Educating for work in the time of Covid-19: Moving beyond simplistic ideas of supply and demand

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Abstract

This article describes how the Covid-19 pandemic has been particularly negative for skill formation in South Africa but, at same time, there are high expectations for the technical and vocational education and training system to support economic recovery and individual livelihoods. We argue that many policy recommendations for how education can meet these expectations are trapped in a narrow and mechanistic notion of supply and demand. The knowledge and skills required to do work are not developed somewhere outside of the economy, and then 'supplied' to meet labour market 'demand.' Skill formation is embedded in a range of different economic, social, and political arrangements and systems. Policy notions of 'supply and demand' of skills also underestimate how the ability of education to prepare for work is shaped by the ways in which work is organised. We argue that both researchers and policymakers need to think about vocational skills development programmes within industry sector master plans that drive economic recovery. We provide ideas of how policymakers can think about education and work more holistically, and argue that the key move is away from market-based regulatory models and towards models focused on building institutional capacity.

Keywords: Technical and vocational education and training, vocational skills development, skill formation, Covid, supply and demand of skills

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Introduction

This paper considers the implications of Covid-19 for transitions from education to work and for thinking about the provision and acquisition of skills for work in South Africa. Our focus is on the whole system of educational preparation for work – what some literature refers to as the *skill formation system* of a country (Busemeyer & Trampusch 2012; Bosch 2017). We also use the term *vocational skills development* to signal the inclusion of formal college or school-based provision, formal workplace-based provision, and informal learning. This broad focus is important because the weaknesses of vocational skills development in South Africa (despite small pockets of excellence) are further weakened by dislocation and lack of integration across what is offered in technical and vocational education and training (TVET) colleges and the offerings of what the Department of Higher Education and Training (forthwith, the DHET) calls *skills development providers*. The latter term is a catch-all that includes a wide range of institutional forms including large private colleges, workplace-based training centres, and small providers of focused skills: essentially, any organisation that is not a public TVET college and which offers some kind of vocational or, in the South African parlance, occupational educational programme. As in many areas, in the area of vocational skills development the Covid-19 pandemic has reinforced and made more visible underlying fault lines that have been present in our system for decades.

But despite the wide array of weaknesses in the system, TVET is still looked to for solving labour market crises – and the language of urgency, immediacy, and agility is being used by key stakeholders and role-players in this regard. TVET is seen as key to teaching new skills for a changing economy, as well as to 'reskill' the many who have lost their jobs or will lose them in the months to come. One problem with this is that high expectations from weak systems can lead to negative cycles of endless policy reform and stigmatisation. Even more concerning is that many of the recommendations for how TVET could play this anticipated role seem to be using this moment to entrench positions that have been pushed in TVET reform for many years – using market mechanisms to ensure more responsive, agile, demand-led TVET, as well as using policy interventions such as 'micro-credentials.' This is succinctly captured in a World Bank report on the role of TVET globally: 'A great opportunity is opening up that should not be wasted to accelerate TVET system reforms that reinforce the demand-orientation of programs so they can respond quickly to shifting patterns of skill demand' (World Bank 2020: 2).

The Bank also argues (ibid.: 9) that

> as skills needs during and after the pandemic require an urgent response, there is likely to be increased demand for shorter and more modular training with stacked micro-credentials, particularly for students who need to compensate for family income loss and for firms that need to scale up very quickly.

Notions of agility, short-term responsiveness, and micro-credentials are very much part of the logic of reform that has been implemented around the globe in the past 30 years – what Simon McGrath (2012) describes as a global 'TVET toolkit' that has been used to reform systems, particularly in developing countries. The toolkit includes systemic reform focused on giving more

power to employers, often through competence-based qualifications and/or qualifications frameworks; quality assurance systems; outcomes-based and 'institutionally-neutral' funding; and managed autonomy for public providers. These are all mechanisms through which governments and donors have attempted to create and support regulated markets in TVET in the hope of creating demand-led, responsive, flexible provision. On top of all this is a push for online and distance learning, which has obviously grown at this time.

In this paper, we argue that the market-led funding models as well as qualification-led reform (micro-credentials) which claim to support demand-based TVET provision, and which are regaining prominence because of the Covid-19 pandemic, will not make provision more responsive and agile. They will have the opposite effect because they work against the building of strong, robust, healthy institutions. A focus on institution building, we argue, is essential for responsive provision. We need to build and support institutions that are capable of meeting demand. This means institutions that can offer broad TVET qualifications that include components of general education and components of locally needed skills, and shorter accredited programmes that are recognised by employers and professional associations, as well as less formal, responsive short courses. Building institutions that can offer this range of programmes in dynamic and meaningful partnerships with employers and communities requires long-term funding and a focus on institution building as opposed to regulating and quality assuring. A reliance on market mechanisms in the form of simplistic and short-term demand-based funding has failed in the past and will be worse now.

Arguing against a narrow approach to course-based and enrolment-based funding does not negate the importance of partnerships with employers to strengthen provision. On the contrary, we emphasise the role of employers because skills are built and developed in the economy and society, not supplied exogenously to the economy or to the labour market by education institutions. We therefore argue for a deeper and more holistic notion of relationships between colleges and employers. One specific aspect of this is the ways in which TVET provision can be embedded within industrial policy and industrial strategies within sectors.

Thinking beyond a narrow supply and demand model also does not mean neglecting labour market analysis; we argue for better systems and mechanisms for developing insight into existing labour market demand (in terms of what knowledge, skills, and qualifications are really in demand in the labour market) as well as in terms of where the Covid-induced changes are likely to be. But we also argue for the importance for the state to focus on supporting and creating demand through industrial policy if we want to build an effective skills system. This requires more insight into the relationship between decisions about work organisation, technology and new products, and skills, if we are to take steps towards developing virtuous cycles of skills development and industrial transformation. Finally, while technology can obviously assist learning in many ways, it is clear that a reliance on online and distance education is completely unrealistic in the TVET college sector.

The paper starts with a descriptive overview of how TVET colleges have been hard hit by

Covid-19; few have the necessary facilities for online learning or the prior educational background that makes this viable. Workplace-based provision, which is a long-standing challenge in South Africa, is even harder hit and seems very unlikely for some time to come. This section draws on a series of engagements with donors, senior government officials, business representatives, and other stakeholders, organised by the Project Management Office (PMO) in the Private Office of the President, the GIZ (the development agency of the German government, in full, the Deutsche Gesellschaft für Internationale Zusammenarbeit) and SECO (State Secretariat for Economic Affairs) to engage with colleagues working in TVET in South Africa and elsewhere. These engagements provided insight into what is happening in the system in the immediate aftermath of the Covid-19 lockdown. We also draw on our involvement in work that is taking place nationally with social partners about ways to collectively grow employment, the sectors in which this growth could take place and those that will require significant intervention to rebuild so as to prevent job loss – and the implications that these have for skills. This includes the work being done as part of the refocusing of the Presidential Jobs Summit and in the context of the Presidential Youth Employment Intervention. (Note: all opinions expressed here are those of the authors, as participant observers, and not of any named organisations or initiatives.)

We then consider likely trends in TVET reform, and provide an analysis in light of well-established findings in the literature, as well as our research currently underway in South Africa and five developing countries (Bangladesh, Cambodia, Ethiopia, Laos, and Vietnam), which aims to explore the contribution of technical and vocational education and training (TVET) programmes to inclusive industrial transformation and growth (https://phzh.ch/en/Research/skills-for-industry/).

Educational preparation for mid-level work is the weakest part of our education system, and the hardest hit by Covid

Prior to the health and economic crisis of the Coronavirus and the associated devastating illness of Covid-19, South Africa had a weak TVET system (Gamble 2003; Badroodien 2004; Kraak 2004; Young & Gamble 2006; McGrath 2010; Allais 2013a, 2020b; Ngcwangu 2014, 2015; Vally & Motala 2014; Kruss et al. 2019; Allais & Wedekind 2020). The research cited above is a selection from a body of research that has pointed to persistent weaknesses despite many years of reform and despite an extensive range of donor initiatives to support projects, policy reforms, and institutional reform. The South African TVET is relatively small – the vast majority of students who are still in senior secondary education choose to stay in school rather than select vocational education. The majority of students in TVET colleges have completed matric despite the fact that they are mainly enrolled for secondary level vocational qualifications. Colleges were instructed to dramatically increase enrolments between 2010 and 2015 but this was not accompanied by a concomitant increase in the funding base (Singizi 2020). In fact, the DHET reported to the Presidential Commission on Higher Education that, based on the fully costed funding norms, only 429,638 of the 664,748 enrolments in the TVET College subsystem were funded at that time

(DHET 2016).

The apprenticeship system is tiny and full of serious challenges (Wedekind 2018; Singizi 2020). Obtaining workplace experience is a serious problem and there are many challenges with integrating theory and practice despite a few areas of good practice. The qualification system has been in churn for over 20 years. There is a huge range of projects and initiatives that include those supported by the European Union (EU), which focus on 'Education for Employability,' 'Teaching and Learning' as well as a Capacity Building Programme for Employment Promotion; the GIZ, which supports a range of initiatives under the auspices of the Skills Development for a Green Economy; SECO, which focuses on small and medium enterprises (SMEs); Japan International Cooperation Agency (JICA), which is supporting Artisan Development; and the United Kingdom, which through British Council and the Prosperity Fund supports interventions to build partnerships and provide access to workplace opportunities.

This fragile system has been put under extreme pressure by the Covid-19 pandemic. According to the DHET (2020a), TVET colleges closed for an early recess on the 18th March with a view to reopening on the 15th April 2020. Examinations that were scheduled to start on the 30th March for the engineering students who are enrolled for the Nated qualifications, were postponed. The Nated, or national education qualifications, are the oldest qualifications offered in the TVET colleges. Known as N1 to N6 courses, they were originally designed as the theoretical component of apprenticeships; these qualifications were scheduled for demolition some 15 years ago but have recently been supported by policy and funding tools, and have had increased enrolments over the past few years (Allais 2013b; DHET 2019). Students were advised to continue preparing for examinations, and lecturers were requested to issue assignments and tasks for students to complete during the recess to equip them for the examinations upon their return. But these examinations had not taken place at the time of writing in late June, and very little teaching and learning took place in the three months prior.

A major focus of the DHET during the lockdown period has been intensive work with colleges through regional offices to get them ready to receive students under the new conditions required by the Covid pandemic. In terms of this work, by early June the DHET was confident that all colleges were at least 70% ready (DHET 2020a). The DHET revised the calendar repeatedly in an attempt to manage a fluid and unpredictable environment, including accepting the reality of the loss of one semester intake and one trimester intake (the Nated qualifications are offered on a trimester basis, and the other qualifications offered by TVET colleges, in particular the National Certificate Vocational, is offered on a semester basis). The revised calendars include the cancellation of almost all vacation time and much later examination dates. It was then agreed that the first cohort of students would return on 10th June, starting with Nated engineering students enrolled for N3 and N6. At the time of writing this had started. A gradual phase-in of other students is being planned, with the last cohort scheduled to return on the 27th July for NCV Level 2. These students would have missed almost four months by then.

About 10 colleges have learner management systems that enabled some online teaching and

learning. There were some initiatives in making tutorials available on radio, YouTube and even Facebook, while some lecturers attempted to engage with students on WhatsApp. The DHET website is zero-rated for data, and the DHET engaged with publishers who made all online learning material available freely for three months. But, according to the DHET's analysis, many students were not able to access the material because they don't have devices and data (DHET 2020a).

TVET students are, in the main, the poorest students in our formal education system – with perhaps the exception of community college students, an even smaller and weaker sector – (Powell & McGrath 2019). Few students have the necessary facilities for online learning or the prior educational background that makes this viable. This is similar in many countries, especially poor countries; TVET students tend to come from relatively disadvantaged households compared to pupils in similar levels of general education:

> In Ghana and Kenya, for example, those who attend TVET, compared with those who enter a general education track, tend to come from families with lower socioeconomic status (although they are not among the poorest in the overall population), as measured by educational level of the parents. (World Bank 2020: 4)

The Bank report goes on to acknowledge that these students are likely to struggle with the connectivity 'that is essential for remote learning and with managing without any social support that is usually provided through schools' (ibid.: 4).

Workplace experience and workplace-based training have been long-standing challenges for South Africa. They now seem increasingly unlikely for some time to come. Here again, extreme difficulties prior to the Covid pandemic are now highly visible. In employer-based programmes, including apprenticeships, there has no teaching and learning during the lockdown period. Initially, most employers were closed under the 5-week strict lockdown. As the economy has slowly opened up, employers have not taken on trainees because they have restrictions on the number of workers allowed in different work spaces. This applies to the programmes offered through the relatively stronger parts of the TVET college system in a project called Centres of Specialisation. Through this project, the DHET has attempted to build relationships between identified departments within colleges and employers in different economic sectors. Programme offerings through centres of specialisation have a heavy reliance on employers and, therefore, very little teaching and learning took place during the lockdown.

One difference between students in the centres of specialisation and college students more broadly, is that all the Centre of Specialisation students were given devices at the start of their programmes (DHET 2020a). However, even in these cases, the DHET has found that the challenges for these students are extensive. These include that networks are not stable enough for learning, especially in remote areas; that tablets or laptops are damaged; that students don't have smart phones; that students don't have a calm or quiet space to work in; and extreme personal difficulties in households, exacerbated by Covid. According to the DHET's engagement with colleges, about 30% of Centres of Specialisation lecturers have had some engagement with

students to support some degree of engaging with the theoretical components of the courses. Students have textbooks for some courses and were encouraged to go through them on their own. About 24% of colleges said that some assessment has taken place digitally. But in the majority of cases, little teaching and learning has happened. And almost no practical activities have taken place – a crucial part of any TVET programme.

According to the DHET (2020a), centres of specialisation have made attempts to reach out to students – 43% of these centres reported to the DHET that they have been in contact with all their students. However, 80% of apprentices are paying for their own data, and even college lecturers reported difficulty with data and connectivity. Some 57% of colleges reported that they had no contact with employers during the lockdown. All of these numbers would be much smaller for the entire college system because the centres of specialisation are the most resourced parts of the system. This picture highlights the simple practical difficulties with online education and the serious practical challenges faced by the formal TVET system in South Africa. These challenges are exacerbated by weak prior educational experience of many college students – throughput rates are very low under 'normal' circumstances. Again, this is not atypical. According to the World Bank (2020: 4), 'TVET closures affect many students who, in many countries, tend to be more vulnerable than those in secondary general education or universities.'

Lecturer capacity is an ongoing problem. The DHET has been supporting universities to upgrade the pedagogical capacity of lecturers for some years – based on the belief that there are serious weaknesses with lecturers' capacity in general. Nearly all of lecturers have had no training or support in online teaching although emergency measures are being put in place in this regard, supported by the South African College Principals' Organisation (SACPO) and donors.

The funding and support of workplace-based training, work experience, and other vocational skills development programmes is also going to come under severe strain. The skills levy was suspended at the beginning of May as part of tax relief for companies for four months (DHET 2020b). The skills levy institutions (the Sectoral Education and Training Authorities, or SETAs, and the National Skills Fund, as well as the Quality Council for Trades and Occupations) are estimated to lose R6.1 billion over the period. As job losses increase, even after the skills levy resumes, the income to the system will be much lower – DHET anticipates that it could be less than half of what was budgeted for the year.

The hope was that while companies would obtain skills levy relief, employers would open workplaces for current and new beneficiaries over the short to medium term. During the lockdown period, the Minister issued a guideline to SETAs that learners should continue to receive stipends for two months, to be supported by proof of learning taking place during the period. Subsequently, there has been an additional three months' provision for learner stipends. However, until workplaces are able to take back learners, and until the skills levy has stabilised, the continual payment of stipends will become increasingly difficult. This is in a context where reskilling is seen as the solution to rising unemployment. The challenge is continuing to reach beneficiaries of the system, and offering training to the unemployed and newly unemployed in this environment. The

DHET anticipates that at least five SETAs may no longer be a going concern beyond a 2-month period, four of them in critical or essential sectors.

The complexity of the qualification system has also been thrown into stark relief by the Covid-19 pandemic. What has not been achieved to date is a balance between shorter training programmes and a long-term vision of formal qualifications – and advocates of micro-credentials are suggesting them as the solution to this lack of balance (Keevy et al. 2020). The Quality Council on Trades and Occupations has recently engaged in a process of reconfiguring occupational qualifications – including revisiting the formal requirement for workplace experience, which learners now simply cannot get (and most could not get before Covid). It has also introduced new regulations to address the need for short programmes. These suggest that short programmes can only be accredited as a 'part qualification,' which is constituted by credits within a full qualification. Full qualifications are now defined in terms of number of credits. This step seeks to address the proliferation of part qualifications that do not lead to a full qualification, as well as qualifications of varied sizes. However, it creates the unintended consequence of negating the possibility that industry associations can determine the need for a short programme that is accredited and that enables the graduate to access a specific opportunity in the workplace. Thus, the organising logic is based on where qualifications exist rather than on where demand is emerging.

Expectations and policy directions for TVET after Covid-19

The general emphasis from employers, employer associations, and government officials with whom we have interacted is on the need for agility and short-term relevance, meeting the new needs of the economy, and being responsive to employers and labour markets. This is in line with the World Bank (2020: 2) which makes a strong call for the potential of TVET to contribute to the recovery of both economies and individual livelihoods: 'TVET can contribute to the economic recovery by ensuring that it is prepared to rapidly identify and respond to such skill needs.' The same report argues that,

> Considering TVET's emphasis on work-readiness and its shorter cycle of education compared to tertiary education programs (with shorter and possibly modular training programs), it may be particularly well positioned to support the quick reskilling/upskilling of workers in critical sectors. (ibid.: 7)

And the Bank goes on to list a range of ways in which TVET systems may need to respond in order to play a role in economic recovery:

> There could be a strong increase in demand for training to cater both to the cohort whose training was interrupted by Covid-19, and to demand from pupils who were unable to finish general education. In addition, there is likely to be increased demand for training services to support workers who have lost their livelihood during the pandemic. For laid-off formal workers who receive unemployment benefits, participation in training is often mandatory during longer unemployment spells. For students whose families lost income sources due to Covid-19, part-time

> training may be needed to allow them to generate an income while continuing training. This also includes the many households that need to compensate the income lost from interrupted remittances, as international migrant workers are restricted from travelling or working abroad. (ibid.: 9)

Some researchers even argue that TVET institutions can contribute to production (Majumdar & Iñigo Araiztegui 2020).

But how should all this be achieved? The main policy idea seems to be more of the same policy thrust that has been tried, with very little success, in many countries around the world over the past 30 years: marketisation and linking funding to allegedly demand-based educational provision, through small pieces of qualifications (or competence-statements). The logic that has dominated policy in this regard was summed up at an international TVET conference last year in Ethiopia, by an economist (somewhat ironically from China, where the limitations of a narrowly market-led approach to development are well understood) who argued: 'Keep them hungry' (Yang 2020: n.p.). This logic underpinned the reforms of the English TVET system undertaken under Margaret Thatcher, later imitated by Australian policymakers, and which then spread to many countries under the name of competence-based training (Wheelahan 2010, 2015; Young 2011; Allais 2014). The basic logic is that employers should specify the skills (or competences) they require, and education and training institutions should be given funding against their courses that lead to these specific competences.

This is a logic about deepening markets: creating separate educational competences as goods or services that can be delivered through the market. It should, according to advocates, enable education institutions to provide only the required competences and thereby enable 'consumers' – employers or individuals trying to equip themselves in labour markets – to purchase only the 'bits' that they want without having to sit through long educational programmes. This is in line with an approach to public sector reform, new public management that has been influential since the 1980s, which focuses on the state as a creator and supporter of market-based provision of services (Hood 1995; Allais 2007). In relation to TVET provision, the idea has been that this approach will ensure that curricula are decentralised and therefore responsive, employers can specify their needs, and both public and private providers can be held accountable as their programmes can be measured against the competences delivered.

The overarching logic is improve our ability to understand the labour market – what is the demand – and then fund programmes that will supply skills to meet this demand. As the World Bank (2020: 9) argues,

> Finally, for the skill development system to contribute to the economic rebound, it will be important that the system can begin to rapidly assess emerging skills needs as early as possible. Otherwise, these needs may become bottlenecks for the revival of economies and reduce opportunities for (higher) earnings, especially for the poorest in the population. Preparing labor market information systems to carry out rapid skills demand surveys and creation of an engagement strategy with employers and professional associations might be a first step in this process.

It seems so simple and straightforward. But unfortunately, this simplistic supply and demand notion, and policy reforms based on it, takes no account of how skills are actually developed for work in real countries and economies. A growing body of research literature looks at skills formation as embedded in a range of different economic, social, and political arrangements and systems (Ashton et al. 2002; Busemeyer & Trampusch 2012; Allais 2020a). The research literature shows that you can't make interventions in education and training institutions, only, and expect skill formation to change. Constant attention to reforming education and training provision (the so-called supply side) in fact undermines education provision by creating a constantly shifting policy environment. Instead, researchers and policymakers need to look at vocational skills development as embedded in society and the economy as well as within the education and training system as a whole.

Rethinking supply and demand during and post Covid-19

Provision of education and training, and supporting the development and acquisition of the knowledge and skills required to do work well, to do well at work, and to do work that does good, are far more complicated than a simple supply and demand model implies. One reason for this is that the supply of education – the kinds of education that are provided and the level at which they are provided – shapes the ways in which education is sought after in labour markets over time (Carnoy 1972, 2019). Another is that most education policies that are described as 'demand-led,' and here competence-based training is a key example, have very little to do with demand in the economy and are really focused on changing education and training (Allais 2020a). Thirdly, the ways in which work is organised, the ways in which collective bargaining is organised, the ways in which workplaces are structured, all shape the ways in which skills can be developed and utilised in any economy (Busemeyer & Trampusch 2012; Streeck 2012). The different components of the education and training system affect each other, as do the different parts of the economy and institutional configurations and rules and practices. The nature of the manufacturing sector and the pace and nature of industrialisation is another factor (Ashton et al. 2002; Oliver et al. 2019; Allais 2020a). And, the nature and structure of the labour market shapes the skill formation system in a country.

The relationships are complex but there are concrete examples that demonstrate ways in which thinking about education and work more holistically can make a difference. For example, in recent GIZ work with the plumbing association, it became clear that many providers were running plumbing training programmes but people were not accessing employment that was said to be in demand. What became apparent was that there was not a grade in the plumbing labour market for a plumbing assistant. The professional association therefore reviewed their levels and created a new level that allowed these graduates to enter the labour market. This is a small example of a project that looked at the education side and the labour market side. It created the space for plumbing assistants to legally undertake certain types of work and a pathway in the industry for these graduates to access the experience required to become artisans.

Another issue that questions simplistic notions of supply and demand is that the ability of education to prepare for work is shaped by the ways in which work is organised. Initial findings from research currently underway that looks at the role of skills in supporting companies in industrial sectors (Allais et al. 2020), suggest that there seems to be successful skill formation where there are strong relationships between institutions, decisions on programmes, and the broader industrial strategy and direction of the sector, including with regard to workplace organisation. One implication for policymakers is not taking as given the way firms operate. Further, both researchers and policymakers need to think about vocational skills development within the TVET, higher education, and skills development strategies into industry sector master plans as well as more informal, sectoral strategies. This requires a focus on the development of national strategies for TVET and higher education (particularly universities of technology) that are informed by the industrial strategies and that these industrial strategies, in turn, consider the demand for technical and vocational skills within the context of decisions about work organisation and technology. Sectoral strategies can then create a basis for DHET and the SETAs to develop appropriate mechanisms for planning and resource allocation. We need to shift away from a model that reduces supply and demand to a list of qualifications required, based on retrospective analysis of labour markets towards a focus on skills formation (including qualifications and the nature of provision) as part of the development of the industrial strategy.

At a sectoral level, what is also required is building effective relationships between TVET (public/private and workplace providers), universities, and companies. This would require flexible provision arrangements including the recognition of the value of workplace providers that can offer a significant component of learning programmes, as well as programmes that accommodate or support changing technology and workplace requirements. All of this implies a need for supporting and building colleges to deliver programmes and qualifications in a flexible and quality manner. Innovative and responsive provision of vocational skills development programmes cannot happen without building the institutional capacity of TVET institutions.

The demand-led funding model, together with the other arms of the global toolkit mentioned above, focuses on short-term funding that rewards institutions meeting short-term demand. This approach to funding makes it impossible to build any kind of institution, and is particularly unsuited to education. It makes responsiveness impossible. It also tends to divert funds into complex qualification and credential systems with very limited evidence of any value produced. Designing a curriculum takes time and needs expertise. Offering it takes time. Engaging with industry and local communities to determine needs requires dedicated staff time. Doing lecturer training and upgrading and retraining requires dedicated time. When institutions are entirely dependent on short-term funding linked to demand, it is impossible for them to be responsive. They simply have no spare capacity for curriculum design or research, no time for lecturers to teach themselves something new, no or few permanent staff who can sit down and plan, no staff with capacity to engage with industry and communities – each staff member has a salary that is narrowly tied to a specific course.

The idea that lecturers who have been teaching in one area can simply switch to another because there is a new demand in the economy is unrealistic, and lecturer subject matter expertise is essential for any quality teaching. If we want TVET institutions that are agile and responsive, we need to build them, support them, pay their staff on permanent contracts, give them working conditions that allow time for professional development and learning, and pay for staff who do community and industry engagement. Good institutions take time and resources to build up. Further, we need a regulatory system that supports institutions but allows for flexibility with respect to the deployment of staff as well as in the offering of the programme against the qualification.

Serious work on innovation in industrial production and technology emphasises the need for strong institutions – often working in clusters – and patient funding. Mariana Mazzucato (2013), for example, shows how venture capital has not been the key factor in many major industrial and technological innovations but, rather, patient capital through nation states (including in the military industrial complex in the United States) has played this role. Kattel et al. (2019) use the term *agile stability* to emphasise the combination of strong and stable institutions and innovative partnerships in organisational agility.

Government and development partners thinking about allocation of funding are, understandably, concerned with results and want accountability from institutions and, of course, it is possible for long-term patient funding to be misused. However, the Covid pandemic has highlighted that the social economy, and provision of social goods, is a far more crucial part of the economy than has been understood by economists narrowly focused on GDP. Putting funds into building education institutions that can offer social engagement, sustained learning, partnerships with employers, and a sense of purpose to young people, may prove in the long term to be of value to society. We also know that a broad and general education makes people more able to be retrained and more flexible and able to transition. TVET offers education to people who have not succeeded in general education. This broader function of TVET provision must remain in focus, and is also a crucial part of institution building.

None of this means that there is no longer a need to determine the occupations that are in demand across the economy in order to inform enrolment planning and shape provisioning. The DHET has developed a methodology to understand this demand through a large 'labour market intelligence project,' which has been implemented over the past five years and now has a new set of projects in this area that aim to move towards a more responsive system (www.psetresearchrepository.dhet.gov.za). However, whilst this research has allowed for some insight into the occupations in demand, what is evident is that we don't yet have a full picture in terms of the impact of Covid-19. It is clear that the labour market consequences will be devastating and, almost certainly, will get worse for months if not years to come. We will see not only a terrible loss of jobs, but also more hidden phenomena such as reduction in hours of work, job security, quality of work, and salaries. The overall patterns to date suggest that the negative impact of the shocks is larger for workers with lower educational attainment (South African Treasury 2020).

Treasury points out the ways in which Covid will aggravate structural faults in the economy and anticipates that employment, household consumption and investment will continue to be constrained and that GDP per capita will fall – further exacerbating social pressures and fragmentation (South African Treasury 2020).

These challenges and opportunities highlight the limitations of 'manpower planning' as the pace of change is considerably faster than the duration that it takes to complete the research. However, while the short run will be dominated by uncertainty and many labour market challenges that will undermine skills development, there is also a possible silver lining in the opportunity to build skills development into thinking about economic recovery in ways that are more integrated and holistic than current practice. Over the past 30 years, the South African state has not played an effective role in shaping demand in the economy or in looking at both skills utilisation and needs in workplaces. Supply and demand are dichotomised: demand is in the economy, supply of skills is exogenous and must simply meet the needs of economy. Covid has forced more focus on economic planning – in terms of supporting economic sectors that are in distress or support local innovation. To the extent that skills development can be seen as a broader package in this regard, there could be positive results.

There are also emerging areas where demand is being created, such as the digital economy, which opens up a range of different opportunities as well as the agricultural value chain and global business services. Efforts are also being made to address disruptions in the supply chain through local procurement, and mechanisms are being put in place to track the commitments made by companies to increase their spending within the local economy. For example, the Manufacturing Circle is supporting the local production of medical equipment. One project is the national ventilator project, which is a joint collaboration between industry labour and health and has involved developing specifications for locally manufactured products and concerted effort to work with partners in terms of determining what sort of product is required and what expertise is required. A totally different project looks at the local manufacture of fabric masks. Here, industry, labour, and government developed joint specification for masks that large-scale manufacturers and small-scale home operations could then produce. Both focused on understanding where the blockages in the local supply chains are. Government is also working closely with the private sector to roll out multiple infrastructure projects in order to both create an environment for economic recovery as well as in response to the need to stimulate demand.

Finally, supporting transitions from education to work means building institutions that can play this intermediary and supportive role. For example, the Pathway Management Network, a key pillar of the Presidential Youth Employment Intervention, uses technological platforms to attempt to support young people to build their profile, and aggregates work opportunities available. This intervention, through Harambee Youth Employment Accelerator, is working with employers to change hiring practices towards inclusive hiring, and emphasises the responsibility of companies to induct new entrants and to support new entrants to successfully transition into the workplace. The business service industry, through demonstrating to employers a consistent supply of labour,

has been able to attract global business and thereby increase the demand for labour. There is also some preliminary evidence that through the combination of work experience and a small stipend offered by the Presidential National Youth Service Programme, some young people have successfully started their own small businesses. Building systems and institutions includes institutions that play a role as labour market intermediaries.

Conclusion and research agenda

This is not the moment for reintroducing the failed market dogma of TVET reform in the hope that it will lead to the desired agility and responsiveness with the hope, in turn, that this will somehow ensure economic and job recovery. Instead, it is a moment for starting to develop a more holistic and integrated way of thinking about skills, thinking about all the moving parts of the economy, and the institutional configurations and systems that shape skill formation as we move forward with Covid-19 overlaid on a weak economy. Our research (Allais et al. 2020) provides some indications of how skills can be thought of inside the industrial policy process instead of as an add-on or something exogenous. It highlights the need to think about the quality of work and organisation of workplaces as well as skills development inside industrial policy and inside different economic sector strategies. Part of this is thinking about how formal providers and provision in general need to be embedded inside the industries. One implication of this is that we can't have general strategies – they have to be specific to each industry and sector. A generalised 'partnership' model is unlikely to succeed.

This requires a better balance between coordination and supporting a flourishing of provision. Our current regulatory system does not ensure coordination but does stifle initiative. We have to move from both of these negatives to a more flexible system that also supports institution building. We need more holistic TVET that focuses on occupational streams and clusters (Wheelahan et al. 2015) with strong qualifications that allow for some local flexibility rather than only narrow job preparation, at the same time as supporting companies to develop highly specific skills and supporting TVET institutions to *also* offer short focused training programmes. This needs to be in line with an economic recovery focused on jobs.

The increased focus on coordination across development partners and varied government departments offers some hope for a systemic response that focuses on institutional development to meet immediate and long-term needs. As part of this process there will be a need for more research into the ways in which TVET can be embedded into industrial strategy and translating this into sector-specific vocational skills development strategies – considering what this means for institutions, partnerships and the balance between different types of programmes. We also need insight into how to adjust regulatory frameworks to realise the balance of ensuring strong coordination whilst allowing and encouraging innovation. We need to understand how learners can access practical and workplace experience given the current constraints and the implications that this has for the TVET institutions, qualifications, and programmes. Most importantly, we need far more insight into how to support and build education and training institutions on the one hand

and, on the other hand, into relationships between decisions about work organisation, technology and new products and skills – if we are to take steps towards developing virtuous cycles of skills development and industrial transformation.

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