (see, for instance, International Commission on the Futures of Education, 2021).

Readers will recall that this approach too has four key elements: collaborative horizontalities, facilitating verticalities, mediation through common mission and ecosystem leadership, and ecological time (Spours, 2021a). These became key to our analytical approach in this book.

We have shown examples of where collaborative horizontalities appear to exist. It is important to consider what brings them into existence and how wide and deep these relationships are. In the more formal sector cases of oil in Hoima and the maritime sector in eThekwini, a core group of employers have developed strong relations. Indeed, an international oil ecosystem exists with the oil companies themselves operating alongside a next tier of large international corporations that manage the actual construction process, and further tiers of subcontractors in various specialisms, including training. In eThekwini, we found a wider ecosystem of coordinating bodies, suppliers, training providers and so on that emerged over time around a major industrial activity that is strongly place-based. Yet, both also illustrate the challenges faced by other organizations, including public colleges, in entering these networks. This reflects existing South African research. For instance, social network diagrams of the automotive ecosystem in the Eastern Cape show the public VET colleges as existing on the periphery with weak ties to the core of the ecosystem (McGrath, 2015). In the less formalized settings of Alice and Gulu, our team comprised important actors in emerging or existing social ecosystems for skills, which took a different form from the more industry-driven ones and were more inclusive of communities and informal actors.

Examples of facilitating verticalities appear across the cases but alongside much that is nonfacilitiating. We observed a strong tendency for policies and environments to have contradictory effects, and for policies to run far ahead of implementation, due often to disjunctures between policy intention and practice. One of Spours' strong assumptions is that states are essentially developmental. Despite this being the state ideology in South Africa, developmental capacity is weak (and more so in Uganda). However, more needs to be made of power and self-interest than Spours allows for (Wedekind et al, 2021). Moreover, we need to remember the effects of path

dependence resulting from the legacies of fossil capitalism, colonialism and apartheid, as discussed in Chapter 3. This takes us beyond the flatter accounts of the northern skills ecosystems literature.

Looking specifically at the extent that just transitions are being facilitated, we must note that policies are often contradictory. In both the large industrial cases, we see that much vertical activity is greenwashing. Nonetheless, there is also evidence of donors, NGOs and certain state agencies (such as the South African Water Research Council) who are more facilitative of moves towards just transitions in the less formal settings (see also Rosenberg et al, 2020; McGrath and Russon, 2021). However, Chapter 3 points to the very powerful dynamics that need to be challenged in such a transitioning.

Mediation and leadership were crucial notions informing our work. By taking a relational perspective, this work of bringing together the horizontal and vertical to achieve ecosystemic goals was brought to the forefront of our analysis. In earlier chapters, we showed examples of organizations seeking to play this role, including universities, as discussed in Chapter 8. However, this is often undermined by limited resources and remains too dependent on key individuals. From an institutional theory perspective, it is worth considering the extent to which new institutions (agreed rules and processes) have emerged in these ecosystems and the extent to which mediatory actors are still required to develop and enforce these.

Finally, the notion of ecological time is crucial. In the Hoima case, it creates the space to consider the skills of the past (such as lake fishing) and to imagine a future social skills ecosystem beyond oil and gas. Our research is necessarily time-bounded, yet these ecosystems have existence before and after they were subjected to the research gaze. In this light, as McGrath and Russon (2022) note, 'the notion of ecosystems contains within it an implicit awareness of dynamic rather than static reality. Ecosystems can flourish but they are always subject to change and a finite existence. Taking this into account when thinking about the transition to sustainable VET is crucial.' Thinking about ecological time reminds us that there are multiple temporalities operating simultaneously and interdependently (Braudel, 1986 [1949]). Time is crucial too for thinking about transitioning, whether of individuals, firms, economies or societies. The ecosystem metaphor helps remind us that change takes time and is unlikely to be linear or simple.

Expanding the approach

Skills ecosystems work started off by analysing the extreme case of Silicon Valley and then moved initially to other regions of advanced Anglophone economies. It is only since around 2020 that the approach has started to move to the BRICS countries (Brazil, Russia, India, China, South Africa) through work in India and South Africa (Lotz-Sisitka, 2020; Brown, 2022).

We take the South African work further and complement it with work in the economically poorer context of Uganda. Although these ecosystems have important contextual differences from their northern predecessors, the basic analytical tools hold, as we have argued here and throughout the book. Nonetheless, we have argued for a strong ontological grounding in constructing such social ecosystems for skills and including some of what has historically been excluded from VET thinking and praxis (such as responses to a wider notion of work).

While the social ecosystem model identifies the importance of thinking also about skills for life and environmental sustainability, these remain underdeveloped. We too have not taken these as far as we would have liked, and more remains to be done in developing a political–economy–ecology perspective further. However, we have sought to make a case in this book for the importance of such a task and have offered some pointers towards it.

We have attempted to make a more explicitly ontologically distinct account. This has three main dimensions. First, our more explicit engagement with political ecology issues and the challenge of just transitions, though not fully realized, points to a further development of an account of VET's purpose as being different from the productivist–human capital origins that still permeate much of VET thinking. To see VET's purpose as being about furthering collective human flourishing and integral human development is both an axiological and ontological move.

Second, although relationality is implicit in an ecosystems account, we seek to make this more explicit through our discussions and application of the notions of relational agency and relational capability. We believe that relationality is fundamental for an approach to VET for just transitions, a vital next move in the field. We argue that the social ecosystem for skills model can help to advance relationality in VET, a position that also seems to be emerging in international and regional African discourse (for example, the recent UNESCO/South African Development Community deliberation on VET–higher education relations).

Third, as we noted in Chapter 1 and reiterated in Chapter 4, we draw on critical realism to underlabour our approach. This is fundamental to how we see the vertical and the horizontal interacting, but it is most important in how we try to address the scalar question. Adding in a meso level focus is useful in itself but raises the question of how levels interact. By drawing on Bhaskar's laminated approach to multiscalarity, we are able to address this issue. And as shown in our cases, wider issues such as climate change impact on the VET system through new demands for curriculum innovations that support, for example, content and practices for water conservation and climate resilient agriculture in rapidly changing conditions (such as in Alice). This shows processes and relations across the multiscalar system presented in Chapter 4.

One important decision that we made in writing this book was that social ecosystems thinking was useful, but that it did not provide sufficient conceptual tools to drive all of our work. It may be conceived as providing the middle of three layers of our conceptual approach. At a more generalized level, we have located our expansion of the social ecosystems approach in critical realism, as noted earlier. Moreover, each of the empirical chapters also drew on other literatures that are present in substantive debates in those subfields. We show that the social ecosystems model is complementary to other approaches, on inclusion, transitions from education to work, human development and sustainability, for instance.

We have also sought to broaden the social ecosystem approach by adopting a set of lenses on our empirical cases that take the work further in ways that were not central to Spours' largely conceptual approach. Our first lens was that of informality, seeking to apply, and adapt, the model to the reality of the majority of African, and indeed global, economic life. In the informal economy contexts we considered in Chapter 5, there were many thousands of continually shifting individuals, microenterprises and families operating in complex webs of relationality. At the same time, potential anchor institutions and their partners are very few and their reach relatively small. Therefore, it was useful to think in terms of network catalysts, providing frameworks for fractal processes of deepening relationality, rather than anchor institutions. While much informal sector activity is survivalist, our story is one of possibilities for generating new ideas for the future. Given young people's need to find new paths through living, working and learning, relationships rather than formal learning providers came to the fore. It was the former that allowed people to develop better approaches to assembling, repurposing and reconfiguring knowledge into dynamic responses. Nonetheless, we also saw learning sites that are formalizing, and we saw influences from the informal sector on the formal VET institutions in more responsive curriculum innovations, with a broader role being taken on by VET teachers (see Chapter 6). Particularly interesting here was the case of Farmer X (who is also discussed in Chapter 6). Originally primarily a producer, he had increasingly become a trainer and was in the process of moving from providing informal learning opportunities to getting a study programme accredited. This is a rare example of such a formalization being initiated from below, a point we shall return to when we consider implications for policy and practice.

Second, in Chapter 6, we considered how the model could be extended to consider more explicitly the part played by vocational teachers, surely central actors in any social ecosystem for skills. Mindful of cases such as Farmer X, we took an expansive view of vocational teachers, seeking to get beyond the existing largely bifurcated literature of formal sector industrial trainers and public sector vocational lecturers. Instead, we insist vocational

teaching and learning happen across learning spaces and working spaces of all formalities. We argue that teachers are central to all ecosystem aspects, as interpreters of curriculum, scaffolders of learning and connectors to work. Ideally, they are mediators, traversing boundaries between learning and work and guiding the vocational learner to the same, both in terms of vocational knowledge in the classroom and in navigating the labour market, both formal and informal. It is vital that curriculum and what happens in the classroom is adjusted and changed as work evolves, and teachers must be key actors in this. This becomes even more vital as we think about VET for just transitionings. In moving towards this, teachers need further support.

Unfortunately, key verticalities here have often been nonfacilitating, such as focusing on higher teacher qualifications without adequately considering why this should make a difference to learning or how existing teachers are to access or use these new qualifications meaningfully in their contexts. If we are going to meet the needs of VET teachers beyond formal public institutions, then tailored or boundary crossing approaches will be vital. This needs to bring vocational teachers together with farmers, local economic development officials and extension officers (see Chapter 8). An ecosystem approach thus helps us question the top-down bias of too many interventions in vocational teacher development. Our data points also to the importance that teachers placed on building horizontal relationships within and across institutions and community organizations, of building horizontal collaborations in the language of both the social ecosystems for skills approach and the International Commission on the Futures of Education (2021, discussed further later in the chapter).

Education policies are increasingly employing a rhetoric of innovation. However, innovation requires real facilitating verticalities that empower vocational teachers to function in the mediating space. This necessitates giving them sufficient autonomy to work with curriculum and delivery. They are too often faced with blame and stigma, yet there are many able and committed vocational teachers who need to be properly paid and resourced and given the support to build their individual and collective capacity to deliver good quality VET. What we are categorically not arguing is that teachers should do more without being recognized and rewarded for this.

Our third move, in Chapter 7, was to consider how the social ecosystem approach for skills could inform the education-to-work transitions debate. In positioning our work alongside those who problematize such transitions and point to nonlinear and blocked transitions, and the role of intersectional inequality therein, we returned to questions of how the vertical and horizontal, and mediation between them, contribute to facilitating transitions. Our stories illustrate the need for more critical and differentiated consideration of needs and local contexts. They stress the role of networks and their building as critical to supporting institutions and learning pathways.

While Chapter 5 highlights the importance of networks, here we argue that in more formal or hybrid labour market contexts, anchor organizations remain crucial. Even in the networks in our cases, leadership was being provided by diverse learning institutions including VET institutions. These need to be robust, agile and inclusive. Linking back to Chapters 5 and 6, this requires more support for localized colearning networks.

Finally, in Chapter 8, we make the rather unusual move of looking at the role of universities in supporting social ecosystems for skills and these localized colearning networks. The reason for this is that universities are also potential contributors to diverse skills ecosystems, and they have capabilities and mandates for engaged research and community engagement alongside more traditional teaching and research roles. Each of our four research partners is active in ecosystems development work, with two working particularly closely with a range of other actors at the local level in case study sites. Through our experience in these cases, we argue that universities can play a key role in helping to make verticalities more facilitating through the particular advantages that they have in convening other actors due to their social status, research abilities and their capacity to bring national and international resources to local settings. We also show that there is a need to reframe the notions of productivity and demand to include both how they are conceived conventionally and how they relate to social and ecological systems knowledge and praxis for livelihoods advancement. This orientation also repositions universities as contributors to social movement building for sustainable development in the expanded social ecosystem model. This reduces their historical isolation, deriving from an 'ivory tower' notion of the university. Instead, they are boundary crossers, active contributors in partnership with VET providers (of whatever level of formality) in supporting sustainable and inclusive social ecosystems for skills.

Some limitations to our approach

Nonetheless, this book does have limitations that we should highlight. We will not claim that our research design was perfect. Indeed, a desire to be democratic led to an iterative approach to design and required compromises within the team. Moreover, the operationalization of our approach was significantly affected by multiple lockdowns across our research and writing sites that were the result of the COVID-19 pandemic. We were far enough into data collection at the start of lockdown to adjust and continue, but there are data that we were not able to collect. This required some refocusing of target themes for the empirical chapters. Given our intention to motivate for and start the expansion of the social ecosystem model, this refocusing was not problematic.

While we have stressed that critical realism underlaboured our approach, we have also noted that we do not attempt a full critical realist analysis. Our revised intention, for instance, was not to try to build a specific account of what was working in VET, for whom and why in the realist evaluation tradition (as we noted in Chapter 1). Rather, we set out to develop a case for researching VET in a new way, one that was underpinned by critical realism. In this sense, the book is complementary to two other recent book length treatments of skills development in Africa (Powell and McGrath, 2019a; Rosenberg et al, 2020), both of which spend more time in outlining a critical realist approach.

We also had a strong ambition to focus on skills for just transitions. However, both the blockages on fieldwork and the very early stages of moves towards transitions in many settings meant that our ambition outstripped our ability. In the end, we still decided to reflect our ambition in this text because this is an area of existential importance. However, we decided to see just transitions more as a lens through which to critique the current state of VET, explore our findings and identify the road still to be travelled.

Our intention has been to contribute towards addressing the long history of colonial and extractive natures of VET as engaged scholars. However, we acknowledge in the afterword that we were only partially successful in developing a better practice. It can be questioned also whether an African account should be developed from a theoretical approach that began in the north. In our praxis, however, the social ecosystem approach developed out of a demand for supporting farmers to learn more about rainwater harvesting to bring water to their fields in a context where such knowledge was largely absent from the VET system (including extension graduates' knowledges). Only later did we begin to draw insights from skills ecosystem research (see Pesanayi, 2019a; Lotz-Sistka, 2020; Lotz-Sisitka and Pesanayi, 2020). We did this because the social ecosystem perspective resonated with, and helped to better explain, our work in the Imvothu Bubomi Learning Network (IBLN) and its grounded emergence over time. We were therefore not simply reinforcing a dependence on northern knowledge. Rather, we were drawing on this to enrich our own experience and generative research innovations, and as shown in this book, we were also advancing this theoretical perspective. We were curious to see the wider application of this concept, and so used it in this study. What was important in this process is that social ecosystem approaches to skills helped to re-establish disrupted African 'cultures of agriculture' as a decolonial praxis (Pesanayi, 2019a) in the Alice case; respond to youth challenges of exclusion in the Gulu case; articulate the complexity of youth transitioning experiences in the eThekwini case; and reveal the dominance of oil companies and conglomerates in structuring VET in exclusionary ways in the Hoima case. Our concern was not therefore to deliberate colonial versus decolonial theory but rather to enrich grounded

decolonial praxis in and for VET with useful theory (see Tikly, 2020, who draws on Santos, 2014, to argue for establishment of wider ecologies of knowledge in and as decolonial praxis). Centring our extended model on relationality, informality and context, among other key elements, our approach offers ways of working up decolonial praxis. We also acknowledge that a more critical reading of our approach is entirely possible.

By using the ecosystem metaphor, we are implying some degree of a complexity-influenced approach. However, like many other social scientists, we are only nodding to complexity's radical implications rather than fully engaging with the concept. Our ontological critique of the Spours' model seeks to move us beyond its implicit linearity, a function in part of representing its message through a quasi-graph. However, there is more work to be done here. We also note that not all concepts from complexity theory are useful for advancing generative research.

The ecosystem metaphor can be overstressed. The skills systems we are working on are social, not natural, systems. They exhibit social phenomena such as power and mistrust and are partially shaped by conscious actions and by structural and cultural histories and emergent properties as well as agentive dynamics of those involved in the processes of building local social skills systems. Following Spours and colleagues, we use the metaphor consciously not simply to describe the current world but as a tool for imagining the future and for opening up the many historical, cultural, structural, agentive, relational, social and social-ecological dynamics that ultimately make up a social ecosystem model for skills. However, there is a danger in using the metaphor that we blur the boundaries between what is, what might be and what should be. Further research into the many intersecting dynamics that sit inside the metaphor needs to be continued beyond what could be achieved in this book.

Implications for VET policy and practice

In critiquing the internal logic of current VET approaches, and in seeking to reimagine VET, our work throws up a number of implications for current policy and practice debates.

System thinking

Part of our focus on an expanded approach to social ecosystems for skills is a stress on the importance of looking at the whole of skills formation systems and not at narrow elements thereof. Too often, VET policy is dominated by a focus on public providers, indeed those public providers under the jurisdiction of Ministries of Education. Even when formal enterprise-based training is included in policy considerations, we are still talking about a small

fraction of overall provision. While there are important reasons for focusing strongly on state systems, our clear message is that we need to look at the totality of skills formation.

Considering the whole system permits us to understand better the complex question of who benefits from different parts of the system, who does not, and under what conditions. While there is rightly an argument that public provision has a particular mandate to reach the socially and economically excluded, it is apparent that many are not able to access it. Equally, while many face forms of marginalization and exploitation in the informal economy, it is a site of opportunity and innovation for others.

Rethinking VET's purpose

By emphasizing the word 'social', following Spours, we are also reiterating the point that the focus of our attention on skills systems should not just be on a narrow employability–entrepreneurship–productivity agenda, as has become dominant in public systems that appear to have forgotten the wider societal and educative dimensions of VET. At the Shanghai World TVET Conference in 2012 (UNESCO, 2012), the global VET community agreed that the economic rationale of VET had to be seen as only one strand, alongside social inclusion and sustainable development. With such an emphasis on a triple purpose comes a stressing of broader categories of social actors. Yet, the VET responsiveness agenda has remained narrow, thinking solely about the needs of formal employers and the economy, remaining locked in a fetishization of skill (Wheelahan et al, 2022). This has once again been challenged by the International Commission on the Futures of Education (2021; see also the background paper by Buchanan et al, 2020), but whether this will have any more traction with the VET mainstream remains to be seen. Perhaps, as shown in our cases, the ontological foundations of VET as experienced by communities may help to give these policy arguments 'life' and greater resonance, and thus also traction. More cases could therefore be developed to provide further empirical perspective on the arguments put forward in this book.

What a social ecosystems approach does is reiterate the importance of other actors in building skills networks and institutions. Thus, civil society organizations, for instance, need to be part of VET conversations. A good, though still very much emerging, example here is that of the Ker Kwaro Acholi (see Chapter 5), the Acholi cultural organization that is seeking to become an important actor in reimagining development in northern Uganda, and the role of skills formation therein. Other actors are important too. Parents and students are central actors, yet they are largely marginalized. Their attitudes towards VET are central to its possibilities for success. Churches are major players in provision in many countries, such as Uganda, as well

as being important civil society organizations with strong contributions to make regarding social inclusion and environmental stewardship. These issues point to the need to revisit debates about governance and responsiveness. These have been major elements of the VET Africa 3.0 approach but have largely failed on their own narrow terms and need radical rethinking.

Addressing public provision

While we have stressed the importance of looking at the broad range of VET provision, our research does have a series of messages for public provision. The discussion about the need to revisit governance, of course, is hugely important for the public system. With it comes the need to address the issue of public provider autonomy. There is a literature critiquing the limited extent and problematic conceptualizing of such autonomy in South Africa (for instance, McGrath, 2010; Wedekind, 2010; Kraak, 2016). Our story is very much one of many public providers being unable to respond fully to local skills needs and opportunities as they do not have a mandate. This is likely to become even more acute as VET needs to respond to new and pressing challenges of sustainability as well as rapidly changing economic circumstances. Where public VET providers are most prominent in our story is in two particular ways that are worth reflecting upon. First, in both Hoima, through the Uganda Petroleum Institute, Kigumba (UPIK), and eThekwini, through uMfolozi Maritime Academy, responsiveness to local economic trends actually comes from central government direction and leads to the formation of a new structure (whether an entirely new institution or a new part of an existing one). It does not come from local institutions, as they lack the capacity and authority to do this. This is deeply problematic. Second, in Alice, it was an agriculture and forestry training institute – with a mandate to become more regionally responsive – rather than the regular public TVET college, that was a key actor in the social ecosystem for skills. This reflects the far greater level of autonomy this institution enjoys, and perhaps also its more focused interest in agriculture as the key local sector, compared to the TVET college that offers a wider range of qualifications that are not well integrated into the local economy and its development. There is no justification for institutions under other ministries being more responsive to local skills needs than those institutions under Ministries of Education.

Part of the reason why public providers have been found to be peripheral to other economic sector stories in South Africa is that public colleges are seen as unable to respond quickly to industry approaches despite this being the intention of VET Africa 3.0 reforms over a quarter century. This is seen too in the case of public TVET colleges in eThekwini metropolitan area and Alice. The ability of local providers to be responsive and anticipatory regarding skills needed to support economic transformation is partly also

related to the ability of other local state structures. In eThekwini, such structures are relatively strong, and the problem seems to be more about the marginal position of skills thinking, and especially of public provision of skills, in such structures. In Alice, too, we see some engagement with the structures of the municipality, but one that is more limited in its capacity.

The three 'responsive' public structures, moreover, are specialist providers, whether at the whole institution or academy level. This leads us on to the debate about whether such providers may have advantages over general institutions. There certainly are merits in the argument that specialization is advantageous. A specialist institution is potentially more able to overcome issues of stigma. It is also able to put relatively more of its resources into linking with external partners and understanding labour market, societal and environmental trends. It also lowers the costs for other actors in engaging with the public system as it reduces the need to search among apparently similar providers. However, such specialist institutions can only work if they are genuinely centres of excellence, whether related to national or local needs, and are resourced and staffed accordingly.

This takes us back also to the autonomy issue. It is one thing for central government to mandate a provider to respond to sectoral needs; it is another to give this provider the freedom to do so as and when it judges this to be appropriate. However, our cases also point to the challenges of getting wider buy-in for such centres of excellence. Neither UPIK nor uMfolozi were asked for by industry partners, who had their own skills formation strategies in place. Thus, both face a significant challenge in convincing employers that they are worth engaging with.

Part of the credibility challenge for centres of excellence has to do with qualifications. Both UPIK and uMfolozi were in the process of developing their own qualifications that were seen as more attuned to industry needs than typical national vocational curricula and qualifications. Yet, there were already industry-recognized international qualifications available, and developing something that is at least as attractive as these will be challenging. These are two highly formalized and internationalized sectors where major employers and serious health and safety concerns shape a tendency towards highly standardized programmes.

Almost polar opposites that still reinforce the need for market acceptance of qualifications are provided by examples from Alice and Gulu. In the former, the IBLN saw a curriculum and qualifications developed by multiple actors that was clearly valued locally. Here, the relative autonomy of tertiary providers, in the form of Fort Cox and Rhodes, permitted something to be developed that creatively engaged with the national qualifications framework (NQF) in a way that did not straitjacket learning to fit the formal frame. In Gulu, the case of Farmer X points to a welcome flexibility on the part of the Ugandan Department for Industrial Training. Its willingness to investigate

accrediting what started off as an informal programme is welcome. However, it is clear here that it took the charismatic and knowledgeable leadership of Farmer X to make this happen. Like the key staff of Fort Cox and Rhodes, he was able to cross the boundary between the formal and informal to mediate between them.

Both countries are firm believers in NQFs despite the lack of evidence for their efficacy (see Allais, 2014). However, what is apparent across the cases is that qualifications alone are not enough to secure successful and rapid individual transitions. Despite longstanding NQFs, respondents spoke of having employers not recognize their certificates. Many employers still do care which provider delivered the education despite NQF rhetoric. By ignoring the necessary grounding of qualifications recognition in social relations (Buchanan et al, 2020), the introduction of NQFs may make the situation worse.

Too much policy attention is given to school/college-to-work transitions in ways that imply some tinkering with the education side can quickly sort out the problem. This ignores the massive gap between supply of new labour market entrants and the demand from formal sector firms for employees both in quantitative and qualitative terms (see Allais and Wedekind, 2020). What is apparent is that transitions cannot be straightforward in such a context, except for the privileged or incredibly lucky. Interventions are needed but cannot be simple and cheap in the face of this challenge. What needs to be attempted are interventions that focus more on stable and decent livelihoods than the first moment of labour market insertion, a notion that makes little sense in many contexts in Africa and beyond. Particular attention must be given to those who are socioeconomically and/or educationally disadvantaged and how to support their transitions into specific occupations and sectors. The uMfolozi Academy is an attempt to do this, but it is unclear how well it will succeed.

Skills for the informal sector

The issue of transitions takes us forward to a consideration of the informal sector and its role in skills formation and social ecosystems. As we have stressed, most African youth will engage with informal work, whether it be in the informal sector as conventionally understood or through informal working for formal sector firms, as is increasingly becoming the norm in the north too. In Chapters 5 and 7, we try to reframe the issue of transition for a majority informal reality. Our data make clear that just because someone is in the informal economy does not necessarily mean that they are mired in survivalist activities with no hope of progression. While we do not want to romanticize informal sector activities, our research does point to examples of innovation and dynamism. This is important as

it emboldens us to argue against the policy tendency to seek to formalize the informal. In many ways, this is the worst of empty policy rhetoric. Declaring formality without the means to transform economies and labour markets so that informal work is genuinely eradicated both offers false hope (which seems to be an issue in some of the data from Gulu) and denies existing lived realities.

In the skills arena, this has led to well-meaning but intensely naive interventions to give those working in the informal sector qualifications on the NQF. Again, this is deeply problematic as it both makes a false promise that formal qualifications will lead to formal jobs and allows for the blaming of those who don't choose to acquire these new formal qualifications. Our data, on the other hand, shows examples of dynamic learning processes within the informal sector. The policy and practice question, thus, becomes: how do we support informal learning in the informal sector to strengthen its quality in terms of knowledge content, inclusivity and livelihood outcomes? This may be possible. If so, it needs to start from listening to those already engaged in such activities, as our Gulu and Alice teams are doing, and working with them to build improved practices including those of sharing existing good practices horizontally in ways that can also draw on the resources and networks of formal learning institutions. This is what some of the best interventions in upgrading traditional apprenticeship did in the VET Africa 2.0 era. Such interventions were typically small-scale NGO projects. What worked far less effectively were later major national interventions, typically bankrolled by external donors, especially the World Bank, that flooded informal sectors with money and generated more corruption than training (King and McGrath, 2002).

A strong finding from our research, reflected particularly in Chapter 5, is that there is considerable vibrancy in informal sector learning that goes far beyond the usual focus on traditional apprenticeship. We see two main strands of this in our data.

First, in Gulu especially, we found several new training providers who were better geared to the sector's needs. The owners included graduates and those with experience of working with international development organizations, who could draw on various forms of capital. These characteristics very much reflect the Gulu context, with its history of humanitarian aid and its local university that together have generated more skilled people than the formal economy can currently absorb. Some of those we encountered had started as training providers, but others had increasingly shifted from production to training. As with other endogenous initiatives within the informal sector, there is potential to support these organizations to strengthen them, but also a great risk of interventions from state or donors that undermine them. At this point, overformalizing them by pushing them towards national curricula and qualifications is almost certainly a bad idea.

Second, we found that some in the informal sector were using social media to acquire and share knowledge both nationally and internationally. Again, this is a useful corrective to the tendency to see the sector as mired in poverty and ignorance. In the Alice case, learning network members use combinations of social media, formal training and informal learning processes, with the latter often being constructed via calling on members of the network to share productive demonstrations or knowledge around certain concerns. The contemporary informal sector is far from homogeneous, and any policy interventions need to start from this and consider the contexts in which they are intended to operate.

Knowledge, learning and teaching

This use of social media in learning and knowledge sharing is an important part of our story of social ecosystems. Indeed, some of the networks go far beyond the conventional understanding of a spatially bounded skills ecosystem. The growth in the use of social media has implications for policy and practice. In small-scale farming, catering, tailoring and food production, we have examples of trusted sources of new ideas and advice that go far beyond VET providers or the agricultural extension system. Such systems need to be reviewed for the consequences of this in terms of knowledge sharing, learning and vocational praxis development. Perhaps nowhere is this more urgent than in the case of agricultural extension. It is noteworthy in this respect that Fort Cox has fed its experiences of being part of the IBLN into its own radical curriculum reform process that seeks to respond to new needs of agriculture graduates. Here again, we need to note that Fort Cox has more autonomy to respond like this than a typical public VET provider.

The growth in access to and content of social media, and rapid digitalization, has potentially profound implications for the flow of vocational knowledge and for the status of vocational teachers as key knowledge actors, as the International Commission on the Futures of Education (2021) outlines for education as a whole. On the one hand, as we saw in Chapter 6, the possibilities of learning informally online can assist teachers in making their formal lessons stronger, as they can source information and knowledge otherwise absent from resource-poor institutions. However, as social media do become more ubiquitous, they reinforce existing challenges to notions of teachers as sole distributors of knowledge through speaking and writing their notes on a blackboard in the theory classroom. Our data appear to reinforce arguments about shifting the teacher to more of a guide to accessing and evaluating knowledge. As we note in Chapter 6, there are many possibilities for a different role for vocational teachers, but this requires a fundamental revisiting of their role and purpose; a radical reworking of their initial and

continuing preparation; and an adequate resourcing of them. All of these will be challenging in under-resourced public VET systems and in societies where a digital divide is still acute, as in both Uganda and South Africa. How to reach private provision of all kinds is a further issue.

Moves, such as in England and Australia, to reduce the initial qualifications of public vocational teachers appear highly counterproductive. However, simply requiring higher qualifications (and potentially retrenching experienced teachers on the way) is also to be avoided. More important, arguably, is thinking about continuous professional development. As we noted in Chapter 6, too many interventions in this area have been through relatively short-term programmes that are often disparate and uncoordinated. Rather, we stress the importance of building horizontal relationships between vocational teachers across and within institutional boundaries. An ecosystemic approach points to the importance of developing these horizontal relationships through better localized coordination around professional development activities that develop communities of practice among vocational teachers and others who contribute to their professional learning. For instance, in the Alice case, it was the collaboration between farmers, extension officers, LED officers, university staff and students, and other college lecturers in an ongoing learning network structure, that led to professional development of the lecturers.

The role of social media in vocational learning takes us to the question of education technology in vocational learning. The pandemic has seen a further marketing push by edtech firms keen to get state investment in their schemes. It is clear that edtech can do some valuable things in VET, but there is need for caution about its efficacy and cost, let alone its collaboration with the state to project a sense of techno-utopianism that will solve all ills (Black, 2021). Rather, we suggest that a debate about harnessing the power of informal e-learning may be more fruitful when thinking of strengthening VET teaching and learning. The Alice case has also shown that there is need to give much attention to technical issues such as devices, software, data costs and other dimensions for e-learning assumptions to be realized in practice for staff and students alike, and to bring attention to the fundamental inequalities that still prevail in access to all of these and to safe and effective learning spaces outside formal classrooms (Allais and Marock, 2020).

Rethinking private provision

We have been concerned with public and private provision of VET at various points in this chapter, but it is important to come explicitly to the debate about the role of private provision in national training systems. Starting from the local ecosystems that are the heart of this book, it is evident that there is much private provision but that it is highly varied.

In both Ugandan cases, the strongest formal VET providers historically have been church-owned. Uganda has sought to integrate these institutions into the national system, and their provision is mainly of national qualifications. However, the coming of oil to Hoima has also seen the arrival of new actors, typically small and specialized, focusing on very specific areas of training such as health and safety. In between these two forms, there is a third, that of the more conventionally understood private provider specializing in business and information technology, which are relatively fragile in a poor location such as Hoima. However, in this setting, it is apparent that public providers also are weak. Apart from UPIK, it is difficult to see potential for them to play anchoring roles. Rather, the likely future trajectory here is for a very diverse provider fauna to be maintained. In Gulu, we have also noted the evolution of new private providers with origins in production, as detailed earlier. From a dynamic ecosystems perspective, it is difficult to predict where this provider mix will go, but again there is a richness of diversity from which policy needs to build.

In Alice, there is nothing like the same range of providers as in the more urbanized Gulu. However, the IBLN brings together individual and community actors, but the key institutional players are public tertiary institutions, with the local public TVET college being notable by its relative absence from this social ecosystem for skills, although it has interacted in the network a few times. This reflects both its limited autonomy and a history of policy bifurcation between industrial and agricultural training, with public TVET colleges focused on the latter even where there is far more agriculture than industry.

Finally, in eThekwini, we need to distinguish between what is happening around the Port of Durban and an initiative at the secondary port of Richards Bay. Around the long-established Port of Durban, we see a complex infrastructure of private skills providers of various sizes and a large parastatal training provider. This latter provider reflects the South African history of public sector apprenticeships as a key tool of economic and social policy stretching back a century to the 1922 Apprenticeship Act. Three large public TVET colleges are present in the city, but they are only weakly engaged with the maritime sector, though there are stronger historic links to other sectors such as automotives. Public tertiary providers are more aligned with the maritime ecosystem, providing high-level skills to the industry. There appears to be relatively limited opportunities for the public colleges to get involved in this well-functioning ecosystem. It is noteworthy, therefore, that the main public skills intervention as part of the maritime infrastructural investments was not in the Port of Durban but 100 miles north at Richards Bay. The uMfolozi Maritime Academy is a sizeable attempt to enter the maritime skills ecosystem of KwaZulu-Natal.

It is also deliberately intended to insert more of an equity and inclusion agenda into recruitment into the sector. However, it is too early to judge whether it will be able to move sufficiently into the core of the network to be able to meet its objectives.

All four ecosystems point to the complexity needed in thinking about private provision from a policy perspective (Akoojee, 2011). Clearly, context matters hugely. It is apparent that in none of these ecosystems do public VET providers play a dominating role, though UPIK and uMfolozi aspire to importance. This raises interesting questions about what the state should do when skills ecosystems are already reasonably strong without a large public provision presence. Does it make sense to try to insert public providers into such ecosystems, as in the UPIK and uMfolozi cases? If not, how does the state intervene to address equity concerns or, perhaps increasingly, environmental imperatives? Are there other sectors where the dynamics are different, making large-scale public interventions in provision more feasible? How do these get identified? In contexts where formal industry does not dominate, what is the role of public provision and what should its relationship with other forms of provision be? There are good historical examples of positive relationships between public providers and the informal sector, for instance around opening college workshops out-of-hours for use by local producers (King and McGrath, 2002). Can these be replicated?

Universities as social ecosystem actors

Our focus in this book is on VET, but in Chapter 8 we focus on universities as important actors in Alice and Gulu. This opens up some consideration of what these cases have to say for the debate about developmental universities. In parallel to VET 2.0, an African strand of a wider southern notion of the 'developmental university' emerged in the late 1960s (Yesufu, 1973). It sought to move higher education away from elite formation and the transmission of northern knowledge, advocating instead 'the grounding of universities' teaching and research agendas in the "real" problems of African development, around rural marginalisation, poverty and the emergence of urban informal settlements and work' (McGrath et al, 2021: 886). Our discussion in Chapter 8, however, perhaps can better be seen as part of a more recent global movement to see universities' development role as being about the promotion of social entrepreneurship. Their particular contexts, including the presence of key individuals, has allowed both Gulu and Rhodes universities to play a role as innovation catalysts in our case studies. Nonetheless, there are wider questions about how such activities are made more sustainable and are replicated.

Towards a new language for thinking about VET policy and practice

We have shown in this chapter how an expanded social ecosystems perspective on skills formation can inform existing debates about VET policy and practice. However, more radically, the approach points to a new way of thinking about what should be the key future debates. Here, we will very briefly introduce a new lexicon for VET thinking that can help us in the wider task of 'reimagining our futures together', as the title of the International Commission on the Futures of Education (2021) report puts it (see also Buchanan et al, 2020 for elements of a new VET lexicon). This phrase of 'reimagining our futures together' needs highlighting. Our intention in this book is to share some of our collective work of reimagining *and* to invite others to do this urgent task with us.

The language of ecosystems leads to the notion of nurturing and to the question of how we can nurture social ecosystems as a way of building VET institutions, both in the sense of providers and rules. This leads on to how we can promote facilitating verticalities and encourage collaborative horizontalities. From this flows a need to focus on strengthening mediators and mediating activity. Our approach recognizes that there are not just anchor institutions but also anchor individuals who are central to the well functioning of social ecosystems. This turns our attention to how we might cherish and nourish these individuals, who might also be thought of as catalytic, in Finegold's language. Our strong focus in this book on relational agency leads to the importance of thinking about how we unlock this agency. However, in stressing agency we must always remember the role that structure plays alongside this within a laminated whole, and that agency is a socially constituted collective act as much as an individual act (Lotz-Sisitka, 2018). In other words, agents act in activity systems around shared or partially shared motives, working with others to advance aspects of shared activity (such as mediation activity in the social ecosystem for skills). This is well explained by Sannino (2020), who shows how transformative agency emerges in collectives.

All of this moves beyond the conventional command and control approach of states without shifting to a celebration of market forces. Rather, it is at heart a relational approach that also contains a notion of subsidiarity in trying to emphasize that decisions should be made at the appropriate level rather than stressing either centralization or decentralization (Scoones, 2016).

We have stressed the importance of moving towards skills for just transitions, but we have also confessed that we are still at an early stage in that journey. In reflecting more on this, we build here particularly on Rosenberg et al (2020). We have followed their argument that we need to move towards a new conversation between political economy and political

ecology, demonstrated most clearly in Chapter 3. We have argued that VET policy and practice has largely been complicit in environmental destruction; VET research, in turn, is complicit in this by refusing to engage with the consequences. A quick survey of the five leading VET journals, for instance, shows only eight sustainability-related articles in the past decade. It is only with Rosenberg et al that an attempt to conceptualize skills for just transitions has begun in earnest.

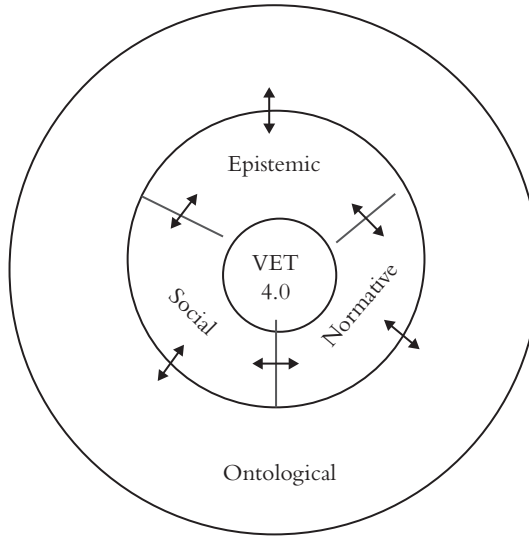
VET must be reconceptualized to think of what skills we need to learn for what work and for what lives, and these lives must be seen as being lived with other humans, with other species and with the planet. VET must impart skills for us to get from where we are today, facing an environmental and, hence, existential crisis, to a place of sustainability and flourishing. This requires VET systems that can be proactive in engaging with the challenge of just transition. We believe that social ecosystems for skills are at the heart of this, as neither marketized individualism nor state-led development will provide solutions. However, we also need to remember that 'skills will not save us' (see Allais, 2012; Buchanan et al, 2020) but must be part of wider efforts to deliver just transitions.

Following on from Shalem and Allais (2018), Lotz-Sisitka and Ramsarup (2020) propose thinking about green work at four levels, and we apply this to a reimagined VET here in Figure 9.1. First, there is a normative dimension, in which we need to think beyond the narrow, unquestioning belief in VET for employability and interrogate what VET should be for (see, for instance, McGrath, 2012). Our cases are particularly valuable in showing the failings of the orthodoxy, but they also point forward, albeit partially, to other possible visions. Here we argue that human flourishing within planetary boundaries (as in Raworth's [2017] doughnut) is what VET should be seeking to support.

Second, there is an epistemic dimension. It is clear that new forms of work bring with them new knowledge and new knowledge requirements. We cannot predict exactly what will happen to existing jobs or which new ones will emerge, but they will all be shaped by technological, environmental and societal change, and this will impact on their knowledge content. We have shown how the knowledge of many different occupations, including that of vocational teacher, is shifting rapidly and dramatically, and suggested that VET policy and practice needs to respond to new knowledge challenges but also new opportunities for different patterns of knowledge sharing.

Third, there is a social dimension. Our book highlights the importance of new configurations of social actors and new relationalities, seen here through a social ecosystems lens. To achieve just transitions, it will be crucial that socially inclusive and democratic deliberation and practice spaces are opened up and defended. Some of the ecosystems we examine, particularly in the Gulu and Alice contexts, point in this direction.

Figure 9.1: VET 4.0's ontological, epistemic, social and normative dynamics



Fourth, Lotz-Sisitka and Ramsarup (2020) added a further dimension: the ontological. The existential nature of the environmental crisis calls us to think ontologically about how work contributes to the wellbeing of people, other species and the planet. This recalls some of the European VET tradition that has drawn on notions of *bildung*, of fulfilling one's purpose. In this view, VET is fundamentally about becoming fully human, about creating ways to live, work and learn in harmony with other humans, other species and the planet. Reimagining VET in this light is the single biggest challenge for the field today. Working our way into this is, however, not impossible, as also shown across the pages of this book. Importantly, our work resonates with a wider global call for a reimagined relational role for postschool VET. The International Commission on the Futures of Education (2021) says the following regarding VET:

> Post-secondary technical and vocational institutions, including community colleges and polytechnics, should also be seen not only as training institutions but as venues of applied research. They should give prominence to the importance of productive capabilities in our individual and collective lives, to the effective functioning of learning societies, to the numerous pathways for meaningful work, and to the potential for integration, partnerships, and cooperation between various sectors and communities. The local character of many vocational institutions closely connected to the community

> provides an opportunity to foster thriving local cultures of learning. Local communities have distinctive connections to the knowledge commons, and technical and vocational institutes can contribute to developing insights about their application in distinctive, contextually relevant ways. (International Commission on the Futures of Education, 2021: 76)

Giving meaning to this recommendation is likely to require some of the approaches and considerations that we have given to reimagining a new social contract for VET Africa in this book. The exploratory nature of our work, as well as the caveats and recommendations for further research, therefore, could be taken forward within this wider framing of reimagining education for a more sustainable, just and inclusive future, and the reframed social contract that is needed for VET to become more relevant to the times that young people are growing up in, and the futures they face. While the need for this is pressing in the Ugandan and South African contexts we have discussed in this book, the same urgency applies globally.