

**AUTHOR:**Stephanie Allais¹ **AFFILIATION:**¹Centre for Researching Education and Labour, University of the Witwatersrand, Johannesburg, South Africa**CORRESPONDENCE TO:**

Stephanie Allais

EMAIL:

matseleng.allais@wits.ac.za

HOW TO CITE:Allais S. Is our skills system ready for a sustainability transition? *S Afr J Sci.* 2024;120(9/10), Art. #19157. <https://doi.org/10.17159/sajs.2024/19157>**ARTICLE INCLUDES:**

- Peer review
- Supplementary material

KEYWORDS:

skills, education, skills anticipation, reskilling

PUBLISHED:

26 September 2024



Is our skills system ready for a sustainability transition?

Significance:

Skills are seen as crucial to support a just transition away from a carbon-based economy, both to develop the expertise required for the transition, and to prepare people who work in carbon-heavy jobs for jobs in new and emerging occupations. This Commentary provides an overview of research findings to explore the ways in which our skills system is ready, where it is lacking, and why skills can be only a small part of ensuring a just transition.

Transitioning away from a carbon-based economy in ways that are socially just and that support social development is a complex problem. Expertise is crucial to ensure that this transition can happen – that the country has the expertise to develop technological solutions in ways that work for society. Policymakers hope that ‘skills’ will ensure that the transition is just, in the sense that people who work in carbon-heavy jobs can get jobs in new and emerging occupations and sectors of the economy.¹ Is our skills system up to the job?

The answer is, ‘yes’, ‘no’, and ‘it’s complicated’.

Yes, because there is much activity around curricula, particularly in higher education and private education institutions, with short courses focused on specific issues in the spotlight for the transition.

But also no, because our skills system is clumsy, both in terms of how we obtain insight into employers’ short-term skills needs, and how we provide funding to support urgent short-term training programmes. A key problem here is that our systems do not disaggregate sufficiently between immediate skills needs and building expertise for the medium to long term. They also work against coherent steering from the state in priority areas.

The answer is complicated for a number of reasons, but one reason is that, in the main, we do not have, and are unlikely to be able to obtain, sufficient clarity on emerging skills needs to enable substantial responses from educational institutions beyond short course provision.

This Commentary synthesises findings from research projects conducted at the Centre for Researching Education and Labour, work in policy processes, and analyses of the international literature on skill formation systems, to expand on these three points, followed by a brief reflection on what could be done.²⁻⁶

What are ‘skills’? Inevitable tensions in educational preparation for work

A major reason that our system is not ready to support the skills needs of a just transition is the confusion between short-term specific training, and medium- to long-term foundational education. This confusion is also one of the reasons we have weak insight into employers’ needs for skills, as well as poor mechanisms for funding just-in-time training.^{3,7}

Part of this confusion has to do with the word ‘skills’ and how it is understood. The term is sometimes seen as referring to limited practical skills, but in other cases it is used as shorthand for qualifications and broad expertise. Research literature on educational preparation for work emphasises that, other than very specific manual skills, even specific and narrow ‘skills’ are embedded in complex ways in bodies of theory – what philosopher Christopher Winch calls applied practical knowledge.⁸ Because of this, there is always a tension in how broad and how specific the programme should be when designing any educational programme that aims to prepare people for work. This is a tension that is never completely solvable.

The data that our skills anticipation system obtain from employers (discussed further in the next section) have many weaknesses.^{3,7} But to the extent that the data are an accurate reflection of skills needs in the economy, they reflect the skills that employers need in the immediate, short term. But the systems that are used to plan provision – particularly the programme and qualification mix of our technical and vocational education and training colleges and universities – are focused on the medium to long term. This is because it takes time to design a curriculum; enrol students; and to teach, assess, and graduate students. There are also simple constraints of time – of what can be packed into a curriculum – and prior knowledge of students, that shape what can and cannot be taught. These issues come starkly into perspective in South Africa’s college system, where the intake tends to be students with very weak prior educational achievement.

It also does not make sense to provide educational programmes for specific jobs, particularly where jobs are changing fast, and it is in any case impossible for education and training institutions to do so with any substantive offering. Formal education by its nature is aimed at foundational learning that can form the basis for a range of different possible occupations, or training for a specific occupation (see Shalem and Allais⁹ for an elaboration).

Educational programmes focus on theory and foundational learning because this is what formal education can and should provide. Foundational knowledge and expertise underpins and supports short-term practical training. But this is also what makes workplaces and individual learners impatient with formal programmes – because much of the theory is not directly or visibly relevant. Training that is specific to a particular work process or job is best learnt in workplaces or through educational institutions that are funded to work directly with workplaces in planning and conducting such training. Yet, our skills anticipation systems make it difficult to obtain such funding, because of rigid accreditation requirements and ‘funding windows’ of the sectoral education and training authorities (SETAs)⁷.



Some of the ways in which we are not ready

A rapidly changing world requires fast input from employers into their skills needs. In theory, we should be able to access these data on an annual basis. We have specific institutions, rules, and tools that were designed to understand the specific skills needs of employers in different industries, and to encourage and support them to train.

This system is sometimes referred to as the skills levy system.¹⁰⁻¹² It works like this: employers with an annual payroll exceeding ZAR500 000 pay a levy allocated via the tax system to SETAs. The SETAs return 20% of the money when employers submit an annual workplace skills plan and training report. The intention is that these documents provide insight into employers' skills needs as well as reporting on where training is taking place. The remainder of the funds (after some are allocated for administrative expenses and given to the National Skills Fund to fund the training of unemployed people) is made available for training that is not already provided by employers. Employers and training providers can bid for money from the SETAs.

But the data obtained from employers are poor, for a range of reasons. Firstly, many employers do not participate in the system, and treat it as an additional tax. This is partly because the transaction costs are high.¹³ No insights are obtained from non-levy-paying members (smaller companies), making the national data incomplete in significant ways.

Further, the ways in which employers get their money back from the SETAs sometimes interfere with data quality. Sometimes, SETAs require training reports to match previous workplace skills plans. This incentivises employers to propose only skills needs for which training can easily be provided.⁷

For the rest of the money which is available for training, SETAs have two main funding mechanisms that are made available each year through their 'Sector Skills Plans' – plans that outline training priorities in each sector. In these plans, they list 'funding windows' against which employers and educational institutions can apply, and bursaries in areas that are seen as important. These are chosen based on the aggregated data obtained from employers, as well as an analysis of labour force trends and other research. Our research shows various ways in which this distorts the data that employers submit⁷: some employers also only list those training programmes that will be funded by SETA; some do not list skills needs where the training is going to be supplied by international providers, because often these providers, which provide well-regarded training valued by employers and often essential for specific machinery in the workplace, are not accredited in the South African quality assurance system. Our quality assurance systems are complex, and there is no reason for international providers to participate in them. A further example is that employers list jobs as scarce even when they are not, because they need to train new employees, and grants (funding windows) are not made available in areas that are not seen as scarce or in high demand. At a company level, our research shows that broad-based black economic empowerment (BBBEE) employment scorecard reporting adds further complexity in terms of perverse incentives for training.^{5,7}

So, while in theory we have a built-in system to obtain annual information from employers, which should be useful in ongoing planning for a just transition, in fact we are getting very poor data from employers.

As discussed in the previous section, disbursing money through 'funding windows' for which employers and providers have to apply, and bursaries for which individuals or companies have to apply, has large transaction costs, and makes just-in-time training difficult. It is also a clumsy way for the state to attempt to steer training in identified areas.

Two other significant problems in our skills system probably do not need much elaboration. The first is that South Africa's education system serves a portion of its population well, but the rest get a poor education.¹⁴ This is important because people need a strong foundational basic education in order to be prepared for specific technical training.

This compounds the second problem – that our technical and vocational education and training system is weak in general, and in specific is ill-prepared to provide specific training required to support the needs of a just transition.^{6,15}

But there are also ways in which the skills system is ready

Many educational institutions, especially in high education, are actively adapting courses, and beginning to offer a variety of tailored courses, including relevant modules in diplomas and university degrees. A review we conducted across the post-school education system indicates that over 220 courses are offered, covering energy-transition topics, with renewable energy dominating at 62%. A challenge, however, is that much of the energy-transition skills provisioning emphasis is occurring in Gauteng (45%) and the Western Cape (32%). There are few courses offered in areas currently impacted (positively and negatively) by a shift away from fossil fuels, e.g. Mpumalanga and Limpopo (coal mines) and Northern Cape (solar PV expansion).

There is also some activity in the Technical and Vocational Education and Training (TVET) colleges, where 18 (37%) offer some form of energy-transition course or module, with the majority focused on renewable energy, notably through the Electrical Infrastructure Construction certificate, or Solar PV technician and installation. These courses are often done in collaboration and with the support of the Energy and Water SETA.

Short courses dominate the energy-transition course offerings, and, in many cases, they are not formally accredited. This underlines the need for more flexibility in quality assurance requirements, coupled with strong national assessment systems to ensure standards.

Many employers train extensively, and are already providing training on new technologies and work processes, despite the difficulties discussed above.^{3,5} But this raises a more negative note: there may not be huge numbers of new jobs created in the process of de-carbonisation, unless there is a concerted effort to build downstream and up-stream manufacturing capacity associated with, for example, wind farms. And it is not clear where the new jobs will be, or how occupations are changing, with a few exceptions such as solar installation and maintenance and electric vehicles.

It's complicated

So, while there is work happening in different kinds of short-term training programmes, there is little certainty about what new occupations will be emerging, and the extent to which they will generate employment, as well as how occupations will change and what that will mean for new areas of expertise.⁴

South Africa has an extensive set of policies, legislation, and visions for a green transition. But implementation to date has been haphazard. It remains unclear what will change, when, and where. For example, green hydrogen is seen as important, and is targeted by the Presidential Climate Commission. Accordingly, much work has been done in the skills system. Extensive research has been done to analyse the skills that would be needed for this potential sector.¹⁶ Eleven new courses are being offered at universities; a Green Hydrogen Research Chair was established at the University of Johannesburg; and a hydrogen course was launched in 2023 for TVET students. But what remains unclear is when and how the green hydrogen sector will become a reality. We may end up training for jobs that will never actually exist.

And because occupations require foundational expertise as well as short-term training, as discussed above, short courses will never be enough to get people from being coal miners to being solar technicians. Finally, while new areas of expertise are certainly emerging, it seems relatively unlikely that these will be in areas that will make it possible to reskill workers who are losing their jobs.

So what should be done?

In the short term, we need greater flexibility for 'just-in-time' training. Some changes have been made through the Economic Recovery and Reconstruction Plan after the COVID-19 pandemic¹⁷, which has created flexibility in sectors that were identified for reconstruction: accreditation requirements were relaxed, and funding was prioritised. The skills chapter of the recently released *Just Energy Transition Investment Plan*



attempts to build on this¹, and the needs of the just transition must be used to create further flexibility, to support employers to train, or to source the training that they need, and to support educational institutions to develop such training.

In the medium to long term, we have to recognise that skills planning is not and cannot be linear, and that there are serious limitations to what can be predicted.³ Instead, we should be building the capacity of educational institutions and systems, recognising that programmes take time to design and constantly 'reforming' education and training provision undermines education provision by creating policy uncertainty. At its best, education can help people master bodies of conceptual knowledge as well as relationships between bodies of knowledge, nurture learning dispositions, and equip people with required skills and capacities.¹⁸ Education can also support new configurations of expertise. But all of this requires a long-term view, and a focus on building, nurturing, and supporting educational institutions. While we have policies in place to do this, funding systems mitigate against it.¹⁹ Reviewing funding mechanisms requires urgent attention from the state.

Finally, we have to accept that skills can only play a small role in ensuring that a transition happens at all, and that to the extent that it does happen, it is just. Skills will not be a panacea to the lack of justice that many will experience in the transition away from a carbon-based economy.

Declarations

I have no competing interests to declare. I have no AI or LLM use to declare.

References

1. The Presidency, Republic of South Africa. Just energy transition implementation plan 2023–2027. Pretoria: The Presidency, Republic of South Africa; 2023.
2. Allais S. Claims versus practicalities: Lessons about using learning outcomes. *J Educ Work*. 2012;25(3):331–354. <https://doi.org/10.1080/13639080.2012.687570>
3. Allais S. Beyond 'supply and demand': Moving from skills 'planning' to seeing skills as endogenous to the economy. *J Vocat Adult Contin Educ Train*. 2022;5(1):56–74. <https://doi.org/10.14426/jovacet.v5i1.246>
4. Ramsarup P. Greening occupations and green skills analysis. In: *Green skills research in South Africa*. London: Routledge; 2019; p. 175–191. <https://doi.org/10.4324/9780429279362-12>
5. Allais S, Kgalema V, Marock CL, Schöer V, Sibiyi T, Ramulongo N, et al. TVET, skills, and company transformation and growth Insights from a company survey in three manufacturing sectors in South Africa. Johannesburg and Zurich: The Centre for Researching Education and Labour and Zurich University of Teacher Education; 2020.
6. Ramsarup P, McGrath S, Lotz-Sisitka H. A landscape view of emerging sustainability responses within VET. *J Vocat Educ Train*. 2024;76(2):259–280. <https://doi.org/10.1080/13636820.2024.2320911>
7. Allais S, Ngcwangu S. Supply and demand of skills in the food and beverages manufacturing sectors. Johannesburg: Centre for Researching Education and Labour, University of the Witwatersrand; 2023.
8. Winch C. Dimensions of expertise: A conceptual exploration of vocational knowledge. London: Continuum; 2010.
9. Shalem Y, Allais S. When is vocational education educationally valuable? In: Allais S, Shalem Y, editors. *Knowledge, curriculum, and preparation for work*. Rotterdam: Sense; 2017. <https://doi.org/10.1163/9789004365407>
10. Kraak A. The education-economy relationship in South Africa, 2001–2005. In: Kraak A, Press K, editors. *Human resource development review 2008: Education, employment and skills in South Africa*. Cape Town: HSRC Press; 2008. p. 1–25.
11. Allais S. Understanding the persistence of low skills in South Africa. In: Daniels J, Naidoo P, Pillay D, Southall R, editors. *New South African review 3*. Johannesburg: Wits University Press; 2013. p. 201–220. <https://doi.org/10.18772/22013037359.17>
12. Ngcwangu S. Skills development in post-apartheid South Africa: Issues, arguments and contestations. In: Vally S, Motale E, editors. *Education, economy, and society*. Pretoria: Unisa; 2014. p. 244–264.
13. Lee G. The transaction costs of the South African levy-grant system for skills development. *Afr J Employ Relat*. 2023;47(1):1–17. <https://doi.org/10.2515/9/2664-3731/6736>
14. Fleisch B. Primary education in crisis: Why South African schoolchildren underachieve in reading and mathematics. Cape Town: Juta & Co; 2008.
15. Lotz-Sisitka H, McGrath S, Ramsarup P. Oil, transport, water and food: A political-economy-ecology lens on VET in a climate changing world. *J Vocat Educ Train*. 2024;76(2):281–306. <https://doi.org/10.1080/13636820.2024.2320910>
16. Council for Scientific and Industrial Research. Identification of skills needed for the hydrogen economy. Pretoria: Department of Higher Education and Training; 2024.
17. South African Department of Higher Education and Training (DHET). Skills strategy: Support for the South African economic recovery and reconstruction plan. Pretoria: DHET; 2022.
18. Buchanan J, Allais S, Anderson M, Calvo RA, Peter S, Pietsch T. The futures of work: What education can and can't do. Paris: United Nations Educational, Scientific and Cultural Organization; 2020.
19. Sachs M, Amra R, Madonko T, Wilcox O. Austerity without consolidation. Fiscal policy and spending choices in Budget 2023. Johannesburg: Southern Centre for Inequality Studies; 2023.