

# Journal of Vocational, Adult and Continuing Education and Training



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A large circular graphic centered on a solid orange background. Inside the circle, a stylized map of the African continent is rendered in a watercolor-like style with a color gradient from yellow to red. The text 'Journal of Vocational, Adult and Continuing Education and Training' is written in a black, sans-serif font, curving around the perimeter of the circle and partially overlapping the map of Africa.

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# **Journal of Vocational, Adult and Continuing Education and Training**

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**Volume 5, Issue 1  
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## **The Journal of Vocational, Adult and Continuing Education and Training**

The Journal of Vocational, Adult and Continuing Education and Training (JOVACET) recognises the need for critical engagement through studies in technical and vocational education and training (TVET) and adult and continuing education and training, and for encouraging critical scrutiny of this expansive knowledge area on the African continent.

The voices and experiences of practitioners, reflecting on all aspects of teaching and learning within vocational education and adult education settings, should be heard through the publication of empirical and robust research. While the journal wishes to take forward academic scholarship, it also seeks to strengthen opportunities for reflective practice that makes a scholarly contribution to the field. New knowledge emerging out of complex developmental contexts has significant value and needs to be showcased beyond existing geographical and political boundaries. The journal is therefore committed to also supporting the development of emerging researchers by providing them with a space to present and defend their research amongst a network of global scholars. Within the field of vocational and continuing education there is substantive 'grey literature' that remains in project report form. The journal is potentially a vehicle for the translation of this important work into an academic contribution to a wider community of practice, thereby enhancing its value.

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# CONTENTS

Editorial Team	iv
Editorial	
<i>Joy Papier</i>	vii
A comparison of the performance of learners transitioning from TVET college and their certificated high-school counterparts <i>Rodney Stops, Darren Lortan, Deepak Singh and Suresh Ramsuroop</i>	1
From out-of-school youth to TVET student: Exploring the funds in families and communities that facilitate second-chance learning <i>Jennifer Esau and Doria Daniels</i>	24
Exploring the value of the sociological Careership Theory in the South African TVET context <i>Lucky Maluleke, Lesley Powell and Shervani Pillay</i>	49
Beyond 'supply and demand': Moving from skills 'planning' to seeing skills as endogenous to the economy <i>Stephanie Matseleng Allais</i>	56
An examination of the English curriculum in Technical and Vocational Education and Training colleges <i>Mary Mmatsatsi Madileng</i>	75
Curriculum reform in agricultural vocational education and training in Zimbabwe: Implementation challenges and possibilities <i>Chenjerai Muwaniki, Simon McGrath, Muneta Grace Manzeke-Kangara, Volker Wedekind and Tafireyi Chamboko</i>	94
Designing complex, challenging and creative assessments for work preparedness: A review of competency-based assessment <i>James Garraway</i>	116
TVET leaders' experiences of an enquiry-based blended-learning programme <i>Tanya Smit and Suzanne Bester</i>	136
Contributor biographies	156
Editorial policy and procedure	160
Call for papers 2023: JOVACET, Volume 6, Issue 1	162

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# EDITORIAL

Joy Papier  
*Editor-in-Chief*

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This fifth volume of the *Journal of Vocational, Adult and Continuing Education and Training* (JOVACET) continues to locate itself under the broad and founding rubric of the journal, which is ‘researchable issues in TVET, adult and continuing education and training’. The articles in this 2022 issue of the publication fall within three broad themes, which are necessarily intertwined and reveal synergies despite having different foci.

The first theme that can be discerned emerges from the first grouping of three articles in the journal (Stops, Lortan, Singh and Ramsuroop; Esau and Daniels; and Maluleke, Powell and Pillay). These articles speak to the theme of TVET college students’ experiences, a knowledge base that in South Africa – and in the South more generally – still has extensive room for growth. Annually at this time of year, when the end of the academic year is upon us, there is usually both heightened anxiety and a sense of great expectation among the cohort of learners at schools who are preoccupied with writing the matric examinations. These sentiments concern not only their performance in the examinations, but, beyond that watershed moment, also their future prospects, whether in furthering their studies or in obtaining work. And perhaps their anxiety is not entirely unfounded: South Africa has a growing NEET (not in education, employment or training) population of youths and adults, a phenomenon which has been exacerbated by two years of COVID-19.

As we contextualise the articles in this issue that are relevant to education, training and future prospects of study or work, there are some important facts to be borne in mind. These are ‘that the number of NEETs in South Africa grew from 38% in 2013 to 44% in 2020; that the increase in [post-school education and training (PSET)] opportunities is not enough to curb the high numbers of people who are NEET in the country; and

that the majority of people who are NEET in South Africa have education levels below matric' (Khuluvhe & Negogogo, 2021:14).

The conclusion to be drawn from the most recent statistics cited is that there are not sufficient opportunities in PSET for all those who desire them. We still do not have the kind of seamlessness in our education and training system that was anticipated in the establishment of a national qualifications framework – and this lack of seamlessness affects, among others, those in TVET and adult education. For instance, despite the regulations pertaining to the TVET college Level 4 National Certificate (Vocational) (equivalent to schooling's Grade 12) as an access route to university having been in place for about ten years or more, TVET college students still find their aspirations to entering higher education being thwarted when they apply to enter university programmes. Part of the reason for this is no doubt the persistent perception of vocational education as being academically inferior to general academic schooling, but historical underfunding and the negative stereotyping of vocational learners also play their part.

But two decades of sustained policy investment in TVET has slowly been chipping away at the old technical college edifice and its inherent inequalities. Admittedly, there is still a long way to go, of course, but, having been a participant observer for the past 25 years, I firmly believe that significant gains have nevertheless been made.

**Stops, Lortan, Singh and Ramsuroop**, in their comparative study, offer an encouraging perspective on school versus TVET college preparation for university engineering studies. In their quantitative research, National Senior Certificate students entering a university of technology's engineering programmes directly from school, on the one hand, and students who entered after completing a TVET college programme, on the other, showed no statistically significant difference in their performance at university. The TVET college entrants in this study had been allowed access to the university engineering programme *after* having completed a college programme, because they had not satisfied the university entry requirements upon exiting from school. A myriad reasons for this could be provided: for instance, insufficient foundation in mathematics or science owing to their high schools perhaps not offering the subjects at the level required. Nonetheless, accessing university after a period at a TVET college was a 'second chance' opportunity for these students, an opportunity which revealed that they performed as well as their counterparts who had entered via the school exit qualification route. The Stops et al. study was also therefore an investigation into the implementation of the South African national articulation policy (2017) in a particular context, as the TVET college qualification provided the stairway that enabled college-leavers to proceed vertically in engineering at university. Confirming the widely held misperception of TVET college learners, the authors conclude by saying that '... this study has served to debunk the notion that TVET qualifications and their learners are inferior and unworthy of pursuing studies at a University of Technology'. This study should propel further research to be done in exploring the number of TVET college students in other programme areas who are actually gaining access to university through

articulation. Are the aspirations of those who complete their TVET college studies being met or are they still having to compete with school-leavers for university places? And, if they are, on what basis?

Having considered students' entry to TVET colleges, our next contribution on the theme of students, by **Esau and Daniels**, reports on a study of the 'funds in families and communities that facilitate second-chance learning' of youths who find themselves in vulnerable circumstances. Here the 'funds' referred to are not merely financial, as may be generally understood, but rather a wide range of resources – emotional, physical and cognitive – that young TVET learners are able to garner among the many and varied support persons and structures in their lives. The authors hold that biological parents are not the only caregivers in this scenario; and neither can it be assumed that responsible adults in impoverished communities are uninvolved, for whatever reason, in their children's educational lives. In employing Community Cultural Wealth theory (Yosso, 2015), the authors explore the wider network of 'funds' that the young students have drawn on for inspiration and support in their TVET journey. Although they are acutely aware of the physical and financial hardships that these students face, the deficit model is not their focus in this instance; indeed, it is the in-depth narratives of the five research participants that give visibility to the often-invisible agentic involvement of significant family and community role players (and role models) who so often make the difference between success and failure. Colleges, it is argued, should seek ways to harness the power that these 'valued collaborators' exercise in the further education of vulnerable youths.

In our third article on the theme of students, **Maluleke, Powell and Pillay** move to another sociological theory that grapples with and lays bare 'pervasive social inequalities'. A large proportion of TVET students in South Africa receive the National Student Financial Aid Support (NSFAS) grant, which indicates the precarious circumstances of substantial numbers of our TVET students. Their environments and circumstances have the potential to affect their aspirations in significant, often limiting ways. The 'structure–agency' dilemma (Bourdieu, 1977) is therefore often visible among our TVET student population, not least when they have to make career decisions. In an attempt to extend the more familiar structure–agency debates that explain the ways affected individuals use agency to navigate structures, the authors use 'Careership Theory' as adopted by Appadurai (2004). This theory argues that social agents need 'cultural, economic, and social capital' (Golding, 2013, cited by Maluleke et al., 2022) to exercise their 'capacity to aspire'. Here one can perceive strains of the 'community cultural wealth' theory expounded by Esau and Daniels in the article referred to above, in that individuals' aspirations are understood to result not only from their own choices, but as a result of their social interactions with others (the 'funds' that they draw on). In their contribution to this issue, Maluleke et al. conclude that Careership Theory, especially in research on TVET students' career decisions, may help to illuminate broader sociological questions and highlight the possible structural limitations that students can be guided to recognise and, hopefully, overcome.

Policy attempts to match skills supply with skills demand are evident from a number of country policies in Africa and those in countries such as Australia and the United Kingdom. In her article, which problematises this phenomenon, **Allais** criticises attempts to suggest that skills are somehow to be found outside of the economy. In an apt analogy for industry, perhaps, she maintains that ‘a society and an economy need to be seen as an organism of which skill-formation is a complex set of moving parts’ and that creating a false dichotomy between the supply of and the demand for skills can only result in what is commonly termed a ‘skills mismatch’. Instead of seeking constant regulatory mechanisms, she advocates the use of different ‘conceptual lenses’. But how ought governments and institutions to look differently at what seems to be a situation that is always in flux, with no apparent synchronisation between the provision of skills by training providers and the take-up of skills by an uneven and lethargic labour market?

Allais’s article looks beyond the partnership models that industry and institutions have been urged to follow to date, holding that ‘broader institutional arrangements in economies shape the way skills are developed and the opportunities for using skills’ and that there should therefore be more deliberate and directed partnerships which recognise this reality. This means that a wider range of social and civil partners is needed in order to target more sector-specific initiatives within a much bigger scenario than that which is offered by one-to-one arrangements between institutions and industry players. Her call for targeted funding is sure to strike a chord among institutions that, through lack of resources, are often compelled to view specific skills-development interventions as either add-ons or an unfunded mandate. By considering the supply of skills as endogenous to society and the economy, Allais contends that some energy may be injected into the system in addition to the flexibility that supports institution-building. Responsiveness, her article suggests, requires dynamic programmes, meaningful programmes and a long-term vision rather than a ‘frenzy of policy rules and tools’ for the purposes of regulation. The article makes some hard-hitting statements that will no doubt provide food for thought, and perhaps inspiration to put pen to paper so as to present a countervailing argument. Scholarly engagement and debate regarding ideas such as these are welcomed for future journal articles.

From robust policy debates we move to TVET curriculum matters, which are to be found in a cluster of three articles. **Madileng**, in her contribution, takes a closer look at the nature of knowledge in vocational education, using the English language subject curriculum – one of the compulsory fundamental courses at public TVET colleges in South Africa – to illustrate her points. Using Bernstein’s pedagogic device as a theoretical lens, she interrogates the path of curriculum development, from production to recontextualisation in the written specified curriculum. Her criticism of the outcomes- or competencies-based curricula which she characterises the English subject curriculum as being is based on what she identifies as insufficient content knowledge that is too vaguely described to serve as a guide to college educators about content selection. Furthermore, she finds that there is poor alignment between one of the curriculum’s purported intentions – that is, preparation for

the workplace – and the approaches suggested by its specified outcomes, a misalignment that is unlikely to foster goals related to proficiency.

The English subject curriculum is shown to fall short of providing vocational students with specialised language forms and functions that might serve them better in future workplace contexts. TVET specialists in this domain may find much to debate in this article, especially with regard to what the author considers to be lacking in the present curriculum, for instance: Does the ‘production of extended texts such as argumentative and discursive essays ... limit students’ opportunities to develop writing and reading skills ... essential to academic success and further studies’? What will no doubt not be contested is that the English language curriculum design should be ‘based on models suited to the educational, economic and employment needs of students in this sphere in South Africa’.

Still on the topic of the curriculum but from further afield regarding both our authors and the location of their research, we turn to Zimbabwe. There, collaborative research between a Zimbabwean university and two universities in the United Kingdom (**Muwaniki, McGrath, Manzeke-Kangara, Wedekind and Chamboko**) was conducted. In their research, Agriculture education and training was the target of curriculum reform, the authors averring that ‘the current Agriculture curriculum was developed for a different context altogether; therefore, it now lacks relevance to the prevailing socio-economic, political and environmental changes’. Their article draws on documentary and qualitative fieldwork among institutions involved in the Agricultural Extension curriculum and policy to highlight gaps in the curriculum. In doing so, they also explore what the ideal Agriculture curriculum might be. Again, there is the familiar scenario of a curriculum out of step with its contextual realities, in this case in particular a need to focus on the majority who are small-scale farmers and on issues such as the need for modern technology and climate-change interventions. Emanating from critical stakeholder interviews and documentary analysis, the article highlights the limitations of the reforms to date, albeit well meant, juxtaposed with aspects of reform that may prove to be too ambitious, given a constrained resource base – which offers readers a cautionary note about the delicate balance between the need for large-scale curriculum reform, on the one hand, but for reform that is both realistic and achievable, on the other.

Curriculum implementation or delivery that is aligned to curriculum intentions as set out in specified outcomes or other curriculum formats necessarily includes a focus on teaching, learning and assessment. It is this last aspect that is the focus of **Garraway’s** review article on assessments for work readiness. The article presents a literature review of competency-based assessment (CBA) in the TVET literature. At the outset, the author is clear about the purposes of his review article: first, that it is intended to provide teachers (lecturers or educators) with insight into ‘innovative practices from CBA in order to enrich their understandings of assessment’; and, second, it hopes to help with the understanding of the ‘assessment tools to mitigate some of the criticisms of current assessment practices in quality reviews’. The JOVACET has not published many review articles, but this contribution is published particularly in the light of the journal’s expressed mandate to support emerging authors.

In an article on the growing TVET and post-schooling research base in the South (see Papier and McGrath, 2020), the encouraging numbers of postgraduate students in the field were reported on and the view was expressed that this augured well for growing a local knowledge base that could ‘talk back’ to similar issues in international contexts. Colleagues involved in postgraduate supervision have often been heard to lament their students’ difficulties with writing strong literature reviews. Therefore, while this article takes a focused look at CBA in the scholarly literature, it also offers excellent modelling of what an informative, robust literature review should comprise. Some of the pointers in this regard are self-evident, and for this reason we hope the review serves both the purposes that the author identifies plus our additional purpose that goes beyond his original intent.

From the spotlights on students, policy and curriculum more specifically we turn last, but not least, to TVET leadership and the experiences of an enquiry-based management and leadership training programme. **Smit and Bester** take our readers through the seminal development process of a university postgraduate diploma (PGDip) Level 8 programme that was devised and launched at the University of Pretoria as recently as 2019. It is one of only two PGDip TVET programmes designed under official policy and based on qualifications aimed at TVET capacity-building – the other being a PGDip TVET focused on curriculum that has been offered by the University of the Western Cape since 2017. In particular, the mode of delivery of the University of Pretoria’s PGDip TVET leadership and management programme through enquiry-based blended learning is described and explained. The article presents a snapshot of the first cohort of TVET college leaders who participated in this new enterprise. In particular, it provides insights into the ways in which the participants reported their experiences of learning and teaching in the first cycle of its implementation at a time when South Africa and the world were thrust into the COVID-19 pandemic, curtailing contact-learning experiences. Consequently, of course, the programme could not be rolled out exactly as intended and some of its contact events had to be adjusted to become remote online initiatives. Despite the challenges of having to adapt a new programme to newer, unintended circumstances, the authors found that the TVET leaders’ experiences, with only a few reservations expressed, showed that enquiry-based blended learning as an approach to leadership and management education was a viable option for developing ‘critical and self-driven leaders in this sector’.

Finally, much of the research and writing for the contributions to this issue would have been done during the closing phases of the COVID-19 pandemic, a period that continues to tax our authors, reviewers and editorial board. Accordingly, we want especially to thank, congratulate and express our great pride in all of the authors who subjected the products of their work to robust scrutiny. We sincerely hope that the research shared and the views expressed in this fifth volume of the JOVACET will be a stimulus to future contributors – both established and emerging scholars from South Africa and internationally – to publish high-quality research that will have a meaningful impact on the vocational, adult and continuing education sector. We wish you well as you continue on your research journeys.

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# A comparison of the performance of learners transitioning from TVET college and their certificated high-school counterparts

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## ABSTRACT

Situated in an Engineering Department at a University of Technology, this quantitative research, traversing the fields of Engineering, Mathematics and Education and using the positivism paradigm or 'science research', investigated the efficacy of the National Articulation Policy. According to this policy, learners not gaining direct entry to a University of Technology armed with a Senior Certificate or a National Senior Certificate (SC/NSC) may progress or 'articulate' into a chosen Engineering programme after attending a Technical and Vocational Education and Training (TVET) college. Employing statistical analysis on cohorts of learners from TVET colleges, this study was able to determine that there was no statistically significant difference between the performance of the articulating learners and that of their SC/NSC counterparts straight out of high school.

## KEYWORDS

*Articulation, TVET, admission requirements, STEM, engineering, throughput*

## **Introduction**

The Engineering Department at the Durban University of Technology (DUT) situated in the province of KwaZulu-Natal has, since 1994, accepted for enrolment learners from Technical and Vocational Education and Training (TVET) colleges who were not initially in possession of the entrance requirements for registration for the National Accredited Technical Education Diploma (NATED 191) National Diploma: Electrical Engineering. This decision was based on the positive perceptions of the academic staff that the learners' updated knowledge and abilities enabled them to cope with the complexity and quality of Engineering programmes, because those learners were entering the institution directly after completing their school-leaving Senior Certificate or National Senior Certificate (SC/NSC). The SC/NSC is the exit-level certificate from traditional high schools in South Africa. This belief is not consistent among all the stakeholders, as many have negative perceptions of the TVET education system (Malale & Gomba, 2016). No formal tracking, analysis or research had been conducted to determine the success or failure of these learners at a University of Technology (UoT). These learners are defined according to the Articulation Policy for the Post-School Education and Training System of South Africa (PSET) (DHET, 2017) in terms of section 8(2)(b) of the National Qualifications Framework Act 67 of 2008 (NQF) (DHET, 2009). The present investigation, based on an Engineering learner dataset, therefore set out to determine statistically whether the learners defined in this way are as successful as their first-time SC/NSC counterparts. This research is of importance not only to UoTs and TVET colleges, but also to learners, policy-makers and the general public.

## **Background**

The education systems in South Africa prior to 1994 were restrictive (Case, 2006) and limited the prospects of learners of colour from entering an institution of higher learning and gain a higher education (HE) (DOL, 2010). In contrast, and to remedy that situation, section 29 of the South African Constitution (RSA, 1996) states:

29. (1) Everyone has the right—
- (a) to a basic education, including adult basic education; and
  - (b) to further education, which the state, through reasonable measures, must make progressively available and accessible.

In accordance with this constitutional provision, the Government of National Unity post-1994 initiated the process of restructuring the education system, which is now governed by the NQF (DHET, 2009). The relevant Act of Parliament applies to all educational programmes that lead to qualifications or part-qualifications offered in the Republic of South Africa.

In line with the legislation and the myriad changes that occurred in the education, economic and social spheres post-1994 in South Africa, HE underwent changes in the number and

demographics of the former white higher educational institutions (HEIs) and in industry. Despite the massification of learners in HEIs, and changes in the demographics of the membership of the professional bodies for Engineering (Case, 2006), a reduction in throughput rates in HE resulted in what is referred to as the ‘skewed revolution’ (Cooper & Subotzky, 2001, as cited in Bundy, 2006). The term refers to the enrolment of previously disadvantaged learners in the Humanities rather than for studies towards Business, Technology and Science degrees.

In alignment with the National Plan for Higher Education (DOE, 2001) and in response to the demand from industry (Cosser, 2010), the Engineering Department currently has the human resources, facilities and equipment to enrol 120 learners in the programme annually. The aim of attaining these enrolment figures is to increase the rate of participation of learners in Science, Technology, Engineering and Mathematics (STEM) and to sustain the pipeline supplying industry with sufficient graduates. Despite the more than 2 500 applications for enrolment for degree courses in the Engineering Department annually, the majority of learners (94%) do not meet the minimum university and departmental entrance requirements of an SC/NSC (DBE, 2012) or a pass mark (level 4) in Mathematics, Physical Science and English. This is largely because they are underprepared academically (Oosthuizen, Garrod & Macfarlane, 2009). As a result, the planned enrolment numbers are not always achieved (see Table 1). This situation has been exacerbated by the department’s introduction of a degree programme in 2018 that requires learners to have combined percentage points of a minimum of 120 for Mathematics and Physical Science at SC/NSC level. The change from the diploma to the degree programme, which is supported and promoted by industry and aligned to the Higher Education Qualifications Sub-Framework (HEQSF), necessitated this adjustment to reflect the level and status of a degree qualification. This trend is being experienced in the STEM sector generally (Case, 2006; DHET, 2013; IEEE, 2013; Graham, Lortan, Maistry & Walker, 2017; SAQA, 2019).

**TABLE 1:** Learners entering first year of Engineering

<b>BEng Tech: Power Engineering</b>	
<b>Year</b>	<b>No. of first-year learners</b>
2018	97
2019	116
2020	112
2021	70

## **Context**

Challenges in the education system in South African high schools are negatively affecting the success of learners in HEIs; this is now labelled the ‘articulation gap’ (Mawoyo, 2014; Scott, 2014). This articulation gap creates difficulties for many learners entering HE at the first attempt. As reported by McGhie (2014), one of the factors negatively

affecting learners' transition from high school to university is that the challenge of transition is often too great. This results in students failing or dropping out of their studies. Secondly, the importance of new learners successfully transitioning has both immediate and long-term implications for student retention at each HEI: a high dropout rate affects graduation rates and the concomitant funding that accompanies them (CHE, 2015). Against this background, it is understandable that HEIs should be interested in admitting learners who are most likely to complete their qualifications in the usual minimum time (3–4 years). Second-chance learners – applicants who do not access HE at the first attempt – are more likely to be marginalised by this approach. However, second-chance learners also need to have opportunities created for them that will enable them to enter HEIs for what is termed a 'second-chance education'. Ross and Gray (2005) explain that second-chance education is based on the idea that by being progressed through an organised structure, an individual can take up an educational opportunity missed or failed the first time round.

One mechanism that enables second-chance education is articulation. Articulation refers to the mechanisms that enable learner mobility within and among the institutions that comprise the tertiary system. For example, by accumulating and transferring academic credits, recognising degrees between institutions and their equivalence, the recognition of prior learning, and so on (Ng'ethe, Subotzky & Afeti, 2008), it is possible for students to move between HEIs.

Notwithstanding the promulgation of the Articulation Policy in 2017, challenges of varying complexity arise when an individual transfers from a TVET college to a UoT or a traditional or comprehensive university. The South African Qualifications Authority's (SAQA, 2017) *Baseline Study Report* established that most HEIs have a variety of approaches to articulation, with no clear or standard process that is followed; this is a common challenge for individuals intending to articulate within or across the PSET sector. The Articulation Policy has been developed to overcome the barriers that exist in HE. It has also highlighted a number of barriers to articulation (DHET, 2017), four of them being the most relevant to this investigation:

- Academic qualifications are considered more valuable and credible than comparable vocational or occupational qualifications.
- Some qualifications in the NQF are seen to be 'dead end' in nature and do not lead to further learning.
- There are general perceptions that the purpose and nature of TVET is to offer learning programmes which focus on a relatively narrow band of employment-related or job-specific skills and competencies, when in fact the qualifications and/or part-qualifications could have wider relevance.
- There is a general lack of institutional flexibility to support learners as they 'step in and step out' of their studies, where research has shown that this kind of 'staggered pathway' is the norm at all NQF levels.

In summary, these barriers point to a lack of parity of esteem between academic qualifications, on the one hand, and technical and vocational qualifications, on the other, and this has led to the misperception that the quality of these TVET college qualifications and of the learners they produce is inferior.

## **Literature review**

Having sufficiently skilled and qualified professional engineers is recognised by the Ministries of Labour and of Trade and Industry as being vital to the development of South Africa's infrastructure and economic growth (IEEE, 2013). In a comparative study by Lawless (2005, as cited by Case, 2006), of the number of engineering professionals, South Africa had 315 registered engineers per million of the population. Japan had 3 300, whereas the United Kingdom and Norway had 3 220 and 8 190 engineers per million of their respective populations (Case, 2006:7). Little change has been seen in these figures since 2005, as reflected in the Engineering Council of South Africa's Annual Report for 2018. The report reveals that there are 17 226 registered engineers in a population of 56 million, of which 80.7% or 13 903 are white, 11.5% or 1 985 are black, 6.7% or 1 144 are Asian, and 1.1% or 194 are Coloured. Approximately 1 500 engineers graduate every year, with only 50% going on to practise (ECSA, 2017:84). This statistic is an indictment on South Africa's economic health. As described previously, many learners exit the South African basic education system in possession of an SC/NSC but without the necessary entrance requirements for admission to the HEI programme of their choice.

Many reasons have been proffered for the poor performance of learners in the SC/NSC subjects. Reddy has indicated that South African Mathematics and Science educators' standards have been benchmarked internationally as being among the lowest in the world (Reddy, 2006). Furthermore, the *Trends in International Maths and Science Study's* (Boston College, 2019)<sup>1</sup> assessment of Grade 8 learners indicated that South Africa was placed last for Science and second last for Mathematics in 2019 (Boston College, 2019). This strongly suggests that SC/NSC learners leave the school system with very weak Mathematics and Physical Science marks. As these subjects constitute part of the entrance criteria for all Engineering programmes at South African HEIs, many aspirant engineers are denied admission to HE Engineering qualifications. The same learners, however, if able to articulate into HE through an alternative route such as an Engineering N4 Certificate, having obtained relevant knowledge and necessary competency, would be provided with another opportunity to be admitted in a shorter time via an appropriate avenue. Articulation has provided learners with a streamlined means of obtaining a second chance to be admitted to an HEI without having to spend another year repeating the entire set of Grade 12 subjects or even attempting a supplementary examination, which leads to a lost year. A well-articulated system, as

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1 TIMSS data have been collected from learners at Grades 4 and 8 every four years since 1995, with the United States participating in every administration of TIMSS. TIMSS Advanced studies the achievement in advanced Mathematics and Physics of learners in their final year of secondary school. It was conducted in 1995, 2008, 2015 and 2019, with the United States participating in 1995, 2015 and 2019.

summarised in the Articulation Policy (DHET, 2017), is one that would provide such a route as it

is one in which there are linkages between its different parts: ... no silos, no dead ends. If a learner completes a course at one institution and having gained the relevant knowledge and skills at the necessary levels, their achievements must be recognized by other institutions if the knowledge gained is sufficient to allow epistemological access to programme(s) that the learner wants to enter. Learners must be supported in their individual learning and work pathways (DHET, 2017).

The Articulation Policy underpins the principles of the constitutional right to education through reference to mobility, progression and establishing career paths for learners. In terms of the policy, articulation routes should be developed to ensure that learning pathways are practically and logically linked to facilitate smooth learning pathways for learners wanting to raise the level of their education. In support of this, the DUT/SAQA National Articulation Baseline Study of 2017 (NABS) (SAQA, 2017), conducted across 50 public TVET colleges and 26 public HEIs, determined an understanding of articulation in the form of descriptions of existing articulation arrangements and the challenges arising from articulation. It also included an investigation into existing successes and enablers and probed the extent to which the accurate tracking of learners' movements into, through and out of the institutions was taking place. Moreover, several suggestions were summarised in support of the implementation of the Department of Higher Education and Training's (DHET) Articulation Policy and the NQF policy suite. One of these recommendations – that 'systematic reporting requirements and guidelines for institutions to track and report on articulation practices should be developed' – provided the impetus for this study.

## **Theoretical and methodological framework**

This quantitative study was conducted using a framework of positivism and inferential statistical analysis and techniques. As previously mentioned, the theoretical framework – separate from the theory – refers to the paradigm (Bogdan & Biklin, 1998; Mertens, 2005) in which the study is positioned; it provides direction for the intention, motivation and expectations of the researcher (Mackenzie & Knipe, 2006). Positivism, one such paradigm referred to as the 'scientific method' or 'science research', is 'based on a rationalistic, empiricist philosophy in which cause affects outcome' (Creswell, 2003:7). The positivists test a theory 'through observation or measurement, in order to control forces that surround us' (O'Leary, 2004:5). Positivism was replaced by post-positivism after World War II, and as Cook and Campbell (1979) remind us:

Post-positivists work from the assumption that any piece of research is influenced by a number of well-developed theories apart from, and as well as, the one which is being tested (Cook & Campbell, 1979:24).

Post-positivist and positivist research is most commonly aligned with quantitative methods of data collection and analysis.

Accordingly, the present study sets out to determine the accuracy of long-held perceptions among academic staff: first, that learners articulating into HEI from TVET colleges can complete the National Diploma and, second, if they can, they do so within the same time frame as their SC/NSC cohort. The data analysed in this research are obtainable from the UoT's Management Information System (MIS). The research proposal for this study was reviewed by the UoT's Faculty Research Committee for Engineering and the Built Environment. Approval was granted on 12 June 2020, with ethical clearance category 1. It is noteworthy that the MIS is not able to differentiate between the TVET and the SC/NSC learners, and therefore all the data had to be sorted manually to extract the two sets of learners. After extraction and sorting, the data were analysed to determine the success and/or failure of the cohort of learners articulating from TVET colleges into the National Diploma: Electrical Engineering at the UoT from January 2013 to July 2017. These learners had completed four N4 subjects: N4 Engineering Mathematics, N4 Engineering Science, N4 Electrotechnics and N4 Industrial Electronics, all at the equivalent Level 4. The learner enrolment data and the results for first-level subjects were captured for analysis.

A total of 154 TVET N4 learners were identified. Of these, the information for 87 of them was missing or incomplete. These learners had been captured on the MIS system simply as 'Passed' and no symbol was attached to the subject. This reduced the number of learners in the dataset to 67. A total of 646 SC/NSC learners were captured during the same period (January 2013–July 2017). Only 100 learners' information was excluded due to missing information – reducing the SC/NSC dataset to 546. Even though the group sizes were different, appropriate non-parametric tests were done to factor this in so that the group sizes became comparable. The non-parametric tests included the Mann-Whitney U and the Fisher Freedman tests.

The scope of the Articulation Policy (DHET, 2017) clearly encompasses Basic Education, TVET and HE, therefore encompassing all the spheres of this research. The Articulation Policy defines articulation in three ways as:

- *systemic* articulation – that which is based on government legislation or various other official elements aligned to and supportive of learning and work pathways; or
- *specific* articulation – that which is based on agreements between institutions in the education system, such as Memoranda of Understanding (MoU); or
- pathways followed by individuals as they progress with the support of the institutions (DHET, 2017).

In the absence of any systemic articulation policies other than the National Policy itself, articulation is therefore specific and relies on engaging in 'boundary-crossing practices'

(SAQA, 2017). Learners encounter boundary zones between differing elements of learning pathways and will need to engage in 'boundary-crossing practices' when navigating their learning pathways (Lotz-Sisitka, 2015; SAQA, 2017). These practices or this support reduces the gap between the policy development and implementation related to learning pathways, strengthening specific pathways and enhancing the opportunities to progress along these pathways, the quality of education and training, Flexible Learning and Teaching Provision, appropriate career advice, and various other types of support required (Lotz-Sisitka, 2015).

Blom (2013) describes articulation as being deceptively simple but does admit that deliberate and considered effort has to take place to enable learners to progress along practical and logical learning and career pathways. Blom (2013) proffers a description of 'articulation as a stairwell' as one method of articulation. This method gives second-chance learners who did not meet the requirements for entry into a programme at their first attempt a second opportunity to gain entry. This would present learners from the Basic Education system with another opportunity to meet the entrance requirements of their desired HE programmes by completing relevant and outstanding subjects at a TVET college. The Engineering Department at the UoT developed an 'articulation as a stairwell' initiative which directed learners who did not meet all the admission requirements to TVET colleges to register for those subjects preventing their admission to their qualification of choice. Upon successful completion of these subjects, learners may articulate into the National Diploma: Electrical Engineering at the UoT. This approach was predicated upon the critical shortage of learners in possession of the required Mathematics and Physical Science results and the need to admit them to study in the department. As this shortage is experienced nationally by HE Science and Engineering programmes (DOL, 2010), learners from TVET colleges constitute a potential source of learners for HE programmes in STEM.

## **Findings**

The statistical analysis was undertaken using SPSS version 27.0. The descriptive statistics are presented in the form of graphs, cross-tabulations and other figures for the quantitative data that were collected. Inferential techniques include the use of regression and the chi-square test values, which are interpreted using the  $p$ -values. The traditional approach to reporting a result requires a statement of statistical significance. A  $p$ -value is generated from a test statistic. A significant result is indicated by ' $p < 0.05$ '.

In total, the results of 546 SC/NSC learners and 67 N4 learners were analysed. This section uses descriptive statistics to evaluate the patterns in the data. The Kolmogorov tests indicated that the data were not normally distributed. Central measures are described using means and medians, with the spread estimated by the standard deviation and inter-quartile ranges respectively. (The inter-quartile range is the difference between the 3rd quartile and the 1st quartile values.)

A comparison of the English First (English A) and English Second (English B) language results of the two cohorts was undertaken within each group prior to the commencement of the testing procedures. The null hypothesis claims that there is no difference between English A and English B results. The alternative hypothesis claims that there is a difference between the two (see Table 2). Although English A and English B learners would have different English competency levels, this research study was unable to use these results to draw any conclusions.

**TABLE 2:** Comparisons between English A and English B results

GROUP	P-VALUE
SC/NSC	0.054
TVET N4	0.424

In both instances, there is no significant difference in the scores for English A and B. Hence, the English score was treated as a single entity (referred to here as Combined English).

### *Comparisons of scores between the groups*

The descriptive measures for each of the cognate subjects completed by each of the two groups, TVET N4 and SC/NSC, are listed in Table 3 overleaf.

The SC/NSC and TVET N4 scores are the category ratings as displayed on the SC/NSC or TVET N4 certificates. For example, 80% or more is rated as 7 for the SC/NSC group (see Table 3). The university subjects are reflected by the mark obtained as a percentage. It is clear from Table 3 that the SC/NSC learners performed better than the TVET learners in Mathematics (5.38 vs 3.05), Physical Science (5.10 vs 2.95) and English (5.2 vs 4.43) in the SC/NSC examinations. It is noteworthy that although the learners did not have the required competency, they did have the relevant subjects.

### *School subject comparison*

Figure 1 indicates the mean and standard deviation per school subject.

The SC/NSC university learners or those learners entering HE directly obtained higher marks in all subjects than the TVET N4 learners upon completion of their SC/NSC. There is only a marginal overlap in the spread, with the lower-end scores of the university learners' SC/NSC being in line with the upper-end scores of the TVET N4 learners' SC/NSC marks. This is understandable, as the entrance criteria to enrol at university are higher than those for a TVET college, and the reason the learners were not accepted directly into the HEI was their lower marks. The test of significance for the differences is shown in Table 4.

**TABLE 3: Results**

	Group											
	TVET N4						SC/NSC					
	Count	Mean	Standard Deviation	Median	1st Quartile	3rd Quartile	Count	Mean	Standard Deviation	Median	1st Quartile	3rd Quartile
English (B)	67	4.47	0.65	4.00	4.00	5.00	546	5.16	0.93	5.00	4.00	6.00
English (A)	67	4.33	0.59	4.00	4.00	5.00	546	5.32	0.79	5.00	5.00	6.00
Combined English	67	4.43	0.63	4.00	4.00	5.00	546	5.20	0.89	5.00	5.00	6.00
Physical Science	67	2.95	1.25	3.00	2.00	3.00	546	5.10	0.89	5.00	4.00	6.00
Mathematics	67	3.05	1.37	3.00	2.00	4.00	546	5.38	0.89	5.00	5.00	6.00
TVET N4 Engineering Science	67	5.45	0.74	5.00	5.00	6.00	546					
TVET N4 Industrial Electronics	67	6.00	0.98	6.00	5.00	7.00	546					
TVET N4 Mathematics	67	6.10	0.96	6.00	5.00	7.00	546					
TVET N4 Electrotechnics	67	6.60	1.09	7.00	6.00	8.00	546					
Projects I	67	61.30	15.38	65.00	58.00	70.00	546	55.92	19.56	60.00	50.00	69.00
Electrical Engineering I	67	54.39	15.15	57.00	45.00	66.00	546	56.96	15.49	58.00	46.00	68.00
Electronics I	67	51.57	13.34	52.00	45.00	61.00	546	48.81	14.03	51.00	39.00	58.00
Mechanics I	67	38.28	10.22	38.00	33.00	46.00	546	41.15	11.58	39.00	34.00	47.00
Communication Skills I	67	60.79	9.96	61.00	58.00	65.00	546	61.54	10.52	62.00	55.00	68.00
Computer Skills I	67	73.06	15.45	75.00	61.00	87.00	546	72.84	15.06	75.00	64.00	84.00
Mathematics I	67	61.80	16.22	63.50	52.00	73.00	546	60.95	16.42	61.00	50.00	72.00

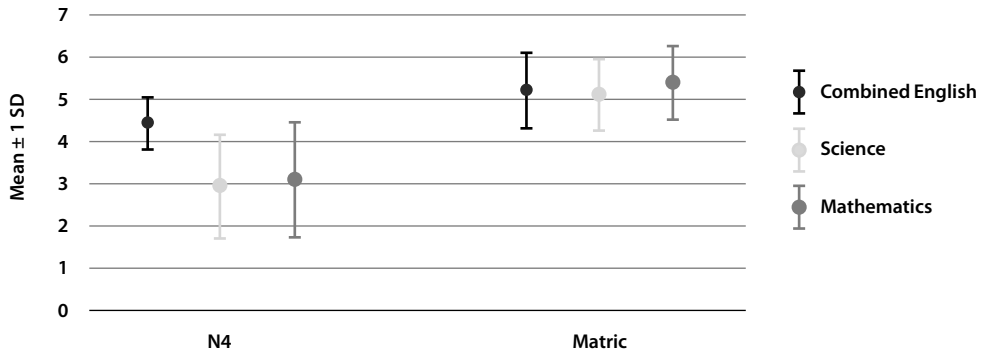


FIGURE 1: Entrance subjects for TVET N4 and SC/NSC (Matric)

TABLE 4: Significance test

	English (B)	English (A)	Combined English	Physical Science	Mathematics
Mann-Whitney U	5 803.500	467.000	9 632.000	2 621.000	2 798.000
Wilcoxon W	7 028.500	638.000	11 910.000	4 274.000	4 751.000
Z	-4.937	-4.691	-6.658	-10.849	-11.278
Asymp Sig (2-tailed)	<0.001	<0.001	<0.001	<0.001	<0.001

The  $p$ -values are all significant ( $p < 0.001$ ). This implies that there is a significant difference in the central values. It is noted in Table 4 and in Figure 2 that the SC/NSC university learners had significantly higher scores than the TVET N4 learners.

### University subject comparison

Although there is variation in the marks between the subjects, as seen in Figure 2, the marks obtained per subject seem similar between the groups. Most of the subject means (medians) are similar, as is the spread. In order to test the claim that there is no significant difference in the central values by subject between the groups, a Mann-Whitney test was performed. The results are shown in Table 5.

The results show that there are no significant differences for the subjects between the groups for all subjects except Projects 1 (as all the  $p$ -values are greater than 0.05). This implies that the TVET N4 learners are performing just as well as the SC/NSC university learners in the same subjects.

From Figure 2 and Table 5 it is noted that the TVET N4 learners had marginally higher scores in three of the seven subjects, with the SC/NSC university learners having higher scores in three others. The TVET N4 learners have a significantly higher score for Projects 1 ( $p = 0.013$ ). This may be due to their completing practical components in their courses at the TVET colleges and possible exposure to industry.

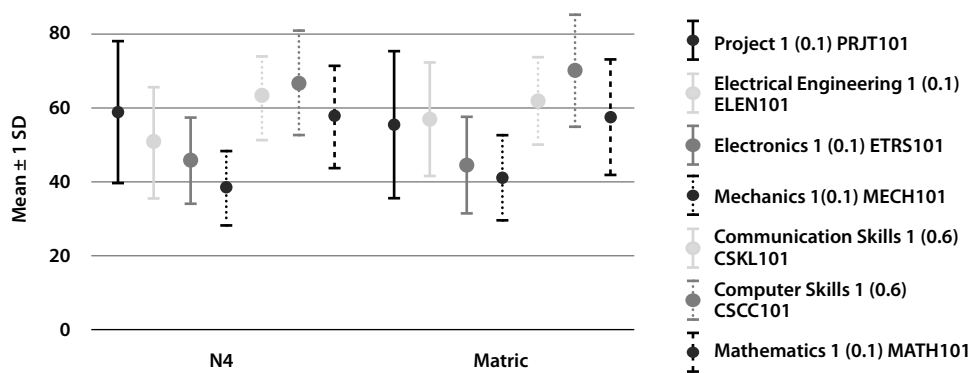


FIGURE 2: University subject comparison

TABLE 5: Significance test of university subjects

	Projects I	Electrical Engineering I	Electronics I	Mechanics I	Communication Skills I	Computer Skills I	Mathematics I
Mann-Whitney U	14 723.000	16 073.500	15 954.500	3 304.500	17 122.500	17 326.500	16 436.500
Wilcoxon W	160 793.000	18 284.500	164 739.500	3 629.500	19 400.500	155 927.500	156 621.500
Z	-2.496	-1.189	-1.687	-0.938	-0.353	-0.223	-0.775
Asymp Sig (2-tailed)	<b>0.013</b>	0.235	0.092	0.348	0.724	0.824	0.438

### Cross-tabulations

A chi-square test of independence was performed to determine whether there was a statistically significant relationship between the group and passing. The null hypothesis states that there was no association between the two. The alternative hypothesis indicates that there was an association. Table 6 summarises the results of the chi-square tests.

Overall, the ratio of TVET N4 learners to SC/NSC university learners is approximately 1 : 9 (10.9% : 89.1%) ( $p < 0.001$ ). In the category of learners who progressed (Yes), 12.0% were TVET N4 learners. In the category of TVET N4 learners (only), 77.6% passed. This category of TVET N4 learners who passed formed 8.5% of the total sample. (This is an expected smaller overall number in terms of the learners' group ratio.) It is also noteworthy that a slightly larger proportion of TVET N4 learners progressed than SC/NSC university learners (77.6% compared to 70.0%).

**TABLE 6:** Chi-squared test

			Group		Total
			TVET N4	SC/NSC	
Progressed	No	Count	15	164	179
		% within Progressed	8.4%	91.6%	100.0%
		% within Group	22.4%	30.0%	29.2%
		% of Total	2.4%	26.8%	29.2%
	Yes	Count	52	382	434
		% within Progressed	12.0%	88.0%	100.0%
		% within Group	77.6%	70.0%	70.8%
		% of Total	8.5 %	62.3%	70.8%
Total	Count	67	546	613	
	% within Progressed	10.9%	89.1%	100.0%	
	% within Group	100.0%	100.0%	100.0%	
	% of Total	10.9%	89.1%	100.0%	

### *Correlations*

Bi-variate correlation was also performed on the data. The results are shown in Tables 7 and 8. Positive values indicate a directly proportional relationship between the variables; a negative value indicates an inverse relationship. All significant relationships are indicated by a \* or \*\*.

The null hypothesis states that there is no correlation between the variables. The alternative hypothesis states that there is a correlation between the variables. The various correlations are highlighted below.

#### *SC/NSC subjects vs Semester 1 subjects*

There is a significant correlation between school-level English and Communication ( $r = 0.346, p = 0.004$ ).

#### *TVET subjects*

Each N4 subject has a good correlation with the other N4 subjects. This shows that subject content, subject level and teaching are congruent and that there is synergy between them.

#### *TVET vs Semester 1 subjects*

The correlations of the TVET subjects with the Semester 1 subjects are not significant. One correlation of interest is that N4 Electrotechnics does have a correlation with Electrical Engineering I. This is probably due to the content of the subjects being aligned.

TABLE 7: TVET N4 bi-variate correlation

		Combined English	N4 Engineering Science	N4 Engineering Mathematics	N4 Electrotechnics	N4 Industrial Electronics	Projects I	Electrical Engineering I	Electronics I	Mechanics I	Communication Skills I	Computer Skills I	Mathematics I
Combined English	Pearson Correlation	1											
	N	67											
N4 Engineering Science	Pearson Correlation	.033	1										
	N	57	57										
N4 Engineering Mathematics	Pearson Correlation	.173	.274**	1									
	N	67	67	67									
N4 Electrotechnics	Pearson Correlation	.005	.102	-.048	1								
	N	67	67	67	67								
N4 Industrial Electronics	Pearson Correlation	.001	.228**	.208**	.360*	1							
	N	67	67	67	67	67							
Projects I	Pearson Correlation	-.052	.099	-.039	.084	-.103	1						
	N	67	67	67	67	67	67						
Electrical Engineering I	Pearson Correlation	-.021	.017	.048	.158	-.276	.563**	1					
	N	67	67	67	67	67	67	67					
Electronics I	Pearson Correlation	-.018	.034	-.009	.135	-.082	.526**	.770**	1				
	N	67	67	67	67	67	67	67	67				
Mechanics I	Pearson Correlation	.050	.187	.006	.174	.021	.610**	.783**	.783**	1			
	N	25	25	25	25	25	25	25	25	25			
Communication Skills I	Pearson Correlation	.346**	.049	.186	.11	-.083	.189	.402**	.484**	.283**	1		
	N	67	67	67	67	67	67	67	67	25	66		
Computer Skills I	Pearson Correlation	.036	.152	-.006	.137	-.18	.387**	.513**	.685**	.282**	.556**	1	
	N	67	67	67	67	67	67	67	67	25	67	67	
Mathematics I	Pearson Correlation	.110	.195	.089	.124	-.54	.312*	.675**	.643**	.281**	.423**	.584**	1
	N	67	67	67	67	67	67	67	67	25	67	67	67

a Group = TVET N4

\*\* – Correlation is significant at the 0.01 level (2-tailed).

\* – Correlation is significant at the 0.05 level (2-tailed).

**Semester 1 subjects**

Communication Skills I and Computer Skills I show a good correlation with all the Semester 1 subjects. These subjects are used with the ‘main subjects’. It is essential that learners can communicate both verbally and in writing in the fields of technology. A positive correlation between the ‘main subjects’ indicates that subject content and teaching methodology are congruent.

**TABLE 8:** SC/NSC bi-variate correlation

		Combined English	Physical Science	Mathematics	Projects I	Electrical Engineering I	Electronics I	Mechanics I	Communication Skills I	Computer Skills I	Mathematics I
Combined English	Pearson Correlation	1									
	N	546									
Physical Science	Pearson Correlation	.246**	1								
	N	546	546								
Mathematics	Pearson Correlation	.056	.399**	1							
	N	546	546	546							
Projects I	Pearson Correlation	-.049	-.002	.019	1						
	N	540	540	540	540						
Electrical Engineering I	Pearson Correlation	.043	.272**	.256**	.407**	1					
	N	535	535	535	530	535					
Electronics I	Pearson Correlation	.005	.206**	.190**	.399**	.601**	1				
	N	545	545	545	539	535	545				
Mechanics I	Pearson Correlation	-.019	.311**	.380**	.280**	.641**	.537**	1			
	N	298	298	298	294	292	297	298			
Communication Skills I	Pearson Correlation	.345**	.081	.008	.255**	.394**	.404**	.251**	1		
	N	525	525	525	522	523	525	285	525		
Computer Skills I	Pearson Correlation	.173**	.057	.081	.264**	.344**	.396**	.215**	.523**	1	
	N	526	526	526	523	523	526	284	523	526	
Mathematics I	Pearson Correlation	-.057	.273**	.387**	.313**	.636**	.635**	.659**	.307**	.368**	1
	N	529	529	529	524	527	529	289	522	523	529

a Group = TVET N4

\*\* – Correlation is significant at the 0.01 level (2-tailed).

\* – Correlation is significant at the 0.05 level (2-tailed).

For this group of learners, there are significant directly proportional correlations between English and Science and between Science and Mathematics at the SC/NSC exit level. In addition, there is a positive correlation between English and Communication. There are also correlations between Science and Mathematics and various university subjects. There are also significant positive correlations between the university subjects.

### *SC/NSC subjects*

There is a positive correlation of 0.246 between English and Physical Science, presumably because proficiency in English enables a better understanding of concepts and also enables one to communicate the correct terminology of Physical Science. There is also a good correlation of 0.399 between Mathematics and Physical Science, presumably due to the Mathematics content and analytical concepts in both subjects.

### *SC/NSC vs Semester 1 subjects*

English has a positive correlation of 0.345 to Communication Skills I and to Computer Skills I of 0.173. Both of these subjects are 'soft skills' and are predominantly about communicating in English. Mathematics has a strong correlation to all the 'main' Semester 1 subjects: Electrical Engineering I (0.256), Electronics I (0.190), Mechanics I (0.380) and Mathematics I (0.387). All of these subjects include theory based on analysis and calculations; therefore, the stronger a learner is at the basic language of Mathematics, the more manageable the subject will be. Physical Science also has a strong correlation with these four subjects, for similar reasons. The strong correlation that Mathematics and Physical Science have with the four main subjects of Semester 1 is a good indication that these subjects are important selection criteria for learners entering the Department of Electrical Power Engineering (DEPE).

### *Semester 1 subjects*

Communications Skills I and Computer Skills I show good correlations with all the Semester 1 subjects. These subjects are used with the 'main subjects'. It is essential that learners can communicate both verbally and in writing in the technology fields. Positive correlations between the 'main subjects' indicate that subject content and teaching methodology are congruent.

### *Binary logistic regression model*

A binomial logistic regression predicts the probability that an observation falls into one of two categories of a dichotomous dependent variable based on one or more independent variables that can be either continuous or categorical. The progression of the learner (Pass or Fail) is used as the dependent variable. The outputs are explained in Table 9.

**TABLE 9:** Binary logistic regression model output summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	127.596 <sup>a</sup>	0.602	0.815
a. Estimation terminated at iteration No. 8 because parameter estimates changed by less than .001.			

Table 9 contains the Cox & Snell R Square and the Nagelkerke R Square values. These are both methods of calculating the explained variation. These values are sometimes referred to as *pseudo R2* values (and will have lower values than in multiple regression). They are, however, interpreted in the same manner, but with more caution. The explained variation in the dependent variable based on the model therefore ranges from 60.2% to 81.5%, depending on whether the Cox & Snell *R2* or the Nagelkerke *R2* methods are referenced respectively.

There is a high percentage of cases that can be correctly classified (91.1%), as seen in Table 10.

**TABLE 10:** Classification table

Observed			Predicted		
			Progressed		Percentage Correct
			No	Yes	
Step 1	Progressed	No	104	16	86.7
		Yes	11	173	94.0
Overall Percentage					<b>91.1</b>
a. The cut value is 0.500					

The Wald test is used to determine the statistical significance of each of the independent variables. The statistical significance of the test is found in the ‘Sig.’ column, as seen in Table 11. From these results it is noted that Projects I (0.1) PRJT101, Electrical Engineering I (0.1) ELEN101, Electronics I (0.1) ETRS101, Mechanics I (0.1) MECH101 and Mathematics I (0.1) MATH101 added significantly to the model or prediction, but the others did not.

The probability of an event occurring based on a one-unit change in an independent variable when all the other independent variables are kept constant can be predicted using the odds ratio ( $\text{Exp}(B)$ ). For example, Table 11 shows that the odds of passing Semester 1 are 4.951 times greater for TVET N4 learners than the SC/NSC university group, even though the *p*-value is not significant.

Most coefficients (*B*) are positive, which suggests that the probability of passing is greater with higher marks. This may be obvious, but it indicates that the highlighted *p*-value subjects show greater chances of passing compared to the non-highlighted ones. Even though it is not significant, Communication Skills shows a marginal decrease in the pass rate (-0.053). The odds ratio for all the other subjects is approximately 1.

TABLE 11: Variable in the equation

		B	SE	Wald	Df	Sig.	Exp(B)	95% CI for EXP(B)	
								Lower	Upper
Step 1a	Group (1)	1.600	0.992	2.600	1	0.107	4.951	0.708	34.606
	Projects I	0.095	0.020	22.259	1	0.000	1.100	1.057	1.145
	Electrical Engineering I	0.133	0.028	22.975	1	0.000	1.142	1.082	1.206
	Electronics I	0.120	0.028	18.095	1	0.000	1.128	1.067	1.192
	Mechanics I	0.100	0.035	8.367	1	0.004	1.105	1.033	1.183
	Communication Skills I	-0.053	0.029	3.444	1	0.063	0.948	0.896	1.003
	Computer Skills I	0.029	0.019	2.236	1	0.135	1.029	0.991	1.068
	Mathematics I	0.136	0.028	24.392	1	0.000	1.146	1.085	1.209
	Constant	-27.604	4.166	43.896	1	0.000	0.000		

a. Variable(s) entered on step 1.

*Cohort analysis*

Tables 12 to 16 show a cohort analysis over the period 2013 to 2017, as per the DHET reporting standard, namely, first time registering learners for the HE institution and completing in minimum time (three years), minimum time + 1 (four years), and minimum time + 2 (five years).

TABLE 12: Cohort study of three-year programmes, learners entering for first time, 2013

SC/ NSC/ TVET	No. first-time entering 2013	No. graduated in			No. returning in 2018	Throughput rate			No. dropped out	Dropout rate	Still in progress
		2015	2016	2017		Min. time*	Min. time + 1*	Min. time + 2*			
SC/ NSC	171	8	44	22	10	5%	26%	13%	87	51%	6%
TVET	37	1	9	8	7	3%	24%	22%	12	32%	19%
<b>Total</b>	<b>208</b>	<b>9</b>	<b>53</b>	<b>30</b>	<b>17</b>	<b>4%</b>	<b>25%</b>	<b>14%</b>	<b>99</b>	<b>48%</b>	<b>8%</b>

\* Min. time = completing the programme in three years; Min. time + 1 = four years and Min. time + 2 = five years.

For the first cohort of learners, who registered for the first time in 2013, the throughput rates are comparable. These results show that the TVET learners graduate in relatively comparable numbers to the SC/NSC learners.

**TABLE 13:** Cohort study of three-year programmes, learners entering for first time, 2014

SC/ NSC/ TVET	No. first-time entering 2014	No. graduated in			No. returning in 2019	Throughput rate			No. dropped out	Dropout rate	Still in progress
		2016	2017	2018		Min. time	Min. time + 1	Min. time + 2			
SC/NSC	188	8	26	19	11	4%	14%	10%	124	66%	6%
TVET	21	0	1	5	1	0%	5%	24%	14	67%	5%
<b>Total</b>	<b>209</b>	<b>8</b>	<b>27</b>	<b>24</b>	<b>12</b>	<b>4%</b>	<b>13%</b>	<b>11%</b>	<b>138</b>	<b>66%</b>	<b>6%</b>

For this cohort there are appreciable differences in the throughput rates for minimum time and minimum time + 1, but a huge improvement in the throughput rate for minimum time + 2.

**TABLE 14:** Cohort study of three-year programmes, learners entering for first time, 2015

SC/ NSC/ TVET	No. first-time entering 2015	No. graduated in			No. returning in 2020	Throughput rate			No. dropped out	Dropout rate	Still in progress
		2017	2018	2019		Min. time	Min. time + 1	Min. time + 2			
SC/NSC	123	11	23	18	9	9%	19%	15%	62	50%	7%
TVET	34	1	1	10	4	3%	3%	29%	18	53%	12%
<b>Total</b>	<b>157</b>	<b>12</b>	<b>24</b>	<b>28</b>	<b>13</b>	<b>8%</b>	<b>15%</b>	<b>18%</b>	<b>80</b>	<b>51%</b>	<b>8%</b>

The TVET learners in this cohort fall behind the SC/NSC learners in minimum time and minimum time + 1 but catch up tremendously in minimum time + 2.

**TABLE 15:** Cohort study of three-year programmes, learners entering for first time, 2016

SC/ NSC/ TVET	No. first-time entering 2016	No. graduated in			No. returning in 2021	Throughput rate			No. dropped out	Dropout rate	Still in progress
		2018	2019	2020		Min. time	Min. time + 1	Min. time + 2			
SC/NSC	89	4	14	12	11	4%	16%	13%	48	54%	12%
TVET	21	2	8	2	0	10%	38%	10%	9	43%	0%
<b>Total</b>	<b>110</b>	<b>6</b>	<b>22</b>	<b>14</b>	<b>11</b>	<b>5%</b>	<b>20%</b>	<b>13%</b>	<b>57</b>	<b>52%</b>	<b>10%</b>

In this cohort, the TVET learners outperform the SC/NSC learners in both minimum time and minimum time + 1 and have a similar result for minimum time + 2.

**Table 16:** Cohort study of three-year programmes, learners entering for first time, 2016

SC/NSC / TVET	No. First-time Entering 2017	No. Graduated in		No. Returning in 2021	Throughput Rate		No. Dropped out	Dropout Rate	Still in Progress
		2019	2020		Min Time	Min Time + 1			
SC/NSC	76	2	10	20	3%	13%	44	58%	26%
TVET	25	0	4	6	0%	16%	15	60%	24%
<b>Total</b>	<b>101</b>	<b>2</b>	<b>14</b>	<b>26</b>	<b>2%</b>	<b>14%</b>	<b>59</b>	<b>58%</b>	<b>26%</b>

For the 2017 cohort, the throughput rates for minimum time and minimum time + 1 are comparable.

## Discussion

The most common admission routes for learners to be admitted to the UoT are, first, via SC/NSC, the ‘traditional’ route on exiting school; second, there is transfer from a traditional university, usually to avoid academic exclusion from such an institution; and third, articulation from a TVET college. The second route did not form part of this investigation as learners transferring from degrees at a traditional university usually enter from the second or third semester onwards, depending on credits they obtained. The SC/NSC is the usual route and was used as a control group in this study. The focus of this study is the cohort of learners articulating from the TVET/FET (Further Education and Training) college into the Engineering Department at the UoT. There is a supply shortage of learners with the STEM subjects at the required levels for all academic institutions. The statistical analysis has shown that learners who entered DEPE from a TVET college upon completion of the TVET N4 Electrical Certificate with N4 Engineering Mathematics, N4 Engineering Science, N4 Electrotechnics and N4 Industrial Electronics performed as well as, if not better than, SC/NSC learners in first-semester subjects for the National Diploma: Electrical Engineering. The analysis of the throughput of the SC/NSC learners, over five separate cohorts as per the DHET reporting standard – namely, a tracked cohort of learners registering for the first time at an HE institution and completing in minimum time (three years), minimum time + 1 (four years), and minimum time + 2 (five years) – demonstrates that there is no definitive difference between the throughput rates of articulating TVET learners and SC/NSC learners. Articulation therefore may provide other HE departments with a viable means of meeting their enrolment targets.

## Concluding remarks

Many learners leave the school system without the necessary entrance requirements to be admitted directly into an HEI. Through articulation, they have a second chance to attend an HEI. Articulation, as defined in the Articulation Policy for Post-School Education and

Training System of South Africa, stipulates, among other things, that if a learner completes a course at one institution and has gained the relevant knowledge and skills at the necessary levels, this must be recognised by other institutions if the knowledge gained is sufficient to allow epistemological access to programme(s) that the learner wants to enter (DHET, 2017). Learners must be supported in their individual learning and work pathways. Through articulation and being directed to TVET colleges to acquire the relevant subjects, learners can gain access to their chosen programme. At least in the context of admission to the Engineering Department at a UoT via ‘articulation as a stairwell’, this study has served to debunk the notion that TVET qualifications and their learners are inferior and unworthy of pursuing studies at a UoT.

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# From out-of-school-youth to TVET student: Exploring the funds in families and communities that facilitate second-chance learning

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## ABSTRACT

Many young South African adults are returning to education as Technical and Vocational Education and Training (TVET) students. These students' educational reintegration can be challenging, given their history of failure in the formal school system. We argue that many vulnerable adult learners succeed despite their situational and dispositional challenges because of the agentic acts present in their families and communities. However, in the parent support literature there is a misrecognition of the contributions that adults from socio-economically deprived communities make in the success of such second-chance learners. This multiple case study had as context a Western Cape TVET college where five purposively selected students' experiences with family and community support were explored. The article responds to the research question: 'What are the embedded funds in families and communities that facilitate the TVET students' successful entry into second-chance learning?' The findings refute the perception that poor communities disinvest in the education of their young adult learners. It found that in their worlds there were various role-players and networks that facilitated the five TVET students' educational success. What the communities lacked in financial and material wealth, they made up for with aspirational, emotional and navigational wealth from which the adult students benefitted.

## KEYWORDS

*Youth, adult learner, TVET, National Certificate (Vocational), parent involvement, TVET*

## **Introduction**

Active parental support and involvement is a vital component of students' educational success (Gutman & McLoyd, 2000; Deslandes & Bertrand, 2005; Hoover-Dempsey, Walker, Sandler, Whetsel, Green, Wilkins & Closson, 2005; Hill & Tyson, 2009; Hornby & Lafaele, 2011; Wang & Sheikh-Khalil, 2014; Toren & Seginer, 2015; Daniels, 2017). However, our review of the educational literature shows that limited research exists on parent support of young adult learners. Most research explores the influence of parents on primary school children's social worlds. Our review of both international and national educational studies shows that researchers presume that only primary school children need parental involvement and educational support and that their need for support and involvement diminishes as they grow older (Sheldon, 2002; Hill & Tyson, 2009; Wang & Sheikh-Khalil, 2014; Toren & Seginer, 2015; Esau, 2018). This understanding could account for the paucity of educational research on parent support afforded to older students in Technical and Vocational Education and Training (TVET) contexts. Our research sought to respond to this understanding as we argue that parental support has benefits for learners at any educational level and age.

In this article, we explore parental support for and facilitation of the educational success of vulnerable TVET college students. The participants' vulnerability is tied to the situational and dispositional challenges they find themselves confronted by as students who have not completed their high-school education. We confined our research to the National Certificate (Vocational) (NC(V)) programmes because many of the adult learners in these programmes are minors and former out-of-school youths.

The authors both grew up in townships on the Cape Flats and our experiences of the parental support given to older students in our communities do not always fit the traditional forms of support that the literature reports on. Gafoor and Van der Bijl (2019; Esau, 2018), too, refer to this gap in the international literature. We argue that there are agentic forms of family support and networks in such communities that warrant further research, analysis and reporting. We therefore view our research as filling a gap in the adult educational research on parental support. Our interest was in the support structures and networks in adult students' homes and communities when we posed the following research question: 'What are the embedded funds in families and communities that facilitate the TVET students' successful entry into second-chance learning?' Using Yosso's (2005) community cultural wealth theory as our theoretical framework, we conceptualise embedded funds as being much broader than financial support and explore the emotional, aspirational and social support influences on the students' educational success. Our use of the term 'parent' or 'parental' also bears qualification – in the article we use the term to refer to any adult who takes on the responsibility of guardian, mentor and provider of the basic needs of the participants.

## The present study

The present study's context is a TVET college on the Cape Flats in the City of Cape Town. This is one of 50 registered and accredited public TVET colleges in South Africa. As such, it operates under the authority of the Continuing Education and Training Act 16 (RSA, 2006) and falls under the Department of Higher Education and Training (DHET). Lilydale College<sup>1</sup> offers a range of programmes such as the National Accredited Technical Education Diploma (NATED), which is an educational opportunity for students who have completed a matric qualification (Papier, Powell, Mc Bride & Needham, 2017). This campus specialises in programmes suited to careers in the business sector and offers various short skills-based courses, industry-specific training, trade-test opportunities and the NC(V) programmes (HRDC, 2013). The campus draws its students from the neighbouring working-class communities of Blue Downs, Hout Bay, Khayelitsha, Mfuleni, Nyanga and Mitchells Plain.

Through purposive sampling, based on the following inclusion criteria, five participants were selected for the study. They had to be:

- Level 2 students enrolled for the NC(V) business programme;
- dependants of the parent or guardian with whom they live;
- former out-of-school youths and second-chance learners.

Table 1 gives a biographic profile of the five participants, who were between the ages of 16 and 28. They were all single, without any offspring. Their family structures are detailed in the table.

**TABLE 1:** Family structure of the five participants\* in this study

PARTICIPANT	AGE	PROVINCE OF ORIGIN	FAMILY COMPOSITION
Sam	28	Gauteng	Mother, two nieces
Nicholas	23	Eastern Cape	Brother, sister-in-law, three children
Kamani	20	Western Cape	Mother, brother, mother's boyfriend
Rose	20	Gauteng	Aunt, cousin
Lyndon	16	Gauteng	Mother, stepfather

*\* Pseudonyms were assigned to each of the participants.*

We use the term 'young adult learners', a classification that we borrowed from the Adult Education and Training context. Although the DHET considers TVET students as adult learners, many are minors who are still of school-going age. We also situate them as educationally vulnerable, as all five have challenging, incomplete formal school histories.

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1 Lilydale College is a pseudonym for the TVET college where the data were collected.

This qualitative research followed a multiple case study design (Denzin & Lincoln, 2008; Merriam, 2009; Yin, 2009; Rule & John, 2011) which allowed for the unique facets of the five participants' stories of family support to be captured, and also for the reconstruction of a grand narrative about educational support and involvement by their extended families to emerge. As Denzin and Lincoln (2011) have done, we approached each case as both a process of enquiry and a product of enquiry.

The methods of data collection were semi-structured interviews and a focus-group session. We supplemented the text-based approach to data collection with a visual-based method of data collecting by asking the participants to produce collages prior to the focus-group discussion. We then used these collages as stimuli to facilitate the discussion on the supportive roles of family and community during the focus-group session. The study's data-collection methods fit the qualitative paradigm as they afforded the participants the opportunity to respond in their own words and to share their unique personal experiences (Patton, 2002; Daniels, 2006).

### *Situating the TVET students in the parent support literature*

Parental involvement is generally conceptualised as biological parental participation in the educational processes and experiences of their children. However, to reiterate, we use the term 'parent' or 'parental' to refer more broadly to any adult who takes on the responsibility of guardian, mentor and provider of the basic needs of the participants. Many studies have focused on the multidimensional aspects of parents' contributions to their children's education beyond helping with homework (Lareau & Horvat, 1999; Henderson & Mapp, 2002; Desforges & Abouchaar, 2003; Jeynes, 2003; 2007; Grant & Ray, 2018; Epstein, 2011; Daniels, 2017; 2018). The consensus view in the literature is that parental participation at any stage of learners' lives holds benefits for their education (Henderson & Berla, 1994; Frome & Eccles, 1998; Lareau & Horvat, 1999; Henderson & Mapp, 2002; Desforges & Abouchaar, 2003; Grant & Ray, 2018). Parental support can entail an array of roles to improve children's academic goals (Ratelle, Larose, Guay & Senecal, 2005; Daniels, 2017; Esau, 2018), including parents' modelling of acceptable academic behaviour, reinforcing instruction, and engaging with and participating in activities that support the academic institution's expectations. What the research of Hoover-Dempsey et al. (2005) found was that when parents make the conscious decision to become involved in their children's education, their actions facilitate the development of self-efficacy and self-regulation in their children's learning. However, the research found that parents employ different strategies and skills based on the stage in the child's life cycle. The studies furthermore found that parental intention was influenced by the parents' personal educational experiences, their perceptions of the value of education and how receptive their children's schools were to their involvement (Desforges & Abouchaar, 2003; Jeynes, 2003; Patrikakou, Weissberg, Redding & Walberg, 2005).

The body of international literature on the reasons for and the manner in which parents are involved (Fan & Chen, 2001; Henderson & Mapp, 2002; Desforges & Abouchaar, 2003;

Cox, 2005; Jeynes, 2005; 2007; Pomerantz, Moorman & Litwack, 2007; Epstein, 2011) all position parents as primary educators. These studies recognise the home as the learner's first pedagogical space (Hoover-Dempsey et al., 2005) and describe parents as valued agents of learners' development prior to the onset of formal education (Desforges & Abouchaar, 2003; Cox, 2005; Epstein, 2011).

The criticism of some earlier studies on parent involvement is that research subjects were always from middle-class backgrounds and two-parent families. These parents possessed both the necessary skills and knowledge and the financial resources to support their children's education (Holloway, Yamamoto, Suzuki & Mindnich, 2008). This is not to suggest that poorly educated parents do not support their children's education. However, factors such as the socio-economic standing of parents, employment, and educational backgrounds could determine the way in which they support and become involved as parents, and could normalise such engagements. Educational researchers have argued that when schools ignore the heterogeneity of their learners' family contexts and use the two-parent, middle-class family as the norm (Mda & Mothata, 2000; Hoover-Dempsey et al., 2005; Holloway et al., 2008; Hornby & Lafaele, 2011; Daniels, 2017), other forms of support become marginalised.

Parental involvement in TVET is under-researched, and there are few studies on parental educational support of adolescents and older vulnerable student populations. This lack of attention to older learners could be because of the presumption that adolescents and young adults are in less need of support than younger children (Sheldon, 2002; Hill & Tyson, 2009; Wang & Sheikh-Khalil, 2014; Toren & Seginer, 2015; Esau, 2018). Msila's study (2012) on parents' involvement in adolescents' and college students' education found that their involvement in high-school children's education positively influenced their attendance and retention rates. His study linked parental involvement and success to course completion – an outcome that Ratelle et al. (2005) refer to as 'student persistence development'. The study findings of Ratelle et al. (2005), Okeke (2014) and Esau (2018) all motivate sustainable ways of involving parents as collaborators in education and suggest school-home partnerships which establish conditions that mediate student success.

A related challenge of parent support research is researchers' stance towards low socio-economic communities. According to Yosso (2005), researchers tend to adopt a deficit approach when researching such communities, and this leads to a preoccupation with socio-economic status, poverty and community disorganisation, and a lack of acknowledgement of alternative funds of community wealth. Several scholars (Koh, Stauss, Coustaut & Forrest, 2017; Aragon, 2018) have argued that researchers often assume that poorly resourced families are deficient and therefore do not bother to explore the strengths inherent in such families. South African educational researchers (Mda & Mothata, 2000; Fataar, 2010; Msila, 2012; Joorst, 2013; Daniels, 2017), too, are critical of the lack of recognition in research of multiple forms of parental involvement that exist in diverse family contexts. For 'counter stories' from second-chance learners who are living in low socio-economic contexts to emerge, an asset-based lens through which to view their lives was needed. Yosso's (2005) community cultural wealth research in low socio-economic communities

in North America found that such communities do possess cultural knowledge, skills, abilities and contacts but that mainstream research overlooked such knowledge and skills. Her findings directly challenge earlier definitions of cultural capital as the direct product of interaction between the school and levels of education at home and also the view that poorly educated parents do not invest in their children's education. She argues that, if the cultural and aspirational wealth in poor communities is recognised and used properly, the academic and social outcomes for poor students will change significantly.

Joorst (2013) advocates research that tells the unique stories of parental and community support in low socio-economic communities on the Cape Flats. His study argues for recognition of the multiplicity of parental support settings and for school–community partnerships to be considered to promote positive educational outcomes. We take this a step further by engaging in research on the value that parent support provides for former out-of-school youths who are continuing their education as TVET students. Knowledge of the value that parent support and involvement add for these vulnerable learner populations could lead to better strategies on how to support such TVET students' educational journeys.

What follows next are the findings of the study.

### **My child is your child: Understandings of parenthood and family**

In this section we tell the stories of the family and community support that Sam, Nicholas, Kamani, Lyndon and Rose enjoy (Esau, 2018). We probed into the adult figures in their lives and the ways in which they contributed to the advancement of the participants' educational journeys. Our expanded understandings were facilitated by the insights we gained into their home situations and the challenges these students faced while navigating educational opportunities. To explain: for the family structures of Lyndon, Nicholas, Rose, Kamani and Sam, we drew on South Africa's history of forced relocation of black communities and the country's discriminatory, unequal education for its black races. South Africa has an established migrant culture in which families and individuals relocate from rural to urban communities and move between provinces in search of work and better educational opportunities (Dustmann & Glitz, 2011; Southerton, 2011; Bank, 2015). All of the study participants lived in low socio-economic communities on the Cape Flats. However, they all had experience of rural parents sending their children to urban areas to live with relatives or former community members (Esau, 2018:48). Four of them had migrated to the Western Cape in search of better educational resources.

Our analysis of their family structures revealed multi-generational families that included extended family members such as grandmothers, aunts and uncles (Esau, 2018:49). As shown in Table 1, each participant's family structure was unique (Esau, 2018:52): 23-year-old Nicholas lived with his brother, his sister-in-law and the family's three children; 20-year-old Rose lived with her aunt and her cousin; 28-year-old Sam lived with his mother and two nieces; 20-year-old Kamani lived with her brother, mother and her mother's male partner;

and Lyndon lived with his mother and her second husband. Although the participants were living in different communities, they all had a Xhosa heritage in common.

As stated above, the extensive international research on parent support mostly has the middle-class, two-parent family as the context and norm against which all other parent involvement research is researched (Hoover-Dempsey et al., 2005; Epstein, 2011; LeFevre & Shaw, 2012). The reality is that less than 30% of the world’s children grow up in homes where two parents are present. Budlender and Lund (2011) estimate that about 70% of South Africa’s children grow up in single-parent households, and the five participants’ family structures conformed to this norm. Of the five families, only Lyndon’s included two parents, although the father is his step-parent. None of the participants’ biological fathers was part of their family units. Our analysis of the composition of the participants’ families (Table 1) reflected the reality that grandmothers, siblings, aunts and uncles, rather than biological parents, were the guardians of the household and of minor family members (Esau, 2018:50).

### **Family income and financial support**

Our analysis of the participants’ family circumstances shows that their families possessed very limited material wealth, with some living below the breadline. As can be seen in Table 2, three of the participants lived in households where there was no income from employment: Sam’s, Rose’s and Kamani’s families were solely dependent on social welfare grants. Lyndon’s and Nicholas’s families had adult members who were earning steady incomes to support the family, although, according to them, their families were also struggling financially. Table 2 provides insights into each family’s financial resources, and the funding available to the students to continue their education.

**TABLE 2:** Family income and financial support in the five families

<b>PARTICIPANT</b>	<b>EMPLOYMENT STATUS OF PARENT/ GUARDIAN</b>	<b>FINANCIAL RESOURCES IN THE HOME</b>	<b>FINANCIAL SUPPORT</b>
Sam	Mother: Unemployed	Mother: SASSA grant – old-age pension 2 nieces: SASSA grant – 1 disability grant and 1 child support grant	<ul style="list-style-type: none"> <li>• Bursary</li> <li>• Transport allowance</li> </ul>
Nicholas	Guardians: Both employed	Brother: Police officer Brother’s wife (sister-in-law/aunt): Cashier at supermarket	<ul style="list-style-type: none"> <li>• Own savings</li> <li>• Brother</li> </ul>
Kamani	Mother: Unemployed	Mother: None Brother: SASSA grant – child support grant	<ul style="list-style-type: none"> <li>• Bursary</li> </ul>
Rose	Guardian: Unemployed	Aunt: SASSA disability grant Rose: Disability grant	<ul style="list-style-type: none"> <li>• Bursary</li> <li>• Transport allowance</li> </ul>
Lyndon	Father: Employed Mother: Employed	Father: Entrepreneur Mother: Police officer	<ul style="list-style-type: none"> <li>• Parents pay his study fees</li> </ul>

Msila (2012) points out that there are several factors inherent in the South African township context, such as high levels of poverty and unemployment, which complicate parents' ability to support their children's aspirations to further their education. We found this to be so for Rose, Kamani and Sam, whose educational choices are constrained by their family circumstances: there were no financial resources available to them to continue their education. However, the NC(V) programme is formally subsidised by the National Student Financial Aid Scheme (NSFAS) that the Department of Education introduced in 2006. Through the NSFAS, Rose, Kamani and Sam were able to secure bursaries plus living and travel allowances from the DHET to enable them to re-enter formal education.

The parent support literature overwhelmingly focuses on the material provision that adults make for learners' needs. Clearly, in that respect educational support was non-existent in the households of Rose, Kamani and Sam. However, from their narratives many examples emerged of family support that they received on their educational journeys, as we report on below.

### **Family support much more than paying school fees and attending meetings**

The participants in this study are all former out-of-school youths who dropped out of high school with only a Grade 10 qualification. It is not clear from his narrative what led to 16-year-old Lyndon dropping out of high school. However, he tells the harrowing story of his family receiving death threats and having to move to a safer community (Esau, 2018:55).

Unlike Sam and Nicholas, who were formally employed for a few years before making the decision to return to school and complete their high-school education, Lyndon's out-of-school period was brief, as he almost immediately continued his education through the TVET system. Sam and Nicholas had aspirations that could not be achieved through the blue-collar jobs that they were doing. But both of them realised that a high-school qualification could improve their chances of finding better employment. Although a mainstream school accepted Sam, his mother could not afford the school fees. In the case of Rose, the schools in Gauteng denied her admission because they considered her too old for high school. For both of them, their second-chance opportunity to further their education was made possible through pursuing NC(V) studies at Lilydale TVET college.

Nicholas, however, who had been working for two years, resigned from his job to continue his education. His brother initially questioned the soundness of his decision to give up his job to become a full-time student at Lilydale College. Nicholas recalls his brother asking him:

if this [TVET college] will not be a waste of time and money. I replied that I do not have matric. ... I said that if I can finish this [NC(V) certificate], at least it will improve my qualifications and chances in life (Esau, 2018:51).

Although he saved up the money to pay for his own studies, he was still dependent on his brother and sister-in-law for board and lodging. He was acutely aware that by moving in

with his brother's young family he was adding to the family's financial stress. During the time that he boarded with them, therefore, he was careful to 'not put pressure on my family' or to ask them for cash, even for essential things like 'making copies or to buy a computer'. Nicholas tells of how his brother's scepticism about his plans changed to encouragement when he saw how devoted the 23-year-old was to his studies and the good grades he was getting in his courses. This turned his once-sceptical brother into his biggest motivator. Now his brother is constantly encouraging him to enrol for a business qualification once he obtains his matric-equivalent qualification.

The 20-year-old Rose dropped out of school because of poor health. She suffers from lupus disease, and her constant hospitalisation negatively affected her schooling and caused her to fall behind in her schoolwork. When she failed at the end of Grade 11, she left school. Rose ascribes her teachers' lack of empathy for her to their ignorance of lupus disease. When Rose decided to return to high school two years later, none of the mainstream schools in the area wanted to accept her. Then her mother died and her aunt, who lives in Mitchells Plain in the Western Cape, became her guardian. Of her attempts to continue her education in Cape Town, Rose says:

When we tried to look for a school here in Cape Town, they all said that I'm too old. One teacher said that I must do evening school or that I must go to the TVET college. I am so glad that I took her advice to go to the TVET college. However, I am even happier that I did not listen to them when they said that I am too old (Esau, 2018:51).

Rose says that when the high schools initially rejected her, she fell into a deep depression. This is when her aunt stepped in and said she 'will help me to fulfil my dream' and that 'no teacher has the right to make me feel old and depressed' (Esau, 2018:51). So, with her aunt's encouragement, Rose started entertaining the possibility of completing her formal education through a TVET college programme. She describes her aunt as her biggest supporter.

Once she had enrolled at the TVET college, her poor health continued to affect her educational experience and threatened to derail her plans. As a result, Rose's aunt gave up her job to manage her health as well as to take care of her well-being. To help Rose to contain the negative effects of her health challenges on her educational progress, her aunt became the link between Lilydale College and Rose. On the occasions when Rose was too ill to attend lectures, her aunt would go to the college to enquire whether 'there is homework that Rose must do' (Esau, 2018:52). This aunt also actively involved herself in her own son's and Rose's academic work by supervising their homework. Rose refers to her aunt as her 'cheerleader', who constantly reminded her of how close she was to realising her educational goal. Her story contains many examples of the cultural capital that her aunt has been investing in her, which Yosso (2005) refers to as motivational, aspirational and emotional capital.

As the oldest participant, 28-year-old Sam is at a stage in his life when most adults have their own families and have advanced in their careers. Sam was a labourer on a construction site in Gauteng and had gained experience working for his father, driving his taxis. Sam described his last job as a bricklayer as ‘going nowhere’ and said that the job made him feel ‘worthless’ (Esau, 2018:52). As his discontent with his limited job prospects grew, his resolve to earn his NC(V) Level 4 Certificate became stronger. Just as Rose did, Sam fell into a depression when he contemplated his future as a labourer (Esau, 2018). When he told his mother of his plan to complete his formal schooling, she was supportive of the idea and suggested that he move to her in the Western Cape to do so. With the help of her then-employer, she succeeded in enrolling him at a local high school. However, when she retired as a domestic worker a year later, she was no longer able to fund his studies. But Sam was fortunate to secure financial assistance through the NSFAS and could continue his education through Lilydale College’s NC(V) programme. However, his studying comes at great cost to his mother as he cannot contribute to the family’s maintenance. She supports the family of four on her state pension grant and the child support grant she receives for fostering her two granddaughters. It is therefore an enormous sacrifice for her to encourage his academic aspirations and to provide him with board and lodging.

The motivational support that the participants receive from their families to continue their education was sometimes presented in the form of admonishments: the parent or guardian would hold themselves up as examples of what they do not want their children to become. One such example we take from Kamani’s narrative. Kamani had an unstable childhood caused by her mother’s struggles with alcoholism. Kamani lived with her father’s family, but when she enrolled at Lilydale College, she moved in with her mother to be closer to the college. She tells of an afternoon when her mother, heavily under the influence of alcohol, started praising her for continuing her studies. Her intoxicated mother denigrated her own lifestyle as a destructive one, her life as one without a future. She made Kamani promise that she ‘would not waste her life’ as she (the mother) had done (Esau, 2018). Although Kamani’s mother does not serve as a role model to her, she supports her decision to study further by not assigning her housekeeping duties so that she can give all her attention to her studies.

The golden thread that runs through these stories is the respect that the second-chance students are earning from their adult family members because they are studying and doing well in their programmes. When one views their stories through the community cultural wealth lens, one is able to identify many funds of wealth that manifest as mental, social, aspirational and motivational support.

### **Community support and encouragement**

The participants did not confine their stories about support networks and adult support to family only; community contacts and networks often featured in their conversations. They described their communities as ‘dangerous places to grow up in’ and saw education as a way

to escape from their harsh realities. However, they seemed to have a love–hate relationship with their communities. As Sam explains:

Every community consists of positive and negative people. Therefore, it is about the decisions you make. Every day I need to choose what voice I will be listening to (Esau, 2018:57).

This comment hints at both the negative and the positive influences that vulnerable young people are exposed to in their townships. When Lyndon’s police officer mother arrested a gang leader, his gang sent death threats to her whole family. She eventually had no choice but to relocate her family to a different township to be safe. According to Sam, the youths in his Khayelitsha neighbourhood experience community violence, gangsterism and immorality daily. Although there are many government-initiated community projects that he knows of to keep youths off the streets, ‘so many youngsters [still] choose crime and pregnancy over an opportunity to become educated’ (Esau, 2018:56).

When asked about the causes of community disorganisation, Rose named male parents’ absence from their children’s lives as the biggest reason for families’ socio-economic challenges. Drug abuse and alcoholism seemed to be two of the biggest challenges for students such as Kamani, who has first-hand experience of living with an alcoholic mother. The thread that runs through all six participants’ description of their community is the structural violence of disadvantage and poverty for township youths and the effects on their education.

Despite seemingly painting a bleak picture of their communities, the participants’ narratives contained many examples of community cultural wealth (Yosso, 2005) that they benefit from. They named community structures and people who invested in their development and progress. In the focus-group session, we explored the funds of knowledge, action and networks that exist in their communities. The church is often one of the most important networks that the participants have access to. As Sam explains, his church feeds their stomachs and souls, and church members

offer programmes to help poor people to achieve their goals. People in the church help [students] with transport money ... motivate you and help you with making important decisions (Esau, 2018:56).

Being a member of the church is therefore advantageous because of the various benefits it brings. Sam is a member of the Bread Buddies project, which helps feed poor college students by providing them with sandwiches. The church also distributes food parcels to church members whose families struggle financially.

Other forms of wealth, or capital, that older community members offer to the participants are motivational and aspirational (Yosso, 2005). Nicholas explains how his elderly neighbours’ interest in and support of his attendance of college has served as encouragement to him to persevere:

They say if I skip classes or drop out of school then I will be jobless, or sell fruit on the corner of the street (Esau, 2018:54).

The gist of these conversations mimics those that parents would have with their children. The support from family and community was confined to their geographic community; it included individuals from Lilydale College and, in Rose's case, the medical staff at the hospital. The sources of emotional support that Rose identified included anyone in her family and community who helped her to 'get up again'. She adds:

I also think that the college is like home to me. I can just be myself here and everyone is supportive. There are also the hospitals and doctors that is so much part of me. With every setback that I have had, they were always there. They have helped me to fight lupus and not to feel sorry for myself (Esau, 2018:57).

Our analysis shows that the participants tap into the aspirational and emotional resources that community members who cross their paths provide. Nicholas provided the example of the Rastafarian street hawker who sells fruit on a street corner in his community. This older man knows that Nicholas is completing his high-school education through the Lilydale College programme. On the occasions when he talked to Nicholas, it was always about the opportunities that education creates for township youths to help them improve their life circumstances:

Selling fruit is tough, so it is much better to be in school. People have respect for people with a qualification. They can become something. If you did not go high up in school, then you will not make a lot of money. What can you do? You sell drugs or you sell fruit. Both are not good jobs for you, brother ... (Esau, 2018:56).

It is this caring attitude of community elders that has endeared them to their communities. From participants' comments about older community members' involvement, they appear to have welcomed their mentoring. According to Sam, they were directing youths towards the positive things in life.

### **Benefits of second-chance learning**

The five participants entered TVET with different histories. After having dropped out of high school in Grade 10, owing to challenges such as negative peer influences, limited financial resources, community violence, and illness, these young adults all wanted to return to school to complete their high-school education. However, prior transgressions while at school, or their age or ill health, caused mainstream schools to refuse them re-entry. The NC(V) programme at Lilydale College provided them with a second-chance opportunity to complete their schooling. It offered Sam and Nicholas a way out from what they described as their menial, demeaning labourer jobs and held the promise of improving their job prospects (Esau, 2018:53–54). The NC(V) programme presented these participants with better

bargaining power in the workforce. The participants held a consensus view that studying was both mentally uplifting for them and motivational. They described their mental state before their return to education as being at an all-time low, and used words such as ‘worthless’, ‘old’, ‘useless’ and ‘depressed’ to describe themselves. Some of them saw their re-entry into further education as an opportunity to make amends for their past educational transgressions. The second time round, they were motivated, hardworking and focused on doing well in their educational programmes. Their aim was to earn back the respect of their community and of family members whom they had disappointed when they had dropped out of school.

NSFAS provided bursaries and also travel and living allowances for three of the participants. The NC(V) programme became their second-chance opportunity to complete their formal schooling and to earn a business qualification. Sam and Nicholas were hopeful that the qualification would lead to better-earning jobs. Both of them planned to return to their respective provinces after gaining the NC(V) Certificate in Business Management. For Sam, the successful completion of the NC(V) programme is the attainment of one of his short-term goals of becoming a successful taxi fleet owner in Gauteng. He is hopeful that the business programme that he is graduating from will equip him with the skills to develop into a successful businessperson. Although Sam might be unrealistic about what can be accomplished with this qualification, the aspirational capital that he is accumulating can be invested towards motivating himself to complete his studies. Both Nicholas’s and Sam’s ultimate goal is to gain financial and emotional independence from their families. For Rose, Lyndon and Kamani the national certificate opens up opportunities for further education.

From a psychosocial perspective, their successful navigation of the NC(V) programme led to improved self-esteem and prosocial behaviour. So, for example, the supportive relationship that Rose has with her aunt, and Nicholas with his brother, enhanced their adaptive coping skills and helped to restore their trust in their competencies. When Rose started doing exceptionally well in the coursework, it restored her confidence in her abilities. As the top student in her programme, Rose is now confident enough to peer-tutor her fellow students who are struggling with subjects such as Information Communication Technology (ICT) and Operations Management. Similarly, Nicholas’s success with Mathematics has given him the self-confidence to start tutoring his niece and nephews in the subject. Nicholas said this is his way of giving back to his family for supporting him. He also sees himself as a role model who can instil in his sibling’s children the importance of working hard for what they want in life.

Their personal stories of adult family involvement and family–community support mirror the challenges of being an adult student in a Cape Flats community that has limited resources. Their decision to study instead of contribute to the family’s survival added to the financial strain that their families were already experiencing. However, when faced with critical decisions related to life choices, all of their families’ emotional and verbal encouragement helped them to be resilient and focus on their long-term goals. Their families celebrated their successes in the NC(V) programme and continued to encourage them as TVET college

students. The encouragement and effort of their peers and families in turn made the participants feel valued and it motivated them to work even harder to earn their respect. Since continuing their education, all of them found that their relationships with their adult family and community members have improved too.

## **Conclusion**

In this article, the stories of the five second-chance young adult learners constructed a social reality of what student life is like when your education is challenged by situational and dispositional challenges such as poverty, poor health or unsafe community contexts. However, when researchers adopt a deficit view of their experiences, they report only on the challenges and ignore the agentic family experiences such students have. Our data challenged parent support research which suggests that families of low socio-economic standing lack the will to invest in their children's education. In the case of this group, although their families lacked the financial resources to fund their studies, they invested in the participants' education in several other ways. Most of the participants had an adult family member who was instrumental in facilitating their reintegration into formal education via the NC(V) pathway at a TVET college. These family and community members also continued to motivate them and inspire them to persevere with their studies and complete the qualification.

Their stories underline the complexity of parental support and involvement for young adult students from low socio-economic contexts. The findings show that the needs and therefore the support that TVET students from poor communities require are neither linear nor one-size-fits-all. On the contrary, the process is complex and manifests in the various physical, emotive and cognitive funds that families and communities accumulate and use to help students such as Sam, Nicholas, Kamani, Lyndon and Rose to access formal education and stay on a productive pathway. The findings give visibility to the agentic involvement and support of both family and community adults in the education of TVET NC(V) students. The findings have implications for the ways in which TVET colleges should strategise the role of the parents, guardians and social contacts of adult family members as valued collaborators in their further education.

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# Exploring the value of the sociological Careership Theory in the South African TVET context

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## ABSTRACT

Making a career decision is an important part of life. A plethora of theories seek to understand the way students make career decisions, most of them found in the field of psychology. The same trend is evident in South Africa, where psychology continues to underpin career guidance and counselling practices. While this is useful, it is equally important to consider different theoretical approaches – for example, the sociological approach. This article is inspired by a doctoral study conducted by one of the authors, and aims to bring to light a less dominant theory that can add value to our understanding of career decision-making, especially in the public Technical and Vocational Education and Training (TVET) college sector. The main argument of the article is that whereas all theories are important and valuable, no single theory can explain all situations and individual circumstances. Each theory is guided by its perspective and covers some issues while neglecting others. Indeed, a theory that seeks to explain everything is likely to be found wanting. We therefore do not discredit any theory, but seek to add the voice of the sociological Careership Theory to existing debates and conversations about career decision-making. Our special interest is in the public TVET college sector as we have noted an almost complete absence of literature on career decision-making by TVET students. There is, however, literature that looks at why students enrol in public TVET colleges, and also their experiences there. In addition to the original conceptualisation of the Careership Theory, this article adds other conceptual tools associated with the work of Appadurai. We do so because we acknowledge that a theory cannot remain static and that, as the social world changes, so must theories if they are to accommodate new social experiences.

## KEYWORDS

*Careership Theory, TVET, career decision-making, post-school students, navigational capacity*

## **Introduction**

Making a career decision is important in the lives of individuals, although it can be accompanied by difficulties (Chinyamurindi, 2016). Although research has increased in the public Technical and Vocational Education and Training (TVET) sector in South Africa, not much has been conducted regarding students' career decision-making, either empirically or theoretically. Several studies on students have been conducted with different foci. For example:

- why students attend colleges from a capabilities approach (Powell, 2014; Powell & McGrath, 2014);
- the barriers to gaining access to colleges from an agency and a structure perspective (Groener & Andrews, 2019);
- what young people think about TVET (Needham & Papier, 2011);
- the perceptions and experiences of selected groups in TVET – for example, women (Matenda, 2017) and Engineering students (Sibiya & Nyembezi, 2018; Sibiya, Nyembezi & Bogopa, 2021).

Despite the evident growth and accumulation of research in TVET, the issue of career decision-making is still neglected, along with its theorisation. In order to paint a picture of the growth and development of research in TVET in South Africa, Papier and McGrath (2020) analysed the research output in TVET, with a special focus on doctoral and master's theses. They remark that, in general, research on TVET at universities has both increased and improved. Of all the theses that they reviewed, they found that a focus on students is largely absent, the greater focus being on curriculum-related matters (Papier & McGrath, 2020). This analysis shows that, although research has increased in the TVET sector, the focus on students and their career decision-making remains neglected. This study therefore sought to begin to fill this hiatus.

A focus on career decision-making research in public TVET colleges in South Africa is lacking, despite the wide body of literature on the career decisions of students in general (Shumba & Naong, 2012; McMillan, 2014; Galvaan, 2015). Considering this, the aim of this article is twofold: to introduce and explore the value of the Careership Theory in a South African public TVET college context. We acknowledge that this theory is dated and can benefit from a conceptual update. For this reason, we add the notion of navigational capacity, drawing on the work of Appadurai (2004). This notion extends Bourdieu's concept of capital to include and give prominence to the idea that aspiration can be viewed as cultural capacity. Most importantly, this notion seeks to transcend the view of culture, linked to the idea of *habitus*, as pastness (Appadurai, 2004). Although we find the sociological approach in general and the Careership Theory in particular useful in the domain of TVET research in South Africa, we do not claim that other theories are of less or no value. The purpose of this study was to determine those factors that influence career choices and aspirations among South African students.

We understand that the field of career counselling, guidance and decision-making is underpinned and guided by a wide body of competing theories. We are also aware that in this field existing theories are developed continuously to enhance their explanatory potential. The ever-growing number of theories and the continuous efforts to improve them remind us that the social world is changing; therefore, theories must evolve or be (re)invented to explain current and future circumstances. According to Hodkinson (2008), theories can be viewed as thinking tools and statements about the social world – for example, the way in which the social world works, or at least how it should work. In the following section, we briefly consider the psychological approach to career counselling, guidance and decision-making.

### **Dominant psychological approaches to career counselling, guidance and decision-making**

It is well acknowledged that the field of career guidance, counselling and decision-making is the province of psychologists. The so-called ‘big five’ career guidance and development theories all lie within the field of psychology. They are (Leung, 2008):

- theory of work-adjustment;
- theory of vocational personalities;
- self-concept theory of career development;
- theory of circumscription and compromise;
- social cognitive career theory.

The focus of these theories is generally on the interaction between the individual and the environment (Jena & Nayak, 2020). Despite the dominance and evolution of career-development theories over the past few decades, it is argued that no single theory applies to all circumstances and individuals. In addition, a theory that is applicable and relevant now may not necessarily yield good results tomorrow because the social world changes continuously, as do careers and the career needs of individuals (Jena & Nayak, 2020). Therefore, although we present a sociological perspective in this article, we acknowledge that it is neither necessarily the best nor the only theory that can add value to our understanding of the career decision-making of students in public TVET colleges in South Africa.

### **Sociological perspective on career guidance and decision-making**

Sociologists are interested in understanding, among other things, the distribution of the members of the population within social and economic structures (Cicourel & Kitsuse, 2006). The sociological approach takes into consideration the social structure, that is, the ways in which social agents in social fields position themselves concerning others and the way mutual expectations are developed and lived up to (Musgrave, 2017). It is acknowledged in sociology that biological factors are important for social positioning; however, social factors are considered to be stronger and more influential (Blackmore & Cooksey, 2017). Social factors are mostly those that influence, for example, who attends which type of school and

who occupies which position. Considering this, sociologists can speak of social class and inequalities, and of the social status associated with these inequalities. Educational qualifications, as symbolic as they may be, are used to sort people into different positions in society, in education and in the workplace. For instance, most wealthy parents have the advantage of being able to invest in their children's education, in this way giving them an advantage in society and in the workplace. This is one way in which class inequalities produce and reproduce themselves (Blackmore & Cooksey, 2017).

## **Careership Theory**

This section provides a brief overview of the Careership Theory. In the South African research literature, this theory is not commonly used, although recent years have seen at least four citations of it. The first citation is by Powell (2014) in her doctoral thesis, where she simply mentions in passing that the Careership Theory is not dominant and is not well known in South Africa. The second citation is by Smith (2015), who gives more details of the theory in her theoretical discussion. The third citation, by Mtemeri (2017), mentions this as one of the theories of career guidance and development. The fourth and most recent citation is by Maluleke (2022), who uses the theory as a framework for his doctoral study. Despite the near-absence of this theory in the South African research literature, it has been used meaningfully, successfully and continuously in other contexts, such as Sweden (Lidström, Holm & Lundström, 2014; Lundahl, Lindblad, Lovén, Mårald & Svedberg, 2017; Andersson & Barker-Ruchti, 2019; Lindblad & Lundahl, 2020; Rosvall, Blomqvist & Nylén, 2020) and the United Kingdom (Hodkinson, Bowman & Colley, 2006; White, 2007; Hodkinson, 2008; Hancock, 2009; 2012). We are of the view that this theory can contribute to deepening our understanding of the career decision-making of students in public TVET colleges in South Africa. We are also of the view that, to make it even more meaningful, we should borrow from other theories, for example, that of Appadurai.

### *Origins of Careership Theory*

The Careership Theory was developed by Hodkinson and colleagues in the United Kingdom in the 1990s (Hodkinson, Sparkes & Hodkinson, 1996; Hodkinson & Sparkes, 1997). It emerged from a research study that was commissioned to investigate the Youth Training Credits (YTCs) pilot programme (Hodkinson, 1995). With this programme, which was first piloted in 1991, youths were provided with financial credit that was to be used to pay for training. With this credit in hand to purchase any preferred training, the government assumed that the students would be equipped to make technically rational career decisions (Hodkinson & Sparkes, 1997). The programme was meant to place the power of career decision-making in the hands of individual youths (McBride, 1990). Hodkinson and colleagues conducted a research study that investigated this pilot programme (Hodkinson et al., 1996).

The findings of this investigation compelled Hodkinson and colleagues to seek a unique theoretical approach (Hodkinson et al., 1996). At that time, the authors of the Careership

Theory found some explanatory advantages in the social theory of Bourdieu (1977; 1993; Bourdieu & Wacquant, 1992). They expanded upon concepts such as capital, field and *habitus* to enhance their Careership Theory model. Through these concepts, the authors of the Careership Theory were able to examine broader sociological questions of choice, structure and agency. This theory sought to transcend the objective–subjective dichotomy and the determinism associated with structural theorising (Hodkinson & Sparkes, 1997).

### **Basic tenets of Careership Theory**

The Careership Theory is a sociological approach to understanding the ways in which career decisions are made rather than predicting the career choices that young people are likely to make (Hodkinson, 2008). The theory seeks to describe and understand the career decisions of young people as they are influenced by their education and training in addition to their experience outside of formal learning institutions. It also seeks to do so in a manner that respects the views of the learners while simultaneously placing their experience in a wider social and economic context. It looks at the social, economic, cultural, political and other environmental factors that influence the lives of young people and the career choices they make (Hodkinson, 2008). It rejects the notion that young people make economically rational choices, that is, that they base their career decisions on maximising utility (Hodkinson & Sparkes, 1997). It also treats the career decisions of young people as being pragmatically rational (Ball, Maguire & Macrae, 2000) and conditioned by both environmental factors and asymmetrical power relations, by the resources or capital that young people possess and also their horizons for action (Wacquant, 2002).

The basic tenets of the Careership Theory as presented in Hodkinson et al. (1996) are:

- Decision-making is in the *habitus* (see below) of the social actor making the decision, and the decisions made are pragmatically rational, that is, they are neither irrational nor totally rational.
- Career decisions are not the sole act of the choosers (i.e. the students) but result from interactions in the field (such as the post-compulsory schooling sector), and these interactions are shaped and influenced by the resources that the actors possess (economic, social and cultural capital).
- Career decisions are embedded in the life histories of the social agents within the *routines* and *turning points* (see below) which make and are made by and dependent on previous routines and turning points.

Following Bourdieu, Hodkinson et al. (1996) applied the concept of pragmatic rationality, demonstrating that career choices are context-dependent. The same approach is found in the work of Reay, where she constantly demonstrates that the educational choices of children and parents are based on some rational calculation (Reay & Lucey, 2000; Reay, Crozier & Clayton, 2009; Reay, 2018); however, this rationality is bound to a context. These pragmatically rational career decisions are made within routines and turning points. The

Careership Theory seeks to explain an uneven range of routine experiences combined with turning points in an individual's life (Hodkinson, 2008). 'Turning points' refer to the times when an individual's life goes through transition or change (Hodkinson & Sparkes, 1997).

During the early conceptualisation of the Careership Theory, Hodkinson and Sparkes (1997) identified at least three types of turning point: self-initiated, structural and forced. These are intertwined with periods of routine. A self-initiated turning point refers to a change or a transformation in one's life where the individual concerned is proactive in instigating a new life course. Structural turning points are different from self-initiated turning points in that events are determined by external structures. There are also forced turning points, where life-changing phenomena are imposed on individuals. Changes that occur in people's lives are part of life routines, and routines and turning points are not separable from one another. During the initial stages of the Careership Theory, Hodkinson and Sparkes (1997) identified at least five types of routine: confirmatory, contradictory, socialising, dislocating and evolutionary. These five types describe different experiences, with choices that have to be made (Hodkinson & Sparkes, 1997):

- Confirmatory routines resemble an experience that reinforces a career decision which has already been made.
- Contradictory routines describe an experience that undermines or contradicts the original decision made, leading to dissatisfaction with the original decision.
- Socialising routines describe the experience of confirming a career identity that was not there before.
- Dislocating routines describe living with unwanted career choices or identity, especially when the social agent is not able to make changes to their original decision.
- Evolutionary routines explain experiences where a person gradually outgrows their original career identity without any pain or contradiction (Hodkinson & Sparkes, 1997).

Yet the notions of routines and turning points have been found wanting (Allin & Humberstone, 2006; Hodkinson et al., 2006; Barham, 2013; Lundahl et al., 2017; Andersson & Barker-Rucht, 2019) and have been subjected to some revision. It is held, for instance, that it is difficult to identify a turning point within a routine and to determine the duration of a routine (Barham, 2013). Andersson and Barker-Rucht (2019) even added another turning point to the original and revised list: initiating turning point. Hodkinson (2009) suggests that the notion of turning points be shifted to 'learning', that is, learning throughout life as one constructs one's career. Nonetheless, Barham (2013) remains confident that the notion of turning points has something valuable to offer to our understanding of career decision-making.

As already mentioned, Careership theorising drew on concepts associated with Bourdieu (1984; 1993; Bourdieu & Wacquant, 1992) to develop a unique sociological theory about the ways in

which career decisions are made in practice (Hodkinson & Sparkes, 1997). Bourdieu developed what he called the 'theory of practice' as an attempt to explain social dynamics, power relations and the ways in which the social structures of society not only shape human conditions and actions but also reproduce social inequalities (Bourdieu, 1984). The central thesis of the theory of practice is that social inequalities continue because of the reproduction that emanates from the differing and unequal capitals with which different families endow their children (Riley, 2017). The notion of capital was developed to explain this.

In this sense, capital covers cultural, economic and social resources (Bourdieu, 1986); according to Riley (2017), it refers to the resources available to a social agent. Cultural capital presents itself in the form of credentials and cultural objects (Riley, 2017). It is also evident in the socialisation that gives knowledge of society to the social agent. Economic capital, as the name suggests, comes in the form of material resources that can be quantified in monetary terms or related value – for example, as income and ownership (Riley, 2017). Social capital presents itself in the form of social networks, obligations and relationships that are beneficial to social agents (Bourdieu, 1986). These concepts were not coined by Bourdieu, but came from elsewhere: for example, cultural capital is associated with Marx (Desan, 2013), and social capital is associated with Coleman (1990; Rogošić & Baranović, 2016).

The use of cultural capital as an explanatory concept has been criticised as suggesting 'pastness', which assumes that a cultural actor is one with their roots in the past (Appadurai, 2004). This happens when a social actor is seen as acting in accordance with their past experiences or when their social standing is associated with their past. Appadurai (2004) proposes that the use of the word 'culture' must consider the sophisticated nature of aspiration and the way in which it is constituted. For him, using culture to explain social action portrays social action as a reflection of one's history or background and not of the way individuals act according to present circumstances and future aspirations.

'Field' is one of the concepts in Bourdieu's trilogy of 'capital', 'field' and '*habitus*'. A field is likened to a game governed by certain rules, where the players come to play the game with different resources (e.g. economic, cultural and social), power and privileges (Hodkinson, 1998), and in so doing they employ different strategies (Lamaison & Bourdieu, 1986). In social fields, we can see the exchangeability of dispositions of *habitus* (Jenkins, 2002; Thomson, 2008). As in a game, social actors in a field occupy different positions which influence their actions in different ways (Thomson, 2008). The field is a space of unequal power relations that emerge from the different statuses perpetuated by different levels of capital, as well as background, influenced by the *habitus*. The differing capitals and *habitus* portray the field as an arena of competition: competing to dominate, to succeed, to accumulate capital and to maximise positions. In this way, social actors gravitate towards fields that best match their dispositions (Maton, 2008).

*Habitus* is another of Bourdieu's most cited and hotly debated concepts, but also the least understood (Reay, 2004b; Maton, 2008). Bourdieu (1984) defines it as a cultural environment

that tends to be internalised in the form of dispositions to act, think, feel and perceive. It represents the subjective (internal) structure of the social actor, whereas capital and field represent the objective (external) social structure. For Bourdieu, the concept of *habitus* accounts for the agency–structure dichotomy or dualism. This dualism shows that social action is a result of both internal and external factors combined and intertwined. The actions of a social agent are not only either internally or externally influenced but they also result from both factors. As much as the body (social agent) lives in the social world, the social world also lives in the body and is inscribed in the body – embodiment. By applying the concept of *habitus*, Bourdieu attempted to gain access to the internalised perceptions, behaviours and beliefs of different social groups (Maton, 2008).

The Careership Theory scholars used *habitus* as one of the pillars of their theory to explain the ways in which young people in the YTC pilot programme made their career choices. At the centre of their approach was the idea that inequality leads to different choices and destinies among young people. A similar approach was taken by Ball and colleagues in their analysis of the inequalities in the education markets (Ball & Vincent, 1998; Ball, 2003; Reay, 2004a). A similar approach and focus are also evident in some South African studies (McMillan, 2014; Galvaan, 2015). Therefore, the Careership Theory brings to the fore the issue of inequality in education (Hodkinson & Sparkes, 1997). It is this inequality in South African education and training with which much of the literature is attempting to grapple (Soudien, Motala & Fataar, 2012; Bydowell, 2015; Baatjes, 2018).

### **Careership Theory in South African TVET research**

The Careership Theory has been used in a TVET context abroad (Hodkinson et al., 1996). A tiny portion of the literature on TVET in South Africa focuses on the Careership Theory to explain why students or apprentices have chosen a vocational or a technical programme at a college or elsewhere (Maluleke, 2022).

Part of the usefulness of the Careership Theory in the context of South Africa lies in the approach of the theory – for example, a focus on inequality in education. South African history reveals the formalisation of inequality and inferiority through educational and labour market exclusion. These inequalities of the past seem to be continuing in the new democratic society (NPC, 2012), even though racial discrimination is no longer the leading factor but only one among many. Despite the changes since 1994, what remains clear in South Africa is that social structures ‘play a central role in setting up individual choices about educational training, credentialing, and employment prospects’ (Babson, 2014:157).

The Careership Theory recognises structures (e.g. educational structures, processes and practices) and the relationship between social institutions (both micro and macro). In acknowledging structure, it brings sociological concerns to the question of career decision-making, particularly alertness to inequality (Hodkinson et al., 1996). In the case of South Africa, therefore, the Careership Theory can be useful in dealing with issues of inequality,

unemployment and poverty. It is also important to point out that the literature on TVET in South Africa acknowledges the effects of structure on social agents (Groener & Andrews, 2019). The most common approach to the TVET literature is the focus on structural disadvantage, which leads to youths and unemployed persons from disadvantaged backgrounds being targeted. Some of these disadvantages are evident in the descriptions of young people such as ‘youth at risk’ (Booyens & Crause, 2012:259) and those ‘not in employment, education or training’ (Cloete & Butler-Adam, 2012:3).

At the heart of the Careership Theory are pervasive social inequalities (Hodkinson & Sparkes, 1993). The Careership Theory authors landed at Bourdieu’s door because his analytical concepts could, at that time, unapologetically confront the nature of inequality in the educational markets in the United Kingdom. These inequalities, created by social structures, limit the ability of human agency to navigate through social structures (Atkins, 2008; Atkins & Flint, 2015). Within these social inequalities, the theory seeks to get to grips with the structure–agency dilemma, a central feature in Bourdieu’s theory of practice (Bourdieu, 1977).

The Careership Theory attempts to explain the ways in which career decisions are made in the organised structures of society (Lindblad & Lundahl, 2020). Appadurai (2004) claims that people’s actions and choices can be explained through their capacity to aspire. In this capacity to aspire, aspirations derive from cultural norms and practices. To act out their aspirations, social agents need access to cultural, economic and social capital (Golding, 2013). These aspirations move beyond individual preferences as they are formed as a consequence of an individual’s interaction with others in social fields.

It is argued that poverty smothers dreams and the process of attaining them (Ray, 2006). Poor people have aspirations and wishes, but these are socially determined and are not equally distributed (Appadurai, 2004). In addition, as much as poor people may aspire, developing strategies to achieve their aspirations remains a challenge. It is a challenge in poor communities because there is insufficient observed experience of success, and consequently the dreams and aspirations of poor people sometimes diminish in front of their eyes. But here is where Bourdieusian analysis comes to the rescue: it helps to unpack the hidden social structures that perpetuate inequality and its reproduction.

These experiences can also be analysed using the notion of the capacity to aspire, regarding whether aspirations fail or not. Appadurai (2004) would speak of failed aspirations, but Ray would speak of aspirational windows, arguing that aspirations do not fail (Genicot & Ray, 2017). In Ray’s scheme of things, aspirations are always there; the only thing that fails is the capability to pursue them. Although Ray developed his idea from Appadurai’s capacity to aspire, Ray proposed that aspirations do not fail, but that sometimes the aspiration windows are too large for social agents from low socio-economic backgrounds to negotiate, which causes frustration (Genicot & Ray, 2017). This can be linked to the notion of the horizon for action as linked to social agents’ perception (Rosvall et al., 2020), and also that of navigational capacity as it relates to the possible pathways that lead to future success (Golding, 2013).

## **Conclusion**

The sociological approach to career decision-making is rooted in the simple logic of the relationship between capital, field and *habitus*. According to this Bourdieusian logic, career decisions take place in social fields, such as an educational field in this case. The field is characterised by social relations, which are also influenced by the capital (resources) that social actors bring into the field. This capital is distributed unequally because it depends on the economic backgrounds of families. This unequally distributed capital influences the development of *habitus*. Although the participants in this study do not resemble Bourdieu's inheritors of France in the 1970s (Bourdieu & Passeron, 1979), their socio-economic status has a bearing on the manner in which they navigate through life. Their dreams and aspirations seem to be limited by what they believe is possible, given their circumstances, both past and present. They aspire to do great things in life but what lies within their horizon for action is what they focus on.

This article has made several contributions to theorising career decision-making. One of these contributions is updating the Bourdieusian perspective with more future-looking perspectives. A close relationship exists between the notion of field and that of aspirational maps (Golding, 2013). As social agents navigate through social fields, deploying their capital, their navigational capacities are strengthened because future success is built on previous success. It is here that the relationship between *habitus*, 'aspiration window' and 'capacity to aspire' meet (Golding, 2013). *Habitus* and capacity are complementary to each other because they both focus on the way social position (in a field) influences perceptions and actions (Naveed, 2021). Since *habitus* represents embodied (internalised) dispositions, it helps us to understand the way aspirations are formed and how social agents adjust these aspirations to their lived experiences (Naveed, 2021).

The article has also introduced the Careership Theory to research into the career decisions of students attending public TVET colleges in the South African context. Although the Careership Theory is foreign to this context, its stance and perspective can be applied in various contexts without harm. The theory brings with it broader sociological questions about career decision-making, a perspective that is missing in research into public TVET colleges in the country. Issues of inequality of access and opportunity in post-school education and training can be revealed through this sociological approach to career decision-making. The Careership Theory is by no means the best, but it is foremost among many theories that can paint a favourable picture of the ways in which students make career decisions.

Using this theory in the South African context would also serve to improve its credibility as it undergoes testing in a new context and in different historical periods. It is not the intention of this article to discredit other theories of career counselling, guidance and development, as we consider all of those theories to be valuable in their own right. We also concur with the argument that 'no single theory is sufficient enough to show the career progress of a person,

rather each theory advocates a certain idea and neglects the other part of individual career choice' (Jena & Nayak, 2020:23520). For this reason, writers can adopt one theory, combine theories or borrow concepts from other theories. Careership Theory is making and will continue to make a significant contribution to our understanding of the career decision-making of students in South African public TVET colleges and to the field of career guidance, counselling and development at large.

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# Beyond 'supply and demand': Moving from skills 'planning' to seeing skills as endogenous to the economy

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## ABSTRACT

This article questions the notion of supply and demand of skills, and, accordingly, the rules and tools that have been developed for skills anticipation in South Africa. I argue that there is nowhere 'outside' of the economy where skills are produced. Rather, a society and an economy need to be seen as an organism, where skill formation is a complex set of moving parts. The concept of supply and demand is unhelpful to think about skill formation because it directs our attention towards specific moving parts in isolation from the broader factors that shape them. This explains why, despite the existence of extensive tools and institutions for skills anticipation, and numerous institutions for social dialogue and stakeholder engagement, researchers and policy-makers argue that South Africa has an inadequate supply of the skills that are needed in the workplace and concomitant skills mismatches. The article also presents more specific problems with the rules and tools, particularly in the way the systems and institutions for understanding labour market demand interact with the systems and tools for the supply of skills – especially those tools that govern and shape skills provision. It argues further that, whereas there are real problems with these rules and tools, and while they can certainly be improved, the broad goals that they are intended to achieve will not be attained even with better tools, but that different conceptual lenses are required instead.

## KEYWORDS

*Job credentials, skill formation, skills anticipation, skills mismatches, skills planning, skills supply and demand, vocational education*

## **Introduction**

South Africa should be a poster child for skills planning. We have extensive institutions, policies and systems for analysing labour market demand for skills, many of which are recommended by the International Labour Organisation (ILO, 2015; 2021). We have structures and mechanisms for social dialogue and stakeholder engagement on skills which were praised by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in the 2012 *Education for All Report* as the best among 46 countries examined (UNESCO, 2012). We have mechanisms for funding training interventions that are, in theory, linked to the planning mechanisms, and also linked to our systems for designing and regulating qualifications. The Department of Higher Education and Training (DHET) has invested considerable funds in large labour market intelligence projects that aim to build and support skills planning. The first,<sup>1</sup> initiated in 2012 and led by the Human Sciences Research Council (HSRC), included the development of an econometric model which is intended to forecast shifting skills needs in response to fluctuating changes in the economy; however, it has yet to be used.<sup>2</sup> A second Labour Market Intelligence Project, hosted at the University of Cape Town, builds on the first one, and attempts to improve the ways in which the education and training system supplies skills to the economy.<sup>3</sup>

Both projects include a large number of research projects using different methodologies, including:

- analysing trends in the labour force;
- employer surveys;
- tracer studies;
- studies of skills ecosystems; and
- analysis of skills planning policies and systems.

Through these projects, a report entitled *Skills Supply and Demand in South Africa* has been produced more or less annually since 2016, most recently by Khuluve, Bhorat, Oosthuizen, Asmal, Ganyaupfu, Netshifhefhe, Martin, Monnagotla and Rooney (2022). These reports provide:

- a synthesis of labour market data over time;
- economic indicators;
- output from the education system;
- an analysis of drivers of skills changes; and
- an analysis of 'skills mismatches' and 'gaps', drawing on tools and methodologies

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1 A full set of reports can be found at: <http://www.hsrc.ac.za/en/departments/ied/lmip>

2 This could partly be a factor of the way it was developed (by an external consultant), coupled with whether internal capacity exists to use and manage the system. There are also concerns about the viability of the model.

3 Information on the projects under way and the results to date can be found here: <http://www.dpru.uct.ac.za/lmi-research-programme-labour-market-intelligence>

from the Organisation for Economic Co-operation and Development (OECD, 2017a).

In short, policies, institutions and large research projects have been instituted with a view to shifting our education system towards being more ‘demand-led’ and to ensuring that supply meets demand.

The notion of a demand-led provision of education is based on the idea that shortages of skills and mismatches between the skills required by employers and those produced by education systems are caused by insufficient information about labour market demand. Although the notion of ‘manpower planning’ is no longer used, policies for skills anticipation are very much in vogue. The ILO (2015:1) suggests that this is because

[d]espite increased spending on education and training and increasing educational attainment, countries around the world are experiencing a persistent gap between the skills demanded and those available.

The ILO goes on to suggest that skills anticipation means ‘assessing the future prospects of the labour market and the potential imbalance between the demand for and supply of skills’ and that skills needs anticipation ‘refers to activities to assess future skills needs in the labour market in a strategic way, using consistent and systematic methods’ (ILO, 2015:3). In the United Kingdom in the 1980s and in Australia in the 1990s, the idea that complacent education providers were concerned with their own interests and either disregarded or were ignorant of employers’ requirements was used to marketise the provision of vocational education in the name of shifting from a supply-led to a demand-led system (Wolf, 2002; Young, 2009; Wheelahan, 2010).

South Africa has been attempting a similar shift to a demand-led system for nearly 30 years. And yet, many policy and research reports argue that both a lack of skills and an inappropriate supply of skills are key causes of our stagnant economy and an incredibly high unemployment rate. The National Development Plan (NDP) suggests that low skills are a major factor hindering economic growth (NPC, 2012). The third National Skills Development Strategy identifies ongoing shortages of artisans and technicians as a major problem for the economy (DHET, 2011). The OECD (2017b:9) argues that South Africa’s ‘existing stock of skills’ and its ‘mobilization into the labour market’ are serious bottlenecks hampering economic development and growth. The priority, the OECD report goes on to argue, is to invest in the ‘right skills, not just more skills’ (OECD, 2017b:9). Another OECD report argues that 52.3% of South African workers were employed in an occupation for which they did not have the correct qualification, with 29,7% being ‘underqualified’ and 24,4% ‘overqualified’ (OECD, 2017a). The National Plan for Post-School Education and Training (NP-PSET) suggests that skills planning mechanisms are not working as hoped for (DHET, 2019), as does an evaluation of the National Skills Development Strategy (Mzalabazo & REAL Centre, 2018). The 2022 *Skills Supply and Demand* report

published by the DHET (Khuluve et al., 2022) suggests that the output from Technical and Vocational Education and Training (TVET) colleges and other training programmes has declined considerably since the onset of COVID-19; it also suggests that unemployment among TVET graduates has increased.

This article presents an overview of some of the key mechanisms for skills planning in South Africa, highlighting systems for analysing labour market demand, and how they were designed to support and shape supply through the education system.

Three sources of data for the policy analysis are presented in this article. The first source is as a participant–observer role in many high-level policy processes over the past 20 years. These include being:

- a member of the Ministerial Task Team on Sectoral Education and Training Authority (SETA) performance (DHET, 2012b);
- a member of the team writing the Green and White papers for the post-school education and training system (Department of Education, 1995; DHET, 2012a) and the plan for the post-school system;
- a lead author of the Skills Strategy to support the Economic Recovery and Reconstruction Plan (DHET, 2022 – the 'COVID Skills Strategy');
- a special advisor to the Minister of Higher Education and Training.

The most recent sources of participant–observer data were five high-level Skills Dialogues which I organised in 2021. These were a form of action research in that they were aimed at building insight into problems for the purpose of better comprehension and understanding, as well as into individual role-players' changing approaches, tools and systems. High-level representatives from employers, unions and the state engaged in structured dialogues, which were initiated with an overview of research findings with respect to skills anticipation systems, in order to understand what is working and where improvements are needed.<sup>4</sup> The challenge of being a participant–observer is to retain objectivity in the processes described above, from which published reports and documents are drawn and also insights gained by participating in the processes.

The second source of data is a set of research projects that I worked on with colleagues at the Centre for Researching Education and Labour (REAL) for the two national Labour Market Intelligence Projects (LMIP) supported by the DHET and related policy research (REAL Centre, 2020; 2021).

The third and most recent source of data is a research project in which the researchers surveyed 61 manufacturing companies and conducted in-depth interviews with 23 of them.

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4 A full set of briefs and reports from each Dialogue is available here: <https://www.wits.ac.za/real/publications/skills-dialogues/>

These interviews were conducted with human resource (HR) directors, supervisors and union representatives.

Drawing on these sources, I present an analytical overview of the various components of the skills anticipation system, showing the relationship between various policies and systems that have been added over the years, and how they do and do not work together. Locating this overview in broader research that considers the factors shaping skill formation and educational preparation for work, I argue that the various problems analysed derive in part from the idea that skills are demanded in one place and supplied by another. The idea of supply and demand directs our attention towards specific moving parts in isolation from the broader factors that shape them. Instead, drawing on literature on skill-formation systems, I argue that we need to see society and the economy as an organism in which skill formation is a complex set of moving parts. Skill formation is shaped by the economy and the ways in which different spheres of society interact with one another which are different and constantly in a state of change.

The term ‘skills’ in this context refers to knowledge, expertise and the ability to perform work. It is an unfortunate term which simplifies what is in fact a complex mixture of theoretical and applied knowledge acquired through education and training programmes. I use it here because the term is used in policy.

## **Rules and tools for skills planning in South Africa**

I begin with the systems for coordination and engagement between education providers and economic actors. This is followed by an overview of some of the central rules and tools for analysing labour market demand and skills anticipation. These directly engage with, and affect, the ways in which qualifications are designed and funded (supply), which is reflected on next.

### *Coordination*

The OECD (2017b) recommends better coordination across government as a critical priority for South Africa, and the ILO states:

Social dialogue is a cornerstone of skills needs anticipation: it is critical for informed decision making as well as for the implementation of findings and recommendations (ILO, 2015:4).

South Africa has a plethora of structures and systems for formal engagement with stakeholders. The Human Resource Development Council (HRDC) was created in 2010 as a key structure to link different areas of government work and to link this work with different spheres of the economy. Led by the deputy-president, the council is supposed to:

- guide and shape the HR development agenda;
- provide a platform for dialogue and consensus-building;

- identify skills blockages; and
- recommend solutions (RSA, 2010:10).

Fourteen government ministers are part of the structure, as are captains of industry, union representatives and others. Yet, as explained by Allais, Marock and Ngcwangu (2017), there is no evidence of actual coordination from this structure. Perhaps this is because no real mechanisms exist to create integration or to hold the different parts of that system to account, because the structure is so large and unfocused and because interventions in the economy to create a *requirement* for skills are generally not the focus of the council's discussions.

There are other bodies and other sets of problems with each of them. The National Skills Authority (NSA) is a stakeholder body with representatives from different social partners. Debate is ongoing about how its role relates to that of the HRDC and there is a confusion of mandates. Despite a Ministerial Task Team (DHET, 2012b) arguing for it to be disestablished, it remains part of the coordination environment. The National Economic Development and Labour Council (NEDLAC), the body which facilitates negotiations between employers and labour representatives nationally around legislation, includes skills in its remit. This formal process is, of course, vital but it can be adversarial rather than emphasising collective problem-solving.

At a sectoral level, all of the SETAs (discussed below) have representation from employers, unions and government on their governing boards. This is intended to ensure that their systems and interventions meet the skill-formation needs of their sectors. However, at a board level this representivity has at times led to vested interests dominating SETA agendas, and also to corruption (DHET, 2012b). Finally, employers are directly involved in the design processes for qualifications. Employer voices should thus be heard clearly. This is important because policy advice from all the international organisations concurs that understanding employers' requirements is a key component of skills anticipation (ILO, 2015; 2021; OECD, 2017a; 2017b).

However, what emerged clearly through the Skills Dialogues is a sense that coordination and stakeholder engagement are often formalistic and often involve representatives of employers and unions that are not directly involved in either the provision of skills or in workplaces.

The following section moves from broad coordination and engagement to specific rules and tools developed to obtain information from employers about the labour market demand for skills.

### **Demand side: Skills anticipation and labour market analysis**

In South Africa we have more than 20 years of experience behind us in attempting to analyse skills demand through the aggregation of employer-specified vacancies. This has been done through the SETAs, which were instituted through the Skills Development Act 97 of 1998

(RSA, 1998; Kraak, 2004; 2010; Allais, 2013). As labour market intermediaries, their key functions are to improve relationships between education and work by analysing skills demand, on the one hand, and, on the other, by shaping supply (provision) through the allocation of funds and ensuring quality of provision<sup>5</sup> (Kraak, 2004; 2008; Akoojee, Gewer & McGrath, 2005; Allais, 2013). They have changed over time in terms of their remit, configuration and sectoral demarcation. They have also been reduced from an original 33 to 21 (DHET, 2012b), and have been subjected to considerable evaluation, contestation and debate, as well as a ministerial review (Singizi Consulting, 2007; DHET, 2012b; Mzalabazo & REAL Centre, 2018).

But the core idea remains improving the supply of skills by gaining better insight into demand. Employers above a certain size pay a levy of 1% of their payroll to the South African Revenue Service. They receive a portion of their levy back on submission of a Workplace Skills Plan, which outlines where their skills gaps are, and an Annual Training Report against this plan. The intention was that these tools would enable SETAs to gain insight into both the training requirements of employers and what training actually takes place. The SETAs would aggregate employers' priorities in their sector and would then know what skills are required across the sector; this would enable them to fund the necessary training.

From the start, there were problems with the data obtained. For example, because obtaining data from employers was considered to be a crucial goal of the system, employers were given a portion of their levy back (the so-called 'mandatory grant') on submission of reports on planning data (through the Workplace Skills Plans) that were intended to feed into sectoral and national plans. But this grant was *also* seen as incentivising employers to train. Because of this, the SETAs refunded them if, in their Annual Training Report, they reported on meeting their training plans. This encouraged employers primarily to indicate the skills needs in their training plans that they could fulfil within the year. Anything that was lengthier – such as apprenticeships – would typically be excluded, thus compromising the quality of the data intended to analyse skills demand (DHET, 2012b).

Another challenge is that employers report not finding the Organising Framework for Occupations (OFO<sup>6</sup>) to be a useful tool, as it does not reflect either skills or jobs in the way they think about them (REAL Centre, 2021). Employers do not hire according to occupations, but in line with required skill sets. For example, what became clear during the process of working on the COVID Skills Strategy is that employers in the digital space – one of the few

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5 The role of quality assurance was relatively recently partially removed, leaving them free to focus on understanding the demand and shaping the supply of skills.

6 The intention of the OFO was to standardise occupational definitions and their up-to-date associated practice requirements. Policy-makers hoped that this could then be used by educational institutions to develop their training programmes. The intention was that employers would update occupations on the OFO through Workplace Skills Plans, which would lead to occupational definitions providing an accurate reflection of the labour market. However, employers rarely make significant updates to the definitions on the OFO and many sectors suggest that the OFO is not updated sufficiently to accommodate emerging occupations or to reflect jobs that are constituted by skills from across multiple occupations.

growing areas of the economy – are looking for a high-level combination of specific information technology (IT) skills and not for any of the occupations as listed in the OFO.

In addition, companies are not always good at predicting their future needs and even regarding their current vacancies as having limitations. They tend to focus on identifying deficits in staff – so again, in the COVID Skills Strategy process, a skill such as 'critical thinking' came up as a scarce skill; this is extremely unhelpful for planning education programmes. Another insight from many policy processes, particularly the Ministerial Task Team on SETA Performance and the COVID Skills Strategy, is that an analysis of one sector does not necessarily provide an indication of potential shortages across the economy. This is because many occupations cut across sectors and many graduates from a qualification do not necessarily work in the related occupation. More recently, a phenomenon appears to be emerging where employers report on skills gaps in order to obtain funded learnership positions, which are seen as cheap labour, regardless of whether these are real skills gaps.

In short, while employer demand is seen as the holy grail of skills anticipation, there is a range of reasons why data from employers about skills needs are poor.

SETAs have started to use the Quarterly Labour Force Survey, conducted by Statistics South Africa (StatsSA), to supplement their aggregated employer vacancy data. The survey methodology is to look at labour market demand by analysing trends over time regarding employment at different levels relative to qualifications held. One challenge is that the sectoral demarcation used by StatsSA does not correspond to the demarcation of the SETAs. Another is that, for various historical reasons, the SETAs (and therefore employers) use the relatively newly developed OFO, whereas StatsSA uses the South African Standard Classification of Occupations (SASCO).

At best, both sets of data – aggregations of employer-specified data and analyses of labour force surveys – give snapshots and can give some (limited) insights into the current and emerging skills needs, and into trends over time. But they do not help to develop a picture of the way the requirements for work may change, particularly in the context of responses to changes in the world of work and the environmental crisis.

### **Supply side: Qualifications and provision**

The skills anticipation rules and tools through the SETAs relate directly to the systems for qualifications in a range of ways. One is that the systems of the Quality Council for Trades and Occupations (QCTO) for identifying and developing qualifications in addition to the occupational standards related to qualifications, and curricula and assessment, involve employers. The basic logic, similar to that of competence-based training reforms in many countries (Guthrie, 2009; UNESCO, IIEP & IFEF, 2020), is that employers should specify the skills (or competences) they require, and education and training institutions should be given funding for their courses that lead to these specific competences. A body of literature

internationally explains the limitations of this idea (Young, 2009; Wheelahan, 2010; Allais, 2012a).

The qualification system is linked to the rules and tools for planning in other ways. For example, the starting point for the development of a new trade or occupational qualification is the identification of an occupation on the OFO. This has led to many problems in the design and development of an appropriate set of vocational qualifications, including very narrow qualifications. Conversely, the development of a qualification is frequently viewed as the solution to a skills shortage – for example, the Education, Training, and Development Practices SETA is currently supporting the development of a qualification for research managers, because this has been identified as a skills shortage in their sector. Similarly, the DHET has been attempting to sponsor the development of a qualification for skills planners, because skills planning is weak. In both cases, the thinking is that once a qualification exists, the occupation will exist or be strengthened. The problem is the idea of a one-to-one correspondence between what the OFO classifies as an occupation (but what is more like a job) and a qualification. In reality, there is only such a tight relationship between qualifications and occupations in regulated occupations and professions where there is a licence-to-practise requirement.

Another issue shaping provision is funding. The SETAs were intended to translate their analysis of skills needs into support for training through the funds collected from the skills levy, allocated through ‘discretionary grants’ to employers or to training providers identified by employers.<sup>7</sup> As has already been mentioned, a small portion of the levy goes to the National Skills Fund, which was intended to fund unemployed learners, assuming that the SETAs would mainly fund training for existing employees through companies.

In summary, on the demand side, data from employers are a key input into the system, but have been poor for a range of reasons. These data are increasingly supplemented by labour force survey analysis, which provides additional insights into trends with regard to levels of qualifications and of employment. The classification systems used for collecting and aggregating employer-stated needs are different from those used for labour force analysis. In terms of the supply side, the same classification tools shape the identification and design of qualifications.

### **Shaping supply through analysis of demand: The Skills Lists**

A key mechanism that is supposed to bring demand analysis and supply planning together is the Skills Lists, which categorise the types of demand for skills. The central list is called Occupations in High Demand. This list includes skills that need to be prioritised for

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<sup>7</sup> Some funds were used for SETA administration; some went to the National Skills Fund. The percentage allocated to the mandatory and discretionary grants, respectively, was the subject of an ongoing court case that has recently been resolved.

development that are currently scarce and skills that are not necessarily scarce but are critical for enabling larger numbers of new entrants to access the economy. There are two sub-lists in the list of Occupations in High Demand. One is the Critical Skills List, which is the basis for decisions about visas and enables individuals to work in South Africa, based on the logic that these skills cannot be developed in time to meet local employer demand. The other is the Priority Skills List, which highlights the skills where demand can be met through a short-term training intervention or where there is likely to be ongoing demand such that it can be met through shifting enrolment in certain programmes or through the development and/or adaptation of qualifications and programmes.

The lists are based on weighted information from a variety of sources. A major source is aggregated employer data via the SETAs, which brings in all the problems of data weakness described above. Other data sources are analyses of labour force surveys and research into 'skills drivers', such as that of the World Economic Forum (WEF).

Also given consideration are government plans – in theory, an area where the government should have a good ability to anticipate skills needs that match targeted economic development interventions. As an aside, a National Skills Infrastructure Plan (Presidential Infrastructure Coordinating Commission, 2012) included 18 Strategic Integrated Projects, for which a complex 21-step methodology for integrating skills planning was developed. However, no publicly available evaluation of the extent to which this either happened or worked could be found. It has certainly affected the supply side through a major project that focused on building capacity for specific occupations in specific TVET colleges: the Centres of Specialisation project.

The Skills Lists are intended to be the basis for enrolment planning in universities and colleges. Here the logics of provision and of educational institutions can be seen to be at odds with the ways in which skills anticipation is currently conceptualised. A major dislocation relates to time frames. No distinctions have been made between funding for short-term interventions, such as an urgent training programme for using a new machine, and long-term interventions, such as training more engineers, with respect to qualifications and quality assurance. It is the former that employers are more likely to be able to specify, but the latter which the education system is more able to plan for. So, for example, employers and training providers have struggled to obtain funds for short-term training because SETAs require training interventions to be accredited. But short-term skills programmes can be accredited only if they are linked to qualification pathways.

Moreover, the processes for qualification development and for the accreditation of part-qualifications are long and cumbersome. To date, the rules associated with national qualification frameworks have stipulated that short programmes can be accredited only as a part-qualification, constituted by credits within a full qualification. The rationale for this is to deal with a proliferation of part-qualifications that do not lead to a full qualification, and also with qualifications of extremely low credit allocations. However, this creates the

unintended consequence of negating the possibility that industry associations can determine the need for a short programme, have it accredited and enable the graduate to gain access to a specific opportunity in the workplace. The effect has been that the formal qualification requirements lead to planning based on where qualifications exist rather than on where the demand is emerging.

In the initial unit standards-based qualifications that were developed through the National Qualifications Framework (NQF), many non-governmental organisations (NGOs) and even workplace providers could not get funding because of these kinds of rules, plus the complex quality assurance systems which were initially different for each SETA (Allais, 2012b). The QCTO has recently engaged in a process of reconfiguring occupational qualifications to change this and to revisit the formal requirement for workplace experience, which learners now simply cannot get (and most could not get before the COVID-19 pandemic).

Furthermore, with almost all of the data systems that we have for skills anticipation it is impossible to provide information about skills needs beyond current and emerging skills. Policy responses to identified current and emerging skills should lead to short-term, immediate interventions. And yet, our systems prevent short-term responses because of the relationship between the qualifications system, the OFO, the quality assurance requirements and the funding levers. And the same data are used to inform medium- to long-term planning, through the Skills Lists. This means that our medium- to long-term planning is extrapolated from current and emerging demand; it also means that our occupational qualifications tend to be rather narrow.

The Skills Dialogues also highlighted how, because of the occupational classification and qualification system, the analysis of training needs and provision pays insufficient attention to the full package of provision, including formal training in an education provider, formal training in workplaces, non-formal training in workplaces and simple learning from experiences in workplaces. Data that are not part of the formal provision of training are lacking, and there is even less about training that happens in workplaces.

Our research (Allais, Schoer, Marock, Kgalema, Ramulongo & Sibiyi, 2021) shows that skill formation in the automotive industry, for instance, involves much workplace provision but also relationships with formal providers (Allais et al., 2021). Conversely, this has not occurred historically in the clothing and textile industry despite the active engagement of the unions in attempts to save the industry, involvement with the SETA and a strong political commitment to transforming the industry. Nonetheless, all the companies in the clothing and textile sector are training, and this training is integrated into hiring and career progression.

Meaningful planning and allocation of financial support needs to be based on better insight into what is happening in specific sectors and to the ways formal programmes are complemented by on-the-job training. This is because the nature of provision and the extent to which there is integration of pre- and in-employment training differ across industries.

In summary, the key data source for skills anticipation – employer-identified skills needs – is weak and yet it drives much of our planning because labour market demand is seen as the holy grail. This weak data source, even when supplemented by other data sources that come with other challenges, mainly provides information about the current and emerging labour market demand. But they constrain and complicate our provision in part through the qualification system, which in turn makes short-term responsiveness impossible, because the funding levers are related to formal qualifications. This makes short-term provision of urgent training difficult, if not impossible. At the same time, the data about current and emerging labour market demand are aggregated and then used to shape medium- to long-term provision through funding and qualification systems.

Despite all the structures, policies and institutions for coordinating with employers, obtaining employer specifications for skills needs, and involving employers in qualification design, the OECD (2017b) argues that a key priority for South Africa is to create vehicles for employers' voices to be heard regarding their skills needs. However, it seems clear from the analysis above that the lack of vehicles for employers' voices to be heard cannot be the problem. Rather, I argue, we need to think about this issue differently.

### **Thinking beyond supply and demand**

A key cause of the phenomenon described as 'skills mismatches' is that the knowledge and skills required to do work and the credentials required to get a job are different – but the latter are often more relevant in labour markets (Allais, 2020b). Credentials are shaped by the economy and the nature of labour markets, and also by cultural factors. Labour markets with very limited rewards can increase intense positional competition for credentials, particularly in the context of the mass expansion of schooling (Collins, 1971; Bills, 2003; Carnoy, 2019). Failing to distinguish between the screening role of credentials in labour markets and the substantive requirements of skills and expertise in workplaces leads to confused policy interventions. For example, in the southern African region, there is a policy goal and much policy focus on the recognition of low-level skills to support migration, even though employers do not require qualifications for low-skilled jobs and immigration policies work against the migration of low-skilled workers. The logic behind this policy seems to be that highly skilled people have qualifications and access to labour markets and so low-skilled people will also be able to access labour markets if they have qualifications (Marock & Allais, 2022). This means that the concept of supply and demand is unhelpful when analysing and planning skill formation: people do not know what they are buying – neither the learners nor the employers.

The supply and demand concept tends to be blind to the full picture of training because of the way it separates educational and economic actors. And yet the knowledge and skills acquired to do work are developed through a complex mix of formal preparatory education programmes, relatively formal on-the-job training and, simply, learning through experience. The relationships between these will differ in different workplace environments. Skills are

a commodity that can be separated from neither their bearer nor the nature of the organisation of work – and the skills and abilities of managers who organise the work. Policy notions of the supply and demand of skills underestimate the extent to which the ability of education to prepare individuals for work is shaped by the ways in which work is organised. The literature on the use of skills shows that the ways in which skills are both developed and deployed are dependent on the organisation of work and are learnt socially (Lloyd & Payne, 2003; Grugulis & Stoyanova, 2011; Green, Hogarth, Thorn, Macleod, Warhurst, Willis & Mackay, 2017; Guile & Unwin, 2019).

The notion of supply and demand also creates problems in the funding system, ironically making it harder for education providers to be responsive to the needs in the economy. Funding mechanisms, particularly those in the public sector, frequently do not support building the long-term provision of, and strong institutions for, vocational education, because funding is allocated per student per programme. This approach, which could work for short-term interventions, makes long-term institutional stability difficult. Ironically, this also makes responsiveness impossible, including for urgent short-term training interventions.

Designing a curriculum takes time and requires expertise. Offering one takes time. Engaging with industry and local communities to determine needs requires dedicated staff time. Implementing lecturer training, upgrading and retraining require 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. There is also no time for lecturers to teach themselves something new, no or few permanent staff who can sit down and plan, and no staff with the capacity to engage with industry and communities. This is largely because each staff member has a salary that is narrowly tied to a specific course.

This problem can be seen internationally in countries that have mimicked the Australian competency-based training system (Wheelahan & Moodie, 2016; Allais & Marock, 2020). However, in South Africa, it is aggravated dramatically by the existence of different qualification systems in the overall vocational education system, all of which coexist, are funded differently and have different time frames, curriculum specifications and assessment mechanisms (Allais et al., 2021).

In short, the problems described above, including the conflation of time horizons in our current systems for demand analysis, qualification design, and funding, are not simple bureaucratic problems; nor can they be attributed to the lack of vehicles for employers' voices to be expressed. Rather, the problems are derived from thinking about skills through a concept borrowed from commodity markets. The notion of supply and demand creates a conception of 'skills' as something to be specified by actors in the economy in order to be 'produced' by actors in the education system. It also leads to a belief in linear skills-planning.

We need instead to view education as residing *inside* the economy in a number of ways. By this I do not mean that skills should be developed primarily in workplaces, as opposed to education and training systems, although there are indeed many aspects or components of work that can be learnt only in workplaces. Instead, what I mean is that social and economic factors shape everything about education systems. They shape people's access to education because of variations in the quality of education that people can access and because of the duration of that education (how long people can afford to stay in education or out of employment). Socio-economic factors are also key to educational success (Allais, Cooper & Shalem, 2019). Labour markets shape both the length of time people want to stay in education and whether they are obligated to stay in it.

The nature of the economy also shapes the relative number of enrolments in general education compared to vocational education, the relative size of university enrolments and the nature and extent of on-the-job training. In wealthy countries, vocational education systems are shaped by:

- the types of production that dominate;
- the structure of the labour market and the ways in which it is regulated;
- the role of social policy;
- the extent and nature of redistribution in the economy (Hall & Soskice, 2001; Iverson & Stephens, 2008; Busemeyer & Trampusch, 2012).

In poor countries, in contrast, positional competition for credentials has negative effects on vocational education. This is because employers tend to hire potential workers with a secondary education, considering them as having more potential as they have been more successful to date; professional and higher-level jobs are filled by graduates (Allais, 2020a; 2020b).

## **Implications for policy and research**

Our systems do not work as intended because there are serious limitations to how well we can determine up front the skills that will be needed in the medium and long terms. A key implication of moving away from thinking about supply and demand of skills is to view education as both further from and closer to the economy, depending on the time horizons under consideration.

When thinking about the *long term*, education should be further from the economy in order to develop more holistic analysis of the development of knowledge and skills that a society needs and also the development of society in order to nurture the development of knowledge, skills and expertise. Bodies of knowledge that underpin the ability to perform work and which are acquired through substantial educational processes are crucial to performing work with autonomy. However, there is no simple relationship between specific tasks in workplaces and such bodies of knowledge. When planning for the long term, responding to employer-

specified demands or an analysis of labour market trends works against the interests of both prospective workers and employers because it tends to lead to narrow qualifications and curricula, which is particularly problematic given the changing world of work.

Planning that requires *short-term* responses in providing skills and knowledge requires ongoing and direct relationships to be in place between education providers and employers, and institutional capacity in both. The shift should therefore be towards embedding education players in economic planning and development processes, whether at a company, sectoral or national level. For example, where there are industrial planning processes, policy-makers from education systems, educational providers and/or labour market intermediaries should be involved in these and other processes concerned with building the economy. This should ensure that decisions related to industrial transformation both support and are supported by the provision of skills.

Employers in the Skills Dialogues argued that they are alienated from the systems, and most participants suggested tighter, more focused engagement and representation by those stakeholders and role-players most directly involved. An example was the engagement between employers and unions in a collective agenda for supporting workplace transformation through skills development that was given expression in the Masterplan process in the clothing and textile industry. In this context, DHET has played an active role in the Masterplan process and the social partners appear to be reaching agreement on key approaches, including the establishment of joint projects to support improved productivity. The stakeholders involved here are not national associations relatively removed from the ‘coalface’ but those with a direct stake in the specific process under discussion.

This type of more focused, directed engagement may lead to far better outcomes than the generic ‘partnership’ models that have existed between colleges and industry to date. Indeed, partnerships need to be located in any analysis of the broader institutional arrangements in societies and economies that shape the way in which skills are developed and the opportunities for using skills. These should include, in the South African context, the different institutions that offer education and training, the institutions that regulate and coordinate, and the organisations where employment happens. They should also include industrial development processes such as the Masterplan processes driven by the Department of Trade, Industry, and Competition (DTIC), and other partners and processes both within and outside of government.

The COVID Skills Strategy also provides some examples of how to start moving away from simplistic ideas of supply and demand (DHET, 2022). One is a recommendation for two specific short-term adjustments to quality assurance requirements for qualifications and programmes in targeted sectors and to funding mechanisms to ensure that funding is directed at immediate training needs (related to demand). These models will be implemented only for the required skills associated with interventions that are aligned with the Economic Recovery and Reconstruction Plans (ERRP) where there is support from industry bodies or government

departments. Consequently, the initial focus of this intervention is primarily in the digital space (and, within this, those skills related to the global business service industry). Another example is directing short-term urgent funding towards increasing enrolment in specific identified qualifications. A key point here is that the ERRP is focused specifically on creating demand – on structural economic change. Whether or not the ERRP will be implemented successfully is another matter entirely, but this point is important because successful vocational education fundamentally requires structural economic change.

Besides developing more focused and specific partnerships and engagements, another implication is the need for more targeted industry or sector-specific skills strategies and more targeted funding and incentive mechanisms. The current mechanisms are blunt and one-size-fits-all; they therefore do not take sufficient cognisance of the specific needs of different sectors and industries. Instead of skills being seen as an 'add-on' at the end, or a list of projected skills to be 'produced' in order to support an industrial development strategy, crucial decisions relating to such matters as changing work organisation and technology need to incorporate a focus on skills.

This, in turn, requires a better balance between coordination and lending support to a flourishing system of provision, on the one hand, and a more flexible system that also supports institution-building, on the other. Both education providers and employers need to develop better insights into one another's needs and capacities. This means that they need to be supported to work together on the provision and delivery of specific programmes and to ensure that formal programmes and on-the-job training complement each other. This requires strong education institutions which can offer broad vocational qualifications that include:

- components of general education and of locally needed skills;
- shorter programmes that are recognised by employers and professional associations; and
- 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. This approach reinforces the need for a long-term perspective.

## **Conclusion**

In conclusion, I suggest that the frenzy of policy rules and tools seen in South Africa and internationally regarding skills anticipation systems and the policy aspirations for improving relationships between demand and supply are evidence not that they can achieve their goals, but, on the contrary, that they cannot. The factors which lead to apparently neater 'fits' between education systems and labour markets in some countries, and to low youth unemployment, are

the product of a range of specific political, economic and social arrangements. Policies that treat skills as exogenous to the economy in an attempt to create these goals end up producing layers of regulatory institutions that come with many sets of problems that then preoccupy policy-makers and researchers and divert them from creating the necessary neater ‘fits’. This is why we need to go beyond thinking about the supply and demand of skills.

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# An examination of the English curriculum in Technical and Vocational Education and Training colleges

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## ABSTRACT

This article is premised on the notion that the perceived lack of quality of curriculum delivery in the vocational education sector is probably due in part to a lack of understanding of the nature of knowledge in vocational education. The article outlines the nature of knowledge specified in the subject English offered in the Technical and Vocational Education and Training (TVET) colleges. The study followed the English curriculum message as it starts from the production field, where new ideas are created and modified to the recontextualisation field, where curriculum designers produce written curriculum documents. The findings indicate that the designers of the National Certificate (Vocational) English curriculum followed an outcomes-based approach in its design but that the content knowledge indicated is vague and unspecified. The curriculum cannot provide a basis against which content knowledge can be selected, as it does not give prominence to grounded content knowledge of the subject. Instead, it is more concerned with the competencies of the students. An analysis of this curriculum identifies its strengths and weaknesses and helps to identify gaps in the curriculum design in at least one curriculum in the TVET sector.

## KEYWORDS

*Vocational education, National Certificate (Vocational), official recontextualisation field, pedagogical recontextualisation field, reproduction field, pedagogic device, language teaching approaches*

## **Introduction**

Reform in the vocational education sector is an ongoing process locally and globally regarding the knowledge, skills, infrastructure and pedagogy available to support and offer a curriculum that is relevant to a digitalised industry sector (Tan & Seet, 2020). The transformation of Technical and Vocational Education and Training (TVET) colleges in South Africa has been well documented (Akoojee, Gewer & McGrath, 2005; Wedekind, 2008; 2010; Buthelezi, 2018). TVET in South Africa has its roots in the industrial and apartheid economic era from the 1920s to the 1970s. The history of vocational education in this country dates back to debates on issues of social order, educational inferiority and low intelligence (Badroodien, 2004). After the 1994 democratic elections, renewed enthusiasm on the part of government, researchers and the general population prevailed for giving attention to the technical colleges. These colleges were transformed into vocational education and training institutions (Akoojee et al., 2005; Wedekind, 2008; 2010). In 2007, a new national curriculum, the National Certificate (Vocational) (NC(V)), was introduced in TVET colleges. One of the aims of this curriculum is to serve and enhance accessibility to predominantly disadvantaged learners, and to alleviate the shortage of skilled workers in South Africa, which must be overcome if the country is to grow economically (Department of Education, 2006). Furthermore, the NC(V) was conceptualised as an alternative route into higher education. This curriculum was introduced in TVET colleges on the assumption that it would improve the quality of skilled and unskilled workers entering industry and thus contribute to a sustainable South African economy. The curriculum is described as vocational, comprising subjects that equip students with the necessary theoretical background and the practical competence to master a particular trade, or a set of technical skills, that will prepare them for employment (Houston, Booysse & Burroughs, 2010). TVET college students are then able to specialise in one of a number of streams: Hospitality, Civil Engineering, Electrical Engineering, Mechatronics, Engineering, Marketing, Finance, Management, Office Administration, Tourism, Information Technology, Agricultural Science, Safety in Society, or Education and Development. In addition, students enrolled for this certificate have to study three compulsory subjects, also known as the 'fundamental subjects': English, Mathematics or Mathematical Literacy, and Life Orientation.

This article examines the nature of the knowledge specified in the subject English offered in the NC(V) programmes. It responds to the questions:

- What constitutes the curriculum for NC(V) English?
- What key debates about the teaching of English inform the construction of this curriculum?

English is an important language for learners to master. In South Africa, as in many other countries, English is regarded as a lingua franca, a language of power for use in and beyond the country. As a result, proficiency in English is regarded by many as a gateway to economic empowerment, for both individuals and South Africa as a whole. Moreover, English is the

language of instruction in most schools, colleges and universities, in addition to being regarded as an instrument of communication and the language of production in South Africa. Consequently, if one lacks a command of English, one may be, or at least feel, excluded and disempowered (Alexander, 1989). For Heleta (2018), recent debates about colonial education and knowledge systems support concerns about the dominance of English as a language of instruction in the education system and the way in which such dominance has been used to undermine indigenous languages and maintain structural domination. Most of the students enrolled in the South African TVET colleges study English as a second language (ESL).

Linguists Chomsky, Krashen and Vygotsky and others studied and developed theories that explain the foundation of language teaching approaches which attempt to provide a framework for the teaching of languages such as English in both foreign and second-language contexts (Zhou & Niu, 2015; Matamoros-Gonzalez, Rojas, Romero, Vera-Quinonez & Soto, 2017). In South Africa, little research has been conducted on theories of English in vocational education. An analysis of the component structure of the curriculum for the subject English in TVET seems to be important because the knowledge structure of English has become increasingly unclear. This concern about the need to understand the nature of English is also expressed by Christie and Macken-Horarik (2007), who have enquired into the continuous change in focus of the curriculum for English. They state:

... today, so significant is subject English, [that] success in it is now an important passport to many avenues of privileged life and education. Yet, ironically, given its increased importance, the nature of English is increasingly elusive, its mastery not available to many students ... a powerful invisible pedagogy often applies, such that what is evaluated as success is tacitly understood, rather than clearly articulated (Christie & Macken-Horarik, 2007:156–157).

This expressed concern means that while English is an important subject from both a political and an economic perspective, its content structure has been contested over the years. This has resulted in an increasing lack of clarity as to which knowledge should be specified in an English subject intended for a TVET context in particular.

This article starts by presenting a review of the literature locating English in Bernstein's (1996; 2000) fields of the pedagogic device. It considers the key debates and approaches in the production and the recontextualisation of the field of English. That is followed by an outline of the research design and the methodology of the enquiry, a thematic discussion of its findings and the implications for ESL development, and, finally, some concluding observations.

### **Locating English in the pedagogic device**

Key debates continue to ask questions about the recontextualisation and the reproduction fields of curricula to explain 'who gets what, and how' (Moore, 2013:154). Success in the

design of a vocational education and training qualification is seen to depend heavily on the nature of the curriculum and also the connectedness of the three parts of the curriculum: theory, practice and work experience (Barnett, 2006; Young, 2009). In order for quality curriculum delivery to be enhanced in vocational education, both curriculum producers and their implementers need a thorough understanding of the nature of vocational educational knowledge (Madileng, 2017). These role-players should understand how the disciplinary knowledge, practical skills and work experience are integrated into a good vocational education programme. They must also understand why and how knowledge is specified in different subjects, the pedagogy of teaching, and the assessment practices in vocational education.

The literature on this topic indicates many ways of analysing and understanding curricula (Moore & Muller, 1999; Gamble, 2006; Wheelahan, 2007). In one such view, Bernstein's (1996; 2000) pedagogic device provides a possible way of understanding a curriculum and suggests tools with which to analyse the curriculum. Bernstein (2000:6) describes a curriculum in terms of knowledge specifications, pedagogy and assessment. He argues that any curriculum is centrally concerned with the nature of knowledge and the way in which such knowledge is presented and assessed, and therefore any curriculum operates according to a set of clear principles (Bernstein, 2000). The pedagogic device explains the different levels at which knowledge is selected and distributed in different social contexts. Bernstein (1996; 2000) uses the pedagogic device to explain the social locations of knowledge and the ways in which knowledge can be authorised and distributed at different levels of power structures. For Bernstein (2000), the pedagogic device is another way to describe the relationship between 'who says it', the 'voice of membership' and 'what is said' – a way of thinking about the way social structures in the pedagogic discourse determine who gets what knowledge, and how they do so. However, the device is not a visible 'object' that we could use to see the conversion process; instead, it describes different levels of power and forms of control in the educational process that regulate the way knowledge is converted at different levels into pedagogic communication. As a result, the power struggle in procedures through which knowledge is recontextualised at different levels is not easy to see or measure (Singh, 2002).

The pedagogic device unpacks procedures through which knowledge is transformed into curricula, syllabi, lesson plans, classroom talk and online communication (Singh, 2002). For Bernstein (2000), the way in which knowledge is distributed by different people at different levels of power, and who should access that knowledge and under what conditions, demonstrates the distributive rules of the pedagogic device. The distributive rules refer to the hierarchical order in the pedagogical process between the producer of knowledge and the 'recontextualiser' of knowledge. This order includes three fields, the second of which is further sub-categorised into two additional sub-fields. The first sub-field is 'the field of production'. This refers to the social processes by which new knowledge, discourses and ideas are created and modified (usually by university academics). The second sub-field, 'the field of recontextualisation', refers to the process of selecting knowledge from the field of production. This process results in the production of pedagogic discourse. The recontextualisation process

is further broken down into the ‘official recontextualisation’ and the ‘pedagogic recontextualisation’ fields. The official recontextualising field refers to the process by which the curriculum designers make selections about the knowledge, pedagogy and assessment that will become part of the official curriculum. In this article, which examines the way knowledge is constructed in the subject English offered in the NC(V) programme at both the official and the pedagogic recontextualisation levels, it is essential to observe which language approaches curriculum designers foregrounded and/or did not prioritise when designing it. The ‘field of reproduction’ refers to the social arena where teachers engage in pedagogic and assessment practices and where evaluative rules regulate what counts as a legitimate production. However, this article does not examine the way in which the NC(V) English curriculum is transformed and implemented in classrooms.

The different social processes described by Bernstein’s pedagogic device clarify:

- the contested space between power sources such as the Department of Education and researchers as curriculum designers;
- the social nature of pedagogic knowledge;
- official and everyday knowledge; and
- the role of teachers as implementers of knowledge in the classroom and students as acquirers of that knowledge (Singh, 2002; Moore, 2013).

The contribution of each social agent in this process depends on aspects such as (but not limited to) their educational backgrounds, sociopolitical backgrounds, language backgrounds, cultural backgrounds and gender. What will finally be selected as knowledge for inclusion in disciplines and subjects, and the ways in which such knowledge is enacted and accessed by students, will depend on the level of power of different social agents involved in the knowledge recontextualisation process in determining what English knowledge is suitable for selection for the curriculum design.

Here English is used as an example to illustrate the nature of the power relations in the educational process. Accordingly, it can be said that in the process of designing the curriculum for English, language policy developers at the government level, curriculum designers and academic researchers exercise their power of authority and forms of control over the educational process of deciding what knowledge to select for inclusion in the subject to be taught.

Bernstein (2000:7) also uses the concept of classification to describe the way in which the content of different subjects is bounded and kept separate or whether the subjects’ content is subordinate to other content and is presented in an integrated form. He maintains that the space between subject boundaries determines whether knowledge is, on the one hand, strongly classified so that a subject is able to maintain its unique identity with its own internal rules and voice or, on the other, whether the space in between content is so closed that the subject loses its power of insulation and runs the risk of losing not only its identity and power, but also its distinct voice.

Strongly classified categories of discourse are those subjects that have strongly insulated knowledge between them. These could be subjects such as Chemistry and Physics. In contrast, subjects that are classified as weakly insulated have less specialised discourses, identities and voices. Bernstein (1996:27) notes that these could be subjects such as Journalism and Languages. The classification principle, whether weak or strong, gives an indication of the way or ways in which one subject may differ from another.

The above discussion shows how knowledge varies within disciplines and subjects. The work of Bernstein (1996; 2000) sheds substantial light on curriculum design processes and different knowledge structures. While no 'ideal' curriculum exists in any subject, a country needs to be clear about the kind of national curriculum it wants, and why. There should be clarity regarding the prescribed nature and emphasis of the elements of a curriculum and the manner in which such a curriculum should be implemented.

One may argue accordingly that too little research has been conducted on theories of English and English teaching in vocational education in the South African TVET context. However, research on the role of English in Anglophone West Africa led to the emergence of the approach labelled 'English for Specific Purposes' (ESP), which displayed links with vocational education or students' jobs (Kennedy & Bolitho, 1990:12). A few studies on English for academic purposes (Balfour, Mitchell, Nchindila, Seligmann & Shober, 2014; Millin, 2015) and English in the workplace (Hill & Van Zyl, 2002; Kekana, 2015), also focusing on the vocational sector, have been conducted locally and globally in recent years. In South Africa, research conducted by Umalusi<sup>1</sup> analysed the content and skills specification of English by comparing the school and the TVET college English curricula. However, the studies did not analyse English in depth according to theories about the body of knowledge in the field of English.

Challenging questions therefore remain:

- Is the NC(V) curriculum for English structured in a way that meets the demands of TVET students, and that satisfies their need to succeed in their learning and live up to the demands of the workplace?
- What constitutes the most appropriate English course for empowering students with the appropriate knowledge and skills demanded by higher and vocational education to prepare them for the workplace?

The selection of the content knowledge and skills that could be included in the curriculum for English depends on, although should not remain limited to, whether the curriculum designers prefer one of two approaches. On the one hand, they could adopt a content-based approach which foregrounds discrete grammar structures and literary studies which involve close readings of literary texts. On the other, they could instead advocate the acquisition of

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<sup>1</sup> Umalusi is the council for quality assurance in General and Further Education and Training, established in terms of the General and Further Education and Training Quality Assurance Act No. 58 of 2001.

English as social practice, which foregrounds communicative approaches such as discourse and sociolinguistic competence and multiliteracies (Madileng, 2017). Despite legitimising relations of social order, power relations are never static or stable (Moore, 2013). Rather, they are challenged, contested and negotiated when knowledge is transformed into communication for teaching and learning.

Below is a brief discussion of the teaching and learning approaches that curriculum designers foreground when they select content knowledge and skills for inclusion in the TVET subject English. Examples of specialised knowledges that evolve include approaches to the teaching of English such as ‘basic grammatical skills’, ‘grammatical competence’, ‘discourse competence’, ‘functional language systems’, ‘sociolinguistic competence’, ‘strategic competence’ and ‘multiliteracies’. Contestations between approaches to the teaching of English, however, confirm the development of new knowledges.

### *Content-based language approach*

The basic grammatical skills and the literary studies curriculum approaches are examples of the content-based language approach. Curricula that emphasise the teaching and learning of explicit and clear grammar structures by focusing on isolated and discrete language forms, present teachers with explicit content knowledge to teach in the classroom. Some theorists refer to grammatical structures as ‘basic grammatical skills’ (Christie & Macken-Horarik, 2007). In this study, the terms ‘grammatical structures’ and ‘basic grammatical skills’ are used interchangeably. Another approach that stresses explicit content knowledge of English is the literary studies approach, which focuses on close readings of literary texts and engagement with the literary canon (Eagleton, 1983). The content-based approach occupies a prominent space in both English as a home language and English as a second language, including writing, reading and speaking, and also in English for academic purposes.

### *Basic grammatical skills and literary study curriculum approaches*

The importance of acquiring discrete English language skills was emphasised in England and Australia in the closing years of the nineteenth century (Christie & Macken-Horarik, 2007). English as a subject to be taught or learned was focused on teaching basic grammatical skills and grammatical analysis, paraphrasing and the classification of words. For Christie and Macken-Horarik (2007), the design of that curriculum conceptualised the acquisition of English as a matter of mastering basic grammar skills with an emphasis on the visible and explicit pedagogy of literacy skills such as reading and writing. Children would be drilled in such things as phonics, spelling and parts of speech, and be taught to read using a range of graded readers. The study of English was limited to learning basic grammar skills in their narrowest perspective and the pedagogic style used was mainly prescriptive and proscriptive, concentrating on the use of English as a written language (Carter, 1990:70). Composition writing would come only after drills in forming letters and writing sentences (Christie, 1993; Christie & Macken-Horarik, 2007).

Even in South Africa, historically, the study of basic grammatical skills was commonplace in curricula for English language learning. This kind of curriculum was introduced for both home-language speakers of English and second-language speakers when English was introduced into schools during the era of missionary education (Madileng, 2017).

Literary studies are also characterised as advocating the learning and use of the explicit content knowledge of English. Advocates of literary studies such as Newfield and Maungedzo (2006) argue for the inclusion of different literary genres such as poetry, drama, short stories and novels in second-language curricula. They argue that engaging with different literary genres enhances the acquisition of English knowledge and skills.

### *Communicative competence approach*

Canale and Swain (1980) built on Hymes' work and proposed a theoretical framework for communicative competence, one that includes four main competencies: grammatical, sociolinguistic, discourse and strategic. These competencies reflect the use of the linguistic system and the functional aspects of communication.

Grammatical competence emphasises mastery of the 'language code' (Canale, 1983:7). This code includes the features and rules of language such as word formation, sentence formation, aspects of pronunciation, spelling and linguistic semantics. Christie and Macken-Horarik (2007) use the concept of basic grammatical skills to describe a curriculum designed to develop explicit language structures. They argue that a curriculum which describes in its design the acquisition of English as being a matter of mastering basic grammar skills will emphasise the explicit pedagogy of grammar structures such as the alphabet, spelling and parts of speech. Such a pedagogy, according to Christie (1993), although often viewed as conservative, has some merit in that it explicitly identifies spelling and grammar rules and teaches children to read simple texts, while also teaching the parts of speech.

Another competency of the communicative approach is referred to as 'sociolinguistic competence'. This competency focuses primarily on knowing how to use language appropriately in social situations. It includes knowledge of both the sociocultural rules of language use and the rules of discourse (Canale, 1983:7). Sociocultural competence requires an understanding of the social context in which language is used: the roles of the participants, the information they share and the function of their interactions (Savignon, 2002:9). Sociolinguistic competence also emphasises the importance of producing appropriate utterances in different sociolinguistic contexts while considering the 'status of the participants, the purpose of the interaction and norms or conventions of interaction' (Canale, 1983:7). For Canale (1983), sociolinguistic competence – the appropriateness of utterances in actual communication – is as important as the use of correct grammar in an utterance. This competence is therefore crucial to interpreting the social meaning of utterances so far as the function and purpose of such communication and the attitudes of communicators are concerned.

Advocates of the development of sociolinguistic competence in ESL students emphasise the importance of including the principles of communication and aspects of the communication process in the curriculum (Canale & Swain, 1980; Canale, 1983). Hymes (as cited in Canale & Swain, 1980:17) suggests that activities and speech events that emphasise mastery of the rules of language use should be included in the curriculum. Such activities should include identifying the constitutive elements of speech events, such as description of the communication channel and the code used, linguistic description of the message, what the message is all about, the norms of interaction and interpretation, and the genre.

Another competence of the communicative approach is what Canale and Swain (1980) refer to as 'discourse competence'. Discourse competence is concerned not with isolated words or phrases but with the interconnectedness of a series of utterances, written words or phrases to form a meaningful whole text (Savignon, 2002:9). The text might be a poem, an email message, a telephone conversation or a novel. In communication, both the production and the comprehension of a language require the ability to perceive the structures of a discourse. Readers and speakers are also expected to formulate representations of meaning by referring to both previous sentences and those that follow. In both formal and informal discourse, the rules of coherence apply (Savignon, 2002). For Savignon, text coherence occurs when utterances are meaningfully put together in texts, such as those listed above. To achieve discourse competence, writers and speakers need to acquire a large repertoire of structures and discourse markers to express ideas, show relationships in time and indicate cause, contrast and emphasis (Canale & Swain, 1980).

Discourse competence has adopted some characteristics of the concept of 'functional language studies', which has its origins in the work of Halliday, McIntosh and Strevens in the 1960s (Christie & Macken-Horarik, 2007:182). Halliday's (1975) work focused on the ways in which the grammar of English functions in conveying meaningful messages. The study of functional grammar tries to explain the links between grammar, structure and meaning. Functional language studies adopt a functional orientation that considers language to be a social semiotic involved in the 'negotiation, ordering and structuring of experience' (Christie & Macken-Horarik, 2007:162). Functional language studies present English in terms of the functions of its systems, dialects and registers and its engagement with different text types or genres.

Strategic competence, also known as pragmatic competence, is another component of the communicative competence approach. Strategic competence enables second-language speakers to use their linguistic resources to convey and interpret meanings in real situations, including situations where they encounter problems due to gaps in their knowledge. Strategic competence focuses on the mastery of verbal and non-verbal communication strategies to ensure that a breakdown in communication is avoided. The curriculum includes activities in which students engage in coping strategies that are used in unfamiliar contexts, or those with constraints arising from imperfect knowledge of rules, or situations in which students are able to express aspects of fatigue or distractions (Savignon, 2002:10). Strategies included in

the curriculum relate to grammatical competence: how to paraphrase grammatical forms that one has not mastered and those that relate more to sociolinguistic competence, such as role-playing strategies, or the most appropriate manner in which to address strangers when one is unsure of their social status (Canale & Swain, 1980:30). For Savignon (2002), the effective use of coping strategies is important for communicative competence in all contexts and in most instances their effective use distinguishes highly effective communicators from those who are less able.

In addition to the competencies of the communicative approach, text-based approaches such as multiliteracies and critical language awareness also guide the design of the TVET English curriculum (DHET, 2013:42).

### *Text-based language approaches*

One text-based approach to language teaching and learning is the multiliteracies approach, which incorporates the use of multiple texts (Cope & Kalantzis, 2000) including spoken, written, literary and other multimodal texts such as music, poetry, performance and design. The work of Street (2001) and Cazden, Cope, Fairclough, Gee, Kalantzis, Kress, Luke, Luke, Michaels & Nakata (1996) observed uses of literacy in language learning, especially in non-Western societies. These researchers argued that effective literacy teaching is enhanced by an understanding of the range of social practices that determine the choice and use of texts and modes to enhance language development. For Mickan (2017), teaching and learning a language through texts enhances the learners' understanding of language learning as a social practice.

The multiliteracies approach offers a range of verbal and non-verbal readings and subject positions. It is therefore multifaceted and includes not only visual media such as film, images and posters, but also many new literary practices enabled through digital communications media (Warner & Dupuy, 2018). By interacting with each other in social contexts and through the use of social media platforms and other electronic communications such as email, SMS, Twitter and Facebook, such variation has led to the adoption of the term 'multiple literacies' (Cope & Kalantzis, 2000). Debates about the integration of digital technology into vocational education teaching and learning in the South African context are ongoing (Subban, 2018; Douse & Uys, 2019).

Another concept that has emerged in the literature to describe a text-based approach is critical language awareness. Critical language awareness is one of the strategies in language learning that could enhance the development of skills in critical thinking, critical literacy and critical discourse analysis. This strategy treats language learning as a site of struggle (Fairclough, 1992; Janks, 1995) where learners are shown how language positions them and how their language choices are both shaped by conventions and construct their identities. According to Janks (1995), critical language awareness is essential since it concerns itself with the 'politics of meaning'. It focuses on ways in which dominant meanings are maintained, challenged and changed.

Drawing from the discussion above, proponents of the various approaches to teaching and learning propose an integrative curriculum, one with an emphasis on preparing second-language students for effective use of the target language in different contexts. Theorists of ESL teaching and learning put forward strong ideas about these approaches, including the relative importance of the various components.

The component structure of the subject English was therefore investigated in greater depth in relation to the various language approaches in the field. The aim was to provide answers to the questions regarding what researchers and curriculum designers selected for inclusion in the NC(V) English curriculum, what an 'ideal' NC(V) curriculum would be, what the purpose of this curriculum should be, or even why NC(V) students should study English at all.

### **Research design and methodology**

As discussed above, a thorough understanding of the recontextualisation and reproduction fields of the curriculum must include an examination of the pedagogy of teaching and the assessment practices in vocational education. However, this article focuses only on analysing the nature of the subject English offered in the NC(V) programme, as outlined in the curriculum documents.

The NC(V) curriculum for English has been designed by university researchers, teacher-educators and textbook writers in the official recontextualisation field of this pedagogic device. These are representatives of the official texts elaborated on by the Ministry of Basic Education (an agent of the official recontextualisation field). Researchers and teacher educators follow the dictates of curriculum policy as formulated in the official recontextualisation field that has created contestations and controversies over the years. TVET English lecturers, like schoolteachers, are in the reproduction field and regulate pedagogic practice at the classroom level; they are not involved in the process of curriculum design. This study therefore analysed DOE's NC(V) subject, English, with a view to understanding which content knowledge and skills were selected for inclusion in the curriculum.

Document analysis (McMillan & Schumacher, 2006:448) was one method used to collect data for this study and article. The data generated were analysed qualitatively (Babbie & Mouton, 2001; McMillan & Schumacher, 2006). The English curriculum documents collected for analysis included subject guidelines for Levels 2, 3 and 4 that were prescribed to guide lecturers towards selecting content for teaching.

With its tendency for language to evolve, and considering the contestations about which content knowledge and skills to include in the English curriculum, the English teaching approaches discussed previously shed light on the way in which curriculum designers over time were guided by these approaches in making decisions about what content knowledge

and skills to include in the English curriculum offered in NC(V) programmes. This analysis therefore attempts to respond to these questions: What constitutes the curriculum for English in the NC(V) programme? How can analysis of the contestation between approaches to the teaching of English help one to examine this curriculum? Which versions of the various approaches to the teaching of English can be traced in the English NC(V) curriculum? How does the curriculum make the approach(es) explicit?

### **Analysis of curriculum statements and findings**

The English NC(V) curriculum's design is in the form of a list of outcome statements. The intended curriculum has only one subject outcome per curriculum area, with a few additional learning outcomes. The author attempted to code the intended curriculum using the approaches to the teaching of English advocated by theorists of second-language learning, discussed above. These included the 'content-based approach', the 'language across the curriculum approach' and the 'communicative approach'.

The content-based approaches, such as 'basic grammatical skills' and 'literary studies', display content knowledge such as grammar structures and literary stylistics. The features of these approaches are easily identifiable in outcome statements. However, the communicative approaches seemed to show verticality in their integration, in that competency in one element seemed dependent on the mastery of another. But the characteristics of these elements are underspecified, and they were therefore difficult to operationalise as a coding tool unless they were collapsed.

The author used the following codes to analyse the intended curriculum outcomes: generic (Gen), language structures and conventions (Gram), and literature (Lit). The generic code was used for those outcomes which integrate more than one approach to the teaching of English. For example, this outcome seems to integrate different approaches: *Students demonstrate the ability to find relevant information and details from the text.*

This outcome statement is vague and unspecified. Finding relevant information from (or in) the text might include focusing on the social meanings of the text with regard to the function and purpose of communication, in which case this forms part of sociolinguistic competence. The focus could also be on the cohesiveness of the structure of the text in the form and the coherence in meaning associated with discourse competence. In finding relevant information and details, the focus could also be on strategic competence, which covers the strategic use of words to communicate information. In general, then, the outcome statement seems to integrate more than one approach to the teaching of English and is consequently coded as 'generic' (Gen).

Other outcome statements seemed to denote elements of basic grammatical skills. For example: *Students demonstrate the ability to understand texts by identifying and explaining allusion, idioms and proverbs, denotation and connotation, origins of words, commonly confused words, abbreviations and acronyms.*

The above outcome focuses on teaching basic grammatical skills. The outcome is therefore categorised as ‘language structures and conventions’ (Gram).

The outcomes that denote literary studies were coded as ‘literature’ (Lit). These are outcomes such as the following: *Students demonstrate the ability to read, analyse and evaluate elements of creative texts (short stories).*

The above outcome focuses on a close study of the stylistics of a literary text and on the interpretation of the meaning of texts.

In trying to determine further the ways in which the outcome statements are aligned to approaches to the teaching of English, I focused on Topic 2 (Reading and Viewing) and on all three levels of the NC(V). This topic was selected in the hope that it would reveal an alignment with a variety of the codes used for the analysis and also provide a general view of the component structure of the NC(V) curriculum for English.

Reading and Viewing involves different aspects of language, such as reading to determine meaning from the text, to assess verbal and non-verbal forms of communication, analyse textual features and to assess multimodal forms of communication. The topic therefore embraces varied approaches to the teaching of English which other topics were not able to cover. Levels 2, 3 and 4 of Topic 2 (Reading and Viewing), and Subject Outcome 2.1 in particular, were used as an example to illustrate how the analysis was conducted (Table 1).

As noted in Table 1, of a total of 35 learning outcomes, 28 align to the generic code (Gen), with four outcomes aligned to literary studies (Lit) and three to grammar (Gram). This pattern is mirrored in all the outcomes in the three levels of the NC(V) programme. For example, in Topic 2 (Reading and Viewing), it was noted that:

- of 13 Level 2 outcomes, nine are generic (Gen), with two associated with literary studies (Lit) and two with grammar (Gram);
- in Level 3, eight of the 10 learning outcomes align with the generic code (Gen), with only one outcome each associated with literary studies (Lit) and grammar (Gram);
- in Level 4, out of a total of 12 outcomes, 11 are generic (Gen), with just one outcome aligned with literary studies (Lit); none of the Level 4 outcomes are aligned with grammar (Gram).

The above analysis confirms the dominance of an integrated communicative approach in the curriculum design, with only a few outcomes aligned to the content-based approach.

Few outcomes encapsulate the characteristics of explicit grammar structures, literary studies and critical language awareness.

TABLE 1: Topic 2: Reading and Viewing

	LEVEL 2		LEVEL 3		LEVEL 4	
<b>S.O. 2.1</b>	Read in order to determine meaning and make responses to the intended message		Read in order to determine meaning and make responses to the intended message		Critically read texts in order to infer meaning and make meaningful responses to the intended message	
	LO	Code	LO	Code	LO	Code
	Students demonstrate the ability to: <i>Pre-reading</i> 2.1.1 skim texts to obtain an overview of the text 2.1.2 scan texts to find specific information 2.1.3 make predictions based on questions by the lecturer 2.1.4 re-read texts to confirm information <i>During reading</i> 2.1.5 understand texts at a word level by identifying and using three strategies to determine meaning contexts, dictionary skills, word attack skills like root words, prefixes and suffixes 2.1.6 understand texts by identifying and explaining allusion, idioms and proverbs, denotation and connotation, origins of words, commonly confused words, abbreviations and acronyms 2.1.7 read, analyse and evaluate elements of creative texts (short stories) 2.1.8 find relevant information and details from the text 2.1.9 engage in extended reading for enjoyment <i>Post-reading</i> 2.1.10 demonstrate comprehension by answering questions accurately 2.1.11 summarise texts using visual representations 2.1.12 reproduce some of the text types in their own writing <i>Feedback</i> 2.1.13 respond to feedback to improve their performance	1. Gen 2. Gen 3. Gen 4. Gen 5. Gram 6. Gram 7. Lit 8. Gen 9. Lit 10. Gen 11. Gen 12. Gen 13. Gen	Students demonstrate the ability to: <i>Pre-reading</i> 2.1.1 examine the text thoroughly 2.1.2 predict content based on the title <i>During reading</i> 2.1.3 understand texts at a sentence and paragraph level with attention to the function of language structures and conventions 2.1.4 engage in extended reading for enjoyment <i>Post-reading</i> 2.1.5 distinguish between main and supporting ideas 2.1.6 identify the purpose of the text 2.1.7 demonstrate comprehension by answering questions accurately 2.1.8 create a point-form summary of texts 2.1.9 reproduce the text types in their own writing <i>Feedback</i> 2.1.10 respond to feedback to improve their performance	1. Gen 2. Gen 3. Gram 4. Lit 5. Gen 6. Gen 7. Gen 8. Gen 9. Gen 10. Gen	Students demonstrate the ability to: <i>Pre-reading</i> 2.1.1 examine the text thoroughly 2.1.2 make predictions 2.1.3 identify the purpose of the text <i>During reading</i> 2.1.4 understand texts as a whole 2.1.5 engage in extended reading for enjoyment <i>Post-reading</i> 2.1.6 navigate the internet to access texts regarding current events 2.1.7 answer questions critically and accurately 2.1.8 consider the points of view of more than one source in order to reach a conclusion 2.1.9 justify own opinion with reference to a text 2.1.10 summarise the main points of a written text by writing a precis 2.1.11 reproduce text types in writing <i>Feedback</i> 2.1.12 respond to feedback to improve their performance	1. Gen 2. Gen 3. Gen 4. Gen 5. Lit 6. Gen 7. Gen 8. Gen 9. Gen 10. Gen 11. Gen 12. Gen

In Topic 3 (Writing and Presenting), the NC(V) English curriculum statements state that students are expected to write and present correspondence texts such as letters and reports, and social media texts such as emails and notices, as well as visual descriptions such as mind-maps, timelines, tables and flowcharts. According to the Department of Higher Education and Training (DHET, 2013:10), the range of written texts produced at Level 2, for example, includes 'visual descriptions; procedural texts; classified and display advertisements; posters; formal letters; research reports; social media texts; social events invitations, and information texts'. The NC(V) English curriculum statements (DHET, 2013:10) also elaborate on the purpose of written activities in that the focus is on ensuring that students use correct language structures, grammar conventions and formats appropriate to social and academic contexts. It states:

Writing tasks in Level 2 focus on the word and sentence levels with emphasis on style, punctuation and spelling and include the following cognitive skills: explain, discuss, differentiate, compare, contrast, to prepare students for using accurate academic language in all required learning activities. (DHET, 2013:10).

The focus on the accuracy of language forms such as punctuation and spelling when engaging in the design and production of written texts is another indication of the alignment with the content-based approach. Moreover, from the curriculum statements it is evident that students of NC(V) English are not expected to produce extended essays such as argumentative or persuasive texts.

The NC(V) English curriculum uses the term 'Language and Communication in Practice' to describe Topic 4. At Level 2, this topic covers the theoretical principles of communication, such as 'principles of effective communication', 'elements of effective communication', 'barriers to effective communication' and 'categories and channels of communication' (DHET, 2013:11). This topic also covers the study and application of language structures and grammar conventions. According to the curriculum statements, the teaching of language should take place in the context of listening, speaking, reading, viewing, writing and presenting. The curriculum statement indicates that the process of teaching language in social and academic contexts involves:

the introduction of language structures and grammar conventions of South African English through the texts students are expected to listen to, read and view, and the accurate use of the language structures and conventions in the production of texts through either speaking or writing (DHET, 2013:11–12).

The curriculum presents grammar as a form of language use in the context of language skills such as reading, writing, speaking and listening. This is aligned to some competencies that make up the communicative language approach: grammar and sociolinguistic competence.

In summary, the above analysis, especially of the subject outcomes of Topic 2 (Reading and Viewing) in the NC(V) English curriculum, confirms the dominance of the integrated

communicative approach in the curriculum design, with a few outcomes aligned to the content-based approach. Few outcomes refer to the characteristics of explicit grammar structures, literary studies and critical language awareness. The dominance of the outcome statements that integrate more than one teaching approach and are therefore coded as 'generic' confirms the integrated nature of the outcomes-based NC(V) English curriculum. Such outcome statements display the opaqueness of the intended English curriculum. A few outcome statements, however, display an alignment with the content-based approach, such as grammar structures, language conventions and literary studies. But in general, the curriculum seems to focus more on what the students can do than on what they know. For Moore and Muller (1999), such knowledge seems to be reduced to a 'voice of membership'. They argue that a curriculum that is guided by what students can do, is also regarded as context-based. Such content is broken into isolated bits of knowledge and is diluted by the context. Context-based curriculum provides students with context-dependent knowledge rather than with a body of knowledge with systems of meaning. Context-dependent approach-designed courses may fail to provide students with access to knowledge that expands their horizons; instead they may only accumulate knowledge that traps them in the world they already know while undermining grounded knowledge of English.

On the other hand, the NC(V) English curriculum claims to prepare students for the world of work by giving them opportunities to practise and model a work environment through simulation. The outcome statements for Level 3 state that at this level the focus is on preparing the students to function well in a workplace context. However, the NC(V) English curriculum design does not follow the approaches proposed by 'English for specific purposes' and 'English for academic purposes', as discussed in the literature – these reveal what English courses that are intended to improve the proficiency essential to enhanced performance in the workplace should look like. In addition, the curriculum does not seem to show consideration of the students' occupational needs, that is, it does not focus on specific skills needed for different jobs that students are trained for, nor does it seem to consider helping students to deal with the technical terms of other content subjects. The students may benefit, though, from being taught highly specialised or technical vocabulary, specific forms and functions, and the way these forms and functions interrelate to produce coherent texts in target situations. These are areas that the current curriculum statements do not cover.

## **Conclusion**

English evolves and there are continuing debates about what content should be selected for inclusion in an ideal English curriculum. The pedagogic device employed in this article helped to shed light on the knowledge structure of the subject English because it provides a way of thinking about how knowledge is produced and the schism between its production and the way it is used in the curriculum through the process of recontextualisation. Understanding the pedagogic device provides some understanding of the way knowledge is selected in the design of the English curriculum. It also offers some appreciation of those

approaches to the teaching of English that are foregrounded and/or backgrounded in its design, and of how other approaches are represented, if at all, in the NC(V) English curriculum.

The findings from this study indicate that the NC(V) English curriculum designers followed an outcomes-based approach in its design. The curriculum does not give prominence to grounded content knowledge of a subject; indeed, it is more concerned with student competencies. This points to the generic nature of this curriculum. Furthermore, the NC(V) English curriculum does not prescribe networks for the NC(V) students nor does it include the production of extended texts such as argumentative and discursive essays. This limits students' opportunities to develop writing and reading skills and to develop their vocabulary – which are essential to academic success and further studies. This article suggests that attempts to improve the quality of TVET education have to involve robust decisions about curriculum policy and also changes to its design based on models suited to the educational, economic and employment needs of students in this sphere in South Africa.

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# Curriculum reform in agricultural vocational education and training in Zimbabwe: Implementation challenges and possibilities

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## **ABSTRACT**

There is a need for the agricultural technical vocational education and training curriculum in Zimbabwe to be reformed so that it can respond to changes in farmer demographics, the expanding roles of agricultural extension officers (AEOs), changes in technology and climate change. The current agriculture curriculum was developed for a different context altogether; therefore, it now lacks relevance to the prevailing socio-economic, political and environmental changes. There is a need for the curriculum to respond to the evolving needs of farmers, AEOs and institutions providing agricultural extension, and to match the changes in AEOs' occupation role profiles. This article draws on curricular documents from five institutions involved in the agricultural extension curriculum and policy, together with 22 respondents, with the aim of exposing gaps in the agricultural extension curriculum. In addition, the article explores the ways in which the curriculum can be reimagined to meet the needs of small-scale farmers, AEOs and emerging agricultural developments and digital technologies. The authors advance what might be the processes of change in the curriculum, highlighting the weaknesses of the current curriculum as well as what a more responsive curriculum for Zimbabwe should look like in the light of both local and international expectations. In so doing, it contributes to a wider international debate about agricultural education reform.

## KEYWORDS

*Agricultural education and training (AET), curriculum reform, conservation agriculture, agricultural extension, vocational education and training (VET)*

### **Introduction**

Internationally, the reform of agricultural vocational education and training (VET) curricula has gained prominence among policy-makers and academics. Agriculture is recognised as still being central both to economic development and to meeting the continuing challenges of poverty and hunger (Csete, 2018). Increasingly, too, it is seen as an important element of the responses to climate change. In this light, the problem of curricular misalignment has become widely recognised. This is the case in Zimbabwe, where important domestic contexts have also exacerbated the issue. There is general consensus that the current curriculum was conceptualised and designed for a different Zimbabwe which placed more attention on commercial farming and had few smallholder farming communities. Since the attainment of political independence in Zimbabwe in 1980, significant changes have taken place in the agricultural sector. Some have been due to land reform that opened up farming to new categories of farmer as part of wider changes in the political economy. Moreover, Zimbabwe has not been spared the changes in technology or climate change, both of which also significantly influence curriculum reform. The current agricultural extension curriculum was developed to meet the needs of a different Zimbabwe which had evolved since independence and the ensuing land reform. The need exists, therefore, for a more relevant and responsive curriculum which addresses the current and future needs of farmers. Agricultural education and training (AET) has struggled to maintain relevance in the face of major changes, and the Zimbabwean context has exacerbated such challenges. Zimbabwean colonialism took a particular form because the climate made it possible for a large white settler population to develop. As a result, both vocational and higher education, and access to professional and technical roles, were strongly shaped by the interests of the white population (Thondhlana, Abdulrahman, Chiyevo Garwe & McGrath, 2021).

Then, land ownership was highly unjust and unequal, with the most productive land being reserved for white-owned commercial farming and most of the black population being confined to small-scale production in ‘communal areas’ (Muzvidziwa, 2019). Inevitably, AET reflected these dynamics. During independence in 1980, there was an attempt to continue the presence of large-scale white-owned commercial farming while supporting the growth of small-scale black production for the market (Palmer, 1990).

For the purposes of this article, we sought to investigate whether the existing AET curriculum responds to the changing needs of stakeholders, the changing role profiles of AEOs, farmer populations, climate change and current developments in technology. The researchers sought to identify weaknesses and gaps in the curriculum and to suggest future directions for curriculum reform in Zimbabwe.

This article has three sections. In the first, we briefly discuss the international context of AET reform. Internationally, curriculum reform in AET is a topical issue, given the changing needs of stakeholders in agriculture that are driven mainly by climate change. The second section focuses on the methodology of the study. The final section presents the results and discussion. These are presented based on emerging themes, institutions offering AET, policy implementation capacity, finance and the economy, and developments in technology.

### **International context of agricultural education and training curriculum reform**

The agricultural sector remains central to Africa's economic growth even though it faces challenges of productivity (Afeti, 2018; Jjuuko, Tukundane & Zeelen, 2019). Low productivity among small-scale farmers is a result of rainfall variability due to climate change, unresponsive soils, low levels of fertiliser use and the limited use of hybrid seeds. Climate change and environmental degradation pose a risk to agricultural production; therefore, farmers ought to be able to respond to these changes by adopting more 'climate smart' approaches, such as growing more drought-tolerant crop varieties. What makes these challenges worse is the skills deficit among small-scale farmers and agricultural extension officers (AEOs) linked to the poor responsiveness of the agriculture curriculum, among other factors.

Building and strengthening skills for boosting agricultural production and value addition in the agricultural value chain is a policy imperative for the developing world (Afeti, 2018). Therefore, internationally, curriculum review in agricultural extension has been topical, dealing as it does with current developments and with responsiveness and relevance (Raidimi & Kabiti, 2019). The landscape of agricultural production in the global south has changed over the past several years (Vicol, Fold, Pritchard & Neilson, 2019; Brown & Majumdar, 2020). Agriculture has become more complex and diverse in modern times than it was previously. The changing nature of agriculture now calls for curriculum reform in agricultural and vocational education and training to provide it with relevance, responsiveness and sustainability (Jones, 2013; Terblanche & Bitzer, 2018; Magomedov, Khaliev & Ibragimova, 2020).

At the global level, vocational education programmes in agriculture have been criticised for being narrow in scope and misaligned to the needs of the labour market while those programmes at universities and colleges of agriculture at undergraduate level are too theoretical and not aligned to the needs of small-scale farmers and employers (Vandenbosch, 2006; Wedekind & Mutereko, 2016). Curriculum challenges in AET have also been noted at the global level. Freer (2015) argues that there is a need for curricular and pedagogical updates for AET systems to produce graduates with the knowledge, skills and attitudes that enable sustainable food security, improve livelihoods and facilitate the conservation of natural resources. Generally, the AET curriculum and pedagogy have been criticised as being outdated and unable to serve the needs of learners of agriculture and the labour market.

More broadly, the call for a responsive VET curriculum has caught the attention of a number of researchers in southern Africa (Gamble, 2003; Wedekind & Mutereko, 2016; Muwaniki,

2021). A responsive curriculum requires a rethinking of the nature of the curriculum, particularly of the relationship between the curriculum, everyday life and the world of work. For responsiveness to be achieved there is a requirement to consider the needs of learners, institutions, the labour market and also policy-makers (Wedekind & Mutereko, 2016; Muwaniki, 2021).

For instance, a study in South Africa by the Academy of Science revealed that there is an urgent need to improve the relevance and responsiveness of the agriculture curricula (ASSAF, 2017). According to Muwaniki and Wedekind (2018), the curriculum and teaching methods in AET emphasise theory at the expense of (minimal) practical training – because most lecturers in the sector do not have the relevant practical skills themselves. AET providers in sub-Saharan Africa often face challenges regarding the curriculum, poor institutional linkages, new technologies and dilapidated infrastructure and equipment (Freer, 2015; Minde, Terblanche, Bashaasha, Madakadze, Snyder & Mugisha, 2015). There is therefore an urgent need to align AET curricula at all levels in the education sector to the key challenges facing the agricultural sector, with a particular focus on the needs and requirements of emerging farmers and national priorities. These priorities include food security, rural wealth creation and sustainable development (Raidimi & Kabit, 2019). Achieving this goal will entail broadening the curriculum to include emerging issues such as climate change and entrepreneurship, especially to support emerging smallholder farmers.

Institutions offering agriculture studies and other training providers have come to realise the need for curriculum review in line with market demands. However, there is limited knowledge about the implementation of successful curriculum development programmes, especially in the area of agricultural extension (Ngwenya & Akeredolu, 2017). Moreover, the demographics of farmers in the global south have changed, in particular with the emergence of more young farmers. Brown and Majumdar (2020) note that young farmers face unique sets of challenges and opportunities not present in previous generations. Some of these are indicated below.

In the first instance, recruitment into AET institutions in sub-Saharan Africa has shown an urban bias. This is because urban dwellers have easier access to the media and therefore obtain information on educational and training programmes more easily and faster than their rural counterparts. But even if urban and rural dwellers had an equal chance of applying for admission to programmes, often the urbanites are more likely to meet the admission requirements. This misalignment in recruitment also means that graduates from the urban areas are likely to return to the cities and towns after graduating to obtain employment rather than working in the rural areas as AEOs (Mudege, Mdege, Abidin & Bhatasara, 2017). The participation of youths in agriculture in sub-Saharan Africa is also affected by institutional and structural barriers, including primarily a lack of access to productive resources – in particular, land (Jjuuko et al., 2019) – and the fact that some young farmers also lack the necessary knowledge and skills even if they may have access to productive resources.

## **Methods**

The article draws on evidence gathered from a study on Reimagining Agricultural Extension through a Learning Lens (RAELL) conducted from January to July 2021. The RAELL project was conducted in South Africa, Uganda and Zimbabwe. This article reports on the Zimbabwean case study. Although the RAELL study was more extensive and comprehensive, this article emanates from the section on curriculum reform in AET.

Although Zimbabwe has 24 (14 public and 10 private) universities and more than 100 degree-awarding public and private institutions (Garwe & Thondhlana, 2019), the data which informed this study were drawn from an analysis of the curriculum of only five selected providers of AET: two universities, two colleges of agriculture and one vocational training centre.

Stakeholder interviews were conducted with 22 participants: eight farmers, four AEOs, six lecturers in Agriculture and four policy experts from the Division of Extension and the Division of Research of the Ministry of Agriculture. The majority of the interviews were conducted face-to-face, with only two interviews with senior officials in the Ministry of Agriculture being virtual (on the Zoom platform) in compliance with the COVID-19 protocols. The other two interviewees on policy matters were retired provincial AEOs. Of the eight farmers interviewed, five were female and three were male. The distribution of the farmers ensured that all the categories of farmer were represented (A1, A2 and large-scale commercial farmers). Four AEOs were interviewed. Of these, three were females who worked in government service while the only male AEO worked in private extension services. For the purposes of data analysis, on the one hand, the authors used content analysis to analyse the curriculum documents from the institutions under study, and on the other, the interviews were analysed using thematic analysis (Vaismoradi & Snelgrove, 2019; Anderson & Gagliardi, 2021).

## **Results and discussion**

This section presents and discusses the findings of the study, grouped under these main topics: a lack of institutional capacity to implement the curriculum; the inadequacies of policy and implementation capacities; financial and economic barriers to curriculum reform; technological barriers; the inability of the curriculum to meet the needs of small-scale farmers; and the negative impacts of climate change.

### *Lack of institutional capacity to implement the curriculum*

This section is based on the findings derived from curriculum review documents for the six institutions offering AET in Zimbabwe: three universities, Bindura University of Science Education (BUSE), Zimbabwe Open University and Lupane State University; two agricultural colleges, Gwebi College of Agriculture and Mlezu College of Agriculture, which offer training

leading to the awarding of certificates and diplomas in Agriculture; and Mwenezi Development Training Centre, which awards certificates after the successful completion of short courses in Agriculture (see Table 1). Independent training centres such as the Mwenezi Development Training Centre offer training and partner with a number of international organisations and non-governmental organisations (NGOs), such as the World Food Programme, Plan International and the Norwegian Agency for Development Cooperation. Research organisations such as the Agricultural Research Trust also offer training to AEOs, mainly through farm visits, field days and practical demonstrations of the research trials that are used to showcase the latest technologies.

The duration of training for the certificate level at Mwenezi Development Training Centre and at the other two colleges of agriculture is two years, whereas for the diploma courses the duration is three years. The colleges offer both theoretical and practical training and aim to produce graduates in Agriculture capable of delivering agricultural support services, practical farming, research, extension and farmer training.

Most of the colleges offer diplomas and certificates in conjunction with state universities. For example, Gwebi offers diplomas in Agriculture together with the University of Zimbabwe. There are also several private agricultural colleges, such as Blackfordby Agricultural College. These offer diploma courses in addition to tailor-made short courses, after which trainees are awarded a certificate of attendance. Private colleges also offer the integration of information and communication technologies in agricultural market intelligence modules.

Mlezu College offers four certificate programmes in Agriculture, namely: Crop Production, Animal Production, Agricultural Production, and Farm and Agri-Business Management. Of these four programmes, Agricultural Extension is offered in the Certificate in Farm and Agri-Business (as one of the ten modules, contributing 10% of the total credits).

The example of Gwebi College of Agriculture will be used to illustrate the Diploma in Agriculture. Gwebi offers four diploma programmes in Agriculture: Crop Production, Animal Production, Agricultural Engineering, and Farm and Agri-Business Management. After completing any of these diploma programmes, graduates qualify to work as an AEO. Regarding the curriculum breakdown, of the four programmes, only the Diploma in Agriculture, Farm and Agri-Business Management has a module on Agricultural Extension. Coincidentally, this is the final module. For the other three diplomas, there is no specific module on Agricultural Extension.

Students who graduate with the Diploma in Agriculture qualify for the BSc in Agriculture. Although the Diploma in Agriculture is an acceptable qualification for graduates to practise as AEOs, it has become common for graduates to pursue higher qualifications – the pursuit of professional development programmes has intensified in Zimbabwe (Muwaniki & Wedekind, 2018). The BSc Agriculture degrees offered in these institutions have a duration of four years.

**TABLE 1:** Higher institutions' Agriculture-related programmes

<b>INSTITUTION</b>	<b>DEGREE OR DIPLOMA</b>	<b>CERTIFICATE PROGRAMMES/ MODULES</b>	<b>WEIGHTINGS OR CREDITS (%)</b>	<b>NOTES</b>
Gwebi College of Agriculture	Diploma in Agriculture (3 years)	Crop Production Animal Production Agricultural Engineering Farm and Agri-Business Management	Agricultural Extension offered only in Certificate in Farm and Agri-Business Management	Students who graduate with the Diploma in Agriculture qualify for the BSc in Agriculture
Mlezu College of Agriculture	Diploma in Agriculture (3 years)	Crop Production Animal Production Agricultural Production Farm and Agri-Business Management	Agricultural Extension only 10% of Certificate in Farm and Agri-Business Management	Students who complete qualify for work as AEOs as well as for further studies
Mwenezi Development Training Centre	Certificate in Agriculture	Crop Production Animal Production Farm Machinery and Engineering Agri-Business and Entrepreneurship	Agricultural Extension approximately 5% of the Agri-Business and Entrepreneurship module	Students who complete the Certificate in Agriculture qualify to be skilled workers after trade tests
Bindura University of Science Education (BUSE)	BSc degree in Agricultural Economics, Education and Extension (4 years)	40 modules Science-related Agricultural Application Socio-economics Agricultural Extension	± 26% 42% 22% 10%	Students who complete qualify for work as extension officers, scientists, financial services and for further studies
Zimbabwe Open University	BSc Agricultural Management	34 modules and a minimum of 136 credits 60 credits Science-related 72 credits Applied Agriculture 4 credits Agricultural Extension	44% 53% 3%	Students who complete work in extension, as scientists and qualify for further studies
Lupane State University	BSc Crop Science (4 years)	36 modules Science-related Applied Agriculture Agricultural Extension	50% 38% 10%	Industrial Attachment in the third year

BUSE offers a BSc degree in Agricultural Economics, Education and Extension. The majority of the universities, however, offer agricultural extension only as part of the BSc Agriculture programmes, with an emphasis on Agricultural Economics. These programmes are responsible for further developing the knowledge and skills of AEOs who would have graduated from diploma-awarding colleges. The universities also recruit students directly from the advanced diploma levels who possess passes in science subjects.

The distribution of modules in the BSc Agricultural Economics, Education and Extension offered at BUSE is as follows: out of a total of 40 modules, the science-related modules constitute about 26% of the total credits; Agricultural Application constitutes 42%; socio-economic modules 22%; and Agricultural Extension 10%. At the Zimbabwe Open University, over the four years, a student will have completed a total of 34 modules and must acquire a minimum of 136 credits to graduate. Of these, 60 credits are for science-related modules; 72 credits for Applied Agriculture and only four credits are for Agricultural Extension.

The distribution of credits is not too different at Lupane State University. For example, to complete the BSc in Crop Science programme, a student has to pass 36 modules, including Industrial Attachment in the third year. The credits for this programme are not spelt out; however, one can assess the distribution of the modules, which is as follows: 50% of the modules are science-related; 38% are linked to Applied Agriculture; and 10% to Agricultural Extension.

In some universities, Agricultural Extension is offered only as an elective module. The distribution in other universities in Zimbabwe also reveals that Agricultural Extension is given little attention in BSc Agriculture degree programmes. This is also the case for the certificate- and diploma-awarding institutions. In the case of the universities, another cause of concern is that there are still very few higher degrees in Agricultural Extension in Zimbabwe. On paper, many institutions indicate that they offer these programmes, but the situation is different on the ground. The underlying reason is that the majority of these institutions lack the capacity to offer higher degrees, which, as a consequence, affects the supply of high-level agricultural scientists in the market.

### *Inadequacies of policy and implementation capacities*

The (non-)availability of a policy for Agriculture education and training is both an enabler and a barrier to curriculum reform. The presence of a policy on agricultural extension for the country is a key enabler of the reform of the Agriculture curriculum in Zimbabwe. Internationally, poor policy implementation is a barrier to effective curriculum reform in the sphere of agriculture. Although the ministry has a policy framework to guide AET in Zimbabwe, as outlined above, the main challenge is the implementation of the policy.

There are several dimensions to this. First, although the policy framework acknowledges the need for a responsive AET curriculum, the challenge is to have a well-adapted curriculum in place to suit the level at which the training takes place. For example, training takes place in

private agricultural colleges, such as Blackfordby, and in public agricultural colleges, such as Chibero, but the context of the training is not the same in these colleges. Secondly, the curricular reform in AET has to deal with the challenge of the misalignment of skills needed by smallholder farmers. For example, smallholder farmers require extension services in the use of appropriate technologies, yet for training in the agricultural colleges the emphasis is on the technology suitable for large-scale commercial farms. Thirdly, the reconceptualisation of the AET policy is not the same in all the training colleges. This is because the national AET policy at central government level in Zimbabwe is reconceptualised at a particular agricultural training college, reproduced in the classroom during teaching and learning and then applied by extension officers as they pass it on to farmers. This process of reconceptualisation is influenced by both discipline-specific requirements (internal dynamics) and external requirements and this therefore leads to variations. Interviews with lecturers in Agriculture at Great Zimbabwe University revealed that the introduction of the Certificate and Diploma in Sugarcane Agriculture, for example, has been in response to the requirements of already practising farmers in the sugarcane-dominated Lowveld area of Zimbabwe. The courses include those specific to Agricultural Science and Social Science courses related to culture and heritage.

Apart from the usual technical and scientific knowledge of agriculture, farmers and agricultural practitioners in the global south require entrepreneurial skills and competencies to enable them to be able to adapt to the current uncertainties (Brown & Majumdar, 2020). Entrepreneurship training is expected to include modules on social, civic and economic competencies – all of them not only important in the labour market generally but also in supporting their personal development and promoting active citizenship.

The Ministry of Higher and Tertiary Education, Science and Technology Development introduced Education 5.0 in 2018, moving away from what it terms ‘Education 3.0’, which characterised colonial and postcolonial education. The process was spearheaded by the Zimbabwe Council for Higher Education (ZIMCHE). The shift from Education 3.0 to 5.0 was necessitated by the need to prepare higher and tertiary students for entrepreneurship and job creation and also to meet the country’s developmental needs (Muzira & Bondai, 2020). Education 3.0 failed to drive industrialisation because it focused mostly on theory. At university level, for example, Education 3.0 had only three pillars: Teaching, Research and Community Engagement. Education 5.0 added Innovation and Industrialisation to make five pillars.

The success of Education 5.0 is dependent on a number of factors, including programme, promotion, physical and financing infrastructure (Muzira & Bondai, 2020). The reform of programme infrastructure meant that wide-ranging stakeholder consultations had to take place across the institutions of higher education and include curriculum specialists, industry and commerce. The process of programme reform led to the development of a Minimum Board of Knowledge (MBK) for all disciplines, including Agriculture. Subjects such as Entrepreneurship Agriculture, Innovation in Agriculture and Smart Agriculture

were incorporated into the Agriculture programmes across the higher and tertiary institutions. The other aspect which the reform process managed was to achieve uniformity of the MBKs across the universities. However, in order to maintain institutional ‘autonomy’ and programme uniqueness, each institution was left to introduce a few subjects that are appropriate to their niche area. The new curricula under Education 5.0 require problem-solving and value-creation to be integrated into the learning process in Zimbabwe’s higher education system. The teaching methods and delivery strategies envisaged in line with Education 5.0 include students’ involvement with productive farms in order for them to acquire hands-on skills, increased in-the-field exposure to the practicals included in the curricula, improving the condition of laboratory equipment, exposing the students to new technologies, and arranging and implementing exchange visits of students both nationally and regionally in order for them to acquire innovation skills and exposure to modern technology. Some of the support required to implement the new curriculum successfully includes introducing or upgrading staff training and refresher courses, offering teaching staff training in the latest teaching and delivery methods, facilitating train-the-trainer courses, and providing greater access to resources and facilities for the internet and connectivity.

According to the Ministry of Agriculture’s (2012) Comprehensive Agricultural Policy Framework (2012–2032), the policy-related objective would be to promote a responsive AET system. In this regard, the government envisages implementing the following policy statements:

- promote an active and demand-driven agricultural education and farmer training system to produce knowledgeable and skilled practitioners;
- promote the adaptation of the curricula to meet the knowledge and skills requirements of players in the agricultural sector;
- promote the upgrading of modern teaching and training technologies that serve to redress the challenge of gaps in current agricultural knowledge and skills; and
- promote the enrolment of women in training to levels commensurate with their role in the sector.

Regarding the policy issue of resourcing the education and training, the policy objective is to have in place adequately resourced AET services. The main policy statements to be implemented under this policy objective include:

- providing communication infrastructure and information and communication technologies (ICT) at agricultural institutions;
- building institutional and human capacity; and
- promoting private-sector participation in AET.

The ICT infrastructure still needs to be developed adequately across institutions. For instance, the implementation of e-learning programmes is still problematic, even in long-

established universities. In addition, agricultural colleges are often located in remote areas where the physical ICT infrastructure is expensive to instal. This hinders the effective use of digital technology in these institutions (Brown & Majumdar, 2020). According to the policy on responsive education, training and curricula, the policy objective would be to devise a curriculum that constantly meets the requirements of the sector. The government is expected to establish a system that reviews the curricula and practice regularly, and which regularly streamlines existing agricultural training courses so that they remain relevant and promote the participation of working agricultural professionals in the training process while also promoting linkages with local and regional colleges.

Although the policy appears to be commendable, the successful implementation of the required financial support for its rollout remains an ongoing challenge. Even though Zimbabwe has some universities with rich histories and infrastructure, such as the University of Zimbabwe, and well-established agricultural colleges, such as Gwebi and Chibero, the institutional capacity of these universities and colleges has been hamstrung by the country's poor economic performance over the past two decades.

The conclusions to be drawn from the findings established by Brown and Majumdar (2020) indicate that the Zimbabwean case is unique in that all the institutions providing agricultural technical and vocational education and training (TVET) have demonstration farms at their disposal on which practical training is offered to students. However, funding these demonstration centres remains problematic.

In line with these policies, a new curriculum for AET has been launched by the MLAFWRD as part of the response to these policy issues and challenges. The reform of the curricula is also partly driven by the challenges identified under the National Agriculture Policy Framework (2019–2030) (Ministry of Lands, 2018). Some of the challenges identified under Pillar II on agriculture, knowledge, technology and innovation systems are the inadequacy of the country's skilled manpower, the sub-optimal provision of practical agricultural training and the lack of coherence between the Agriculture curricula and industry needs. Regarding practical agriculture training, the major criticism has been the lack of hands-on training, with college students having limited practical exposure in the field due to the lack of facilities and resources. The training has also been criticised for being largely theory-based and for lacking access to modern technologies and adequately equipped laboratory facilities. These deficiencies seriously disadvantage the Agriculture students, making it difficult for them to bridge the gap between their studies and the workplace – the one not reflecting the other at all closely. In the global south, it has been noted that the lack of industry experience and knowledge of vocational pedagogies among the facilitators of AET contributes to the weak and inadequate implementation of the curricula (Brown & Majumdar, 2020).

The new curriculum launched by the ministry is consequently expected to close the gaps identified in order to improve the curricula and adapt them to meet the contemporary needs

of the industry. The new curricula are also expected to benefit society and the economy as they aim to redress the skills shortage identified in the National Critical Skills Audit of 2018 (Ministry of Higher and Tertiary Education, 2018) – the Critical Skills Audit report indicated a skills deficit of 88% in the Agriculture cluster.

In addition, the new curriculum will also contribute to resolving some of the policy gaps in AET that are identified in the various policy initiatives of the ministry, such as the Agriculture and Food Systems Transformation Strategy (2019), the national climate policy and the gender policy relating to Agriculture.

### *Financial and economic barriers to curriculum reform*

Financial barriers at the government level usually cascade down to institutions offering AET, with concomitant negative impacts on curriculum reform (Davis, 2020). The instability in agricultural produce markets induced by economic liberalisation in the global south affects the national fiscus (Sundaram & Von Arnim, 2008). This same instability also limits the ability of individuals to invest in their education in Agriculture or to access some AEO services. As a consequence, the agriculture sector is weakened.

Financial challenges in AET institutions were exacerbated by the exceptionally poor performance of the Zimbabwean economy after the relatively prosperous first decade of independence. By the early 1990s, Zimbabwe was experiencing a severe economic downturn, increasing political contestation and large-scale emigration. Among the most contentious issues of the period was land reform (Muwaniki, 2019). In addition, the Zimbabwean AET curriculum contains weaknesses influenced by a number of factors highlighted in the section below. Some of the weaknesses are located more broadly in the wider community whereas others are unique to the tertiary and higher institutions; others arise from discipline-specific challenges.

The economic liberalisation policy adopted by Zimbabwe in 1991 had unintended negative consequences for the economic performance of the country as a result of the imposition of substantial cuts in subsidies (Kanyenze, Kondo, Chitambara & Martens, 2011). At the macro level, the poor performance of the Zimbabwean economy over the past three decades has had negative consequences for the provision of AET. These challenges have been particularly severe for the government-run universities and colleges and they have resulted in shortages of qualified personnel. Moreover, the late 2000s were characterised by a politico-economic crisis that culminated in unprecedented hyperinflation, which led to the decline in the country's gross domestic product by 50% in 2008 (Gukurume, 2018). The political impasse that arose soon after the highly volatile Zimbabwean elections of 2008 had a further severe effect on the economy. The economy was even further affected by the international sanctions imposed on Zimbabwe as a consequence of the violent land reform programme. The poor performance meant that the sources of funding for non-state providers of AET were also adversely affected.

At the micro level, the financial challenges faced by the state universities have adversely affected their investment in facilities, equipment and training materials. The lack of proper investment in agricultural research and education and the remuneration of staff has in turn affected the retention of highly skilled scientists (Masere & Worth, 2021). One female AEO noted that

when resources are scarce, male AEOs are prioritised in the allocation of motorbikes. This compromises the work and morale of female AEOs.

She went on to note that one ends up thinking that they don't belong.

It is important to note that the curriculum reform processes under way are financed largely by donors, with the implementation support channelled through NGOs. The funding has facilitated stakeholder consultations and contributions to the curriculum reform process. In particular, private-sector support of AET has become critical to supporting agricultural education programmes. In Zimbabwe, this support is quite notable, especially that from seed companies such as Pannar Seeds, Cargill and SEEDCO. Under normal circumstances, AET is mainly provided through publicly funded agricultural colleges, complemented by a few privately funded agricultural colleges. This means that the sustained implementation of the reforms requires sustainable funding from the fiscus. However, the funding from that source has been limited due to the subdued overall performance of the economy, which has limited financial support to all sectors.

### *Technological barriers*

While there is often excessive hype regarding the 'fourth industrial revolution' (4IR) (Avis, 2020), clearly, new technologies are being applied to agriculture globally in connection with such notions as 'precision agriculture' (Gebbers & Adamchuk, 2010). The main three mechanisms that are required for further progress towards the digitisation of and further progress in agriculture are the Internet of Things, nanotechnology and digital education (Magomedov et al., 2020). The Internet of Things is an interrelated or integrated system that entails a computing device, a mechanical device, and a digital component or objects that together are used, for instance, to inform farmers about unexpected adverse weather conditions and the need to protect plants (Mishra, Kumar & Patel, 2021). Precision agriculture is used to improve farming through digitalisation (Fausti, Erickson, Clay, Schumacher, Clay & Skouby, 2018). However, the pace of introducing and implementing digitally enabled agriculture is much slower in countries in sub-Saharan Africa than in other regions (Porciello, Coggins, Mabaya & Otunba-Payne, 2022). But that is not to say that it should not be introduced.

As noted above, new technologies are being introduced into agriculture globally. Yet a curricular or an institutional response to embracing them is made more difficult by many of the challenges noted above. Curricula have been slow to respond to new trends such as

precision agriculture, to the adoption of remote sensing and also to the use of geographic information systems (GIS) (Lele & Goswami, 2017). In fact, the adoption of technology has become a key enabler in the dissemination of agricultural knowledge and practices by farmers and extension officers (Ismoilov, 2021; Masere & Worth, 2021); this means that their inclusion in Agriculture degree and diploma programmes has become essential. Besides, recent studies have revealed that technology is an important tool with which to encourage engagement among the current generation of students, including motivating learners to enrol in programmes and to encourage student retention (Bond & Bedenlier, 2019). The importance of technologies in and to learning has been intensified further during the COVID-19 pandemic, having created a number of new challenges in AET. One example of the challenges facing AET was the impossibility of engaging in practical and hands-on experiences during lockdowns and enforced social distancing, despite their importance to learning, especially in the area of Agriculture (Davis, 2020). However, these radical changes have presented challenges that have included poor access to digital technology and a consequent lack of skills required to use digital technology (Mukute, Burt, Francis & De Souza, 2020). The digital divide between rural and urban Zimbabwe is therefore a barrier that we cannot ignore and it must be an important priority to break it down.

As a result, an infusion of agricultural technologies could be the key to a responsive and relevant AET curriculum in the context of climate change. One AEO recommended that more resources be allocated to the inclusion of technologies in digital agriculture in the form of projectors and smart phones with internet capabilities:

Farmers are practical people hence without projectors it is difficult for an AEO to teach some concepts and practices. Farmers would understand more when there is that practical interaction with technology. Another challenge facing AEOs is the inability to use technology. In that regard, there is need for some refresher courses, especially among older AEOs.

But with new technologies come pedagogical challenges. According to Davis (2020), graduates of AET programmes at all levels also need training in soft skills that make use of modern technologies to manage extension approaches. These would include managing groups and participatory extension. In addition, the need for training in climate change mitigation needs to be emphasised because it is one of the most important emerging issues affecting agriculture.

### *Inability of curriculum to meet needs of small-scale farmers*

While some land reforms took place after independence, the most significant programme (regarding coverage, beneficiaries and impact) was the Fast Track Land Reform Programme (FTLRP), which began in 2000 (Scoones, Marongwe, Mavedzenge, Murimbarimba, Mahenehene & Sukume, 2011; Mkodzongi, 2013). This programme introduced new categories of farmer, namely, the A1 and A2 farmers.

A1 farmers are typically newly resettled smallholder farmers who were removed from the overcrowded communal areas. Largely socially and economically excluded, they engaged in smallholder production either on small farms or in villagised arrangements with shared grazing and clustered homes (Njaya & Mazuru, 2014).

A2 farmers are those who were able to take over previously white-owned large commercial farms. They were typically well educated and economically and politically privileged (Zamchiya, 2011; Muwaniki, 2019). Along with the remaining white commercial farmers, the A2 farmers had the capacity to employ qualified farm managers and had unlimited access to agricultural extension services.

By 2010, the formal land reallocation had resulted in the transfer of land to nearly 170 000 households; moreover, 40% of these beneficiaries were supposed to be women (Scoones et al., 2011; Mutambara, Jiri, Jiri & Makiwa, 2013). This led to a massive need for training and for radically different approaches than had been followed previously (Zamchiya, 2011; Mutambara et al., 2013).

Because of this, the need arose to examine learning platforms that offer, for example, education and mentoring in farming skills development and in agriculture extension and information in order to induce desirable outcomes in the economy (Matondi, 2012). According to Mutambara et al. (2013), there was a resultant increased demand for AEOs, who were now expected to extend their services to the rural communal sectors which had previously been sidelined by the colonial agricultural policy. Agricultural training colleges, universities and vocational colleges all expanded their agricultural programmes after the year 2000 to respond to this demand. However, the training curricula in AET have been criticised for not developing the appropriate competencies in AEOs. And, furthermore, the curricula and teaching methods have been criticised for emphasising theory at the expense of practical training, which remained inadequate, because most of the lecturers do not have the relevant practical skills themselves. When he launched the new curricula, the Minister of Lands, Agriculture, Fisheries, Water and Rural Development indicated that the current rigid agricultural education system has not been responding to the requirements of farmers resettled under the land reform programme, which has led to agricultural production and productivity being negatively affected (The Herald, 2020).

In the light of these developments, agriculture colleges ought to offer curricula that are practical, relevant and inclusive – and both farmer-centred and market-oriented. Furthermore, challenges are also faced at the institutional level because most institutions have poor institutional linkages, poor access to technology, and dilapidated or outdated infrastructure and equipment. In Zimbabwe, therefore, one of the main challenges facing agriculture is to align the curricula to the key requirements and needs of emerging farmers resettled under the FTLRP. Accordingly, curricula need to take into account both the particular needs of the A1 and A2 farmers, on the one hand, and national priorities such as food and nutrition security, on the other. Real cases help to put these problems into perspective: one farmer who specialises

in market gardening revealed that he faces challenges in conducting his enterprise. His biggest challenge is in relation to accessing the markets for his produce. He noted that new farmers like him lack the knowledge or expertise to deal with markets, even when he has a good crop. Another farmer, who specialises in horticulture, had this to say:

As a farmer, do not venture into market gardening without knowledge of markets, pests and diseases that affect horticultural crops. I made that mistake and would not want any new farmers to fall into that pit.

Yet another cause for concern revealed by studies on AET is the challenge of the misalignment between the gender of AET graduates and the smallholder farmer population. Smallholder production in sub-Saharan Africa is dominated by female farmers. Despite this, most graduates in AET are men (William, Mboya & Wainaina, 2019; Mutambisi, Mavesera, Madondo & Dube, 2021). As a result, women are significantly underrepresented in AET in proportion to their broad responsibilities in farming. An interview with one female AEO revealed these challenges of gender bias in agricultural extension:

Agricultural extension is traditionally a male domain, farmers are sceptical to engage your services as a female AEO ... they will wait for you to prove yourself that you can do the job just as your male counterparts.

A study by Mutambisi et al. (2021) revealed that gender has not been adequately mainstreamed in the AET curriculum in colleges. There is a need, therefore, for gender-sensitive recruitment and gender mainstreaming in AET that targets mostly women (Mutambisi et al., 2021). Another aspect is the training of female farmers as trainers of other women, as this provides them with an opportunity to share their experience and knowledge. A further weakness is that training and micro-credit programmes are not interlinked so as to transfer agricultural technology effectively to women farmers. Yet another criticism of the system is that in extension too little emphasis is placed on areas such as marketing, food processing and post-harvest sciences, where women have tended to be best represented.

### *Negative impacts of climate change*

In Zimbabwe, the negative impacts of climate change are being felt in the form of increasing temperatures, increasing diseases, alternating floods and droughts, and shifting agro-ecosystem boundaries. There is therefore a great and urgent need for agricultural practices to adapt to these changes. Conservation farming practices are a good example, and these target mostly smallholder farmers in communal and resettlement areas. Locally known as *Pfumvudza/Intwasa*, conservation agriculture is a major government response to climate change and is taught to farmers mostly in communal and resettlement areas (Mucheri, 2021; Mujere, 2021). Conservation agriculture aims at conserving moisture and soils in rain-fed smallholder farming systems.

One AEO has implemented conservation agriculture by using raised gardens. This method uses plant residues to trap moisture in the ground. This works well in situations with low levels of water. However, knowledge of climate-smart agriculture is not the same for all AEOs: there are some who lack this knowledge entirely, which means there is a need to implement capacity-building programmes to promote climate-smart agriculture more widely. This point was noted by one retired AEO:

Because of differences in agro-ecological zones as well as climate change the extension officer should have solid knowledge in a variety of crops, especially small grains which are drought resistant. Again, these days conserving moisture is quite topical hence there is need for extension officers to possess such knowledge.

A recent study by Mbanyele, Mtambanengwe, Nezomba, Groot and Mapfumo (2021) showed that crop yields and water-use efficiency were improved in fields tilled employing conservation agriculture and that the yields were larger than on conventionally tilled fields. Conservation agriculture has the potential to increase crop productivity even under wetter conditions because it enables excess water to be shed from fields (Mbanyele et al., 2021). However, further research is still required on the way conservation agriculture can be applied to other crops that smallholders typically grow in addition to maize – for instance, sweet potatoes, sorghum and pearl-millet.

Poor soil fertility is another barrier to crop productivity and farmers' adapting to climate change. Soil fertility is an underlying production challenge in Zimbabwe, particularly for smallholder communal farmers who depend on producing crops in soils that are intrinsically low in levels of essential nutrients (Mtambanengwe & Mapfumo, 2005; Mtali-Chifadza, Manzungu & Mugabe, 2020). And even though extension officers are generally aware of the problem, they are limited in their responses to finding solutions to the specific fertility problems in farmers' fields. One AEO argued that sometimes farmers are resistant to adopt the information and knowledge they receive from extension officers. She pointed out that farmers are adults and have their own ways of solving their own challenges. It is also difficult for most smallholder farmers to test their soils because of their limited access to research stations, the limited number of laboratories and the high costs of testing in the country. The implementation of *Pfumvudza* has great potential to enhance soil fertility and household food security, in addition to reducing carbon emissions (Mujere, 2021).

## **Conclusion**

AET continues to be of enormous importance globally, with the climate crisis making it even more pressing. In the case of Zimbabwe, as this study reveals, attempts currently under way at reforming the AET curriculum are faced with challenges such as the lack of institutional capacity, inadequacies in policy, financial and economic barriers, technological barriers, and the inability of the curriculum to meet the needs of small-scale farmers. While the education

of agricultural scientists and managers or owners of large farms cannot be neglected, there is a particularly pressing need to train AEOs to work with the vast majority of farmers who remain small-scale producers. For these reasons, the AET curriculum ought to respond to the changing needs of stakeholders, the changing role profiles of AEOs, the demographics and specific needs of farmer populations, climate change and recent developments in technology. In addition, the AET curriculum must move away from the influence of big agriculture and big science on the Agriculture curriculum that is currently the case. However, through an analysis of recent curricular documents and the transcripts of interviews with key stakeholders, the limitations of some aspects of the current reforms have been highlighted in this article, as has the over-ambitious nature of other aspects, given the current resource context. In outlining the challenges but also the possibilities of the case, this article contributes to a wider international debate about education reform in the field of agriculture.

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# Designing complex, challenging and creative assessments for work preparedness: A review of competency-based assessment

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## ABSTRACT

This review article reports on assessment practices drawn from the recent international Technical and Vocational Education and Training (TVET) literature. The literature suggests that college tasks, if they are to be valid, need to assess something of the complexity of the social and material variances of authentic work situations. This is referred to broadly as a form of competency-based assessment (CBA), which is an advance on earlier, more limited technically orientated CBA interpretations. The purpose of the article is, first, to provide teachers with snapshots of innovative practices from CBA in order to enrich their understandings of assessment. Secondly, it is proposed that the CBA literature may provide the sector with assessment tools to mitigate some of the criticisms of current assessment practices in quality reviews.

## KEYWORDS

*Competency-based assessment (CBA), assessment for work, authentic assessment, assessment principles*

## **Introduction**

'Assessment drives learning' is a much-used dictum in education, reflecting the significant role assessment plays in the curriculum (Ramsden, 1992). Despite this assertion, much less attention has been paid to assessment than to other facets of the vocational curriculum, such as instructional design and pedagogy (Achtenhagen & Winther, 2014; Gulikers, Runhaar & Mulder, 2018). As testimony to this, the desktop research conducted for this article was able to locate only approximately 46 international and local articles focused primarily on internal college-level vocational assessment. Similarly, Yusop, Rasul, Yasin, Hashim and Jalaludin (2022), in their Technical and Vocational Education and Training (TVET) assessment review, were able to narrow their research to 29 assessment articles between 2015 and the present.

This review article reports on research into college-level vocational assessment practices from the past 15–20 years. Vocational education in the TVET sector is qualitatively different from more regular schooling, as it is based on actual work practices in workplaces rather than being based primarily on the acquisition of bodies of knowledge in disciplines (Stenström & Laine, 2006). Vocational education looks outwards from the college to the workplace, possibly assisting students to work across and bridge the boundary between college and employment. A key assessment approach is therefore that of competency-based assessment, or CBA, in which the competencies are those that are required in workplaces. This focus on CBA is commensurate with other review work on assessment in the TVET sector. For example, Yusop et al. (2022), in their assessment review article, note that nearly half the articles they cited were CBA-based. However, the percentage of CBA was most probably much higher as they classified assessment articles according to whether the authors had self-identified assessments as, for example, portfolio, scenario, criterion-based and formative assessments. As was found in this review, many such recent assessment approaches are also CBA-focused.

All the articles examined in this review dealt in one way or another with the affordances offered by more recent versions of CBA. These newer versions of CBA are characterised by a focus on designing more integrated, challenging and authentic tasks as opposed to the previously itemised and technically orientated assessment types found in vocational education.

Accordingly, this article, through focusing on the design and delivery of CBA, does not deal centrally with issues of the administration and moderation of assessments. Furthermore, the article focuses on CBA as part of the curriculum, predominantly within the college environment itself or in isolated college-supervised work events rather than on assessment during more extended periods of experiential learning. In so doing, the article draws on the distinction made between assessment for work preparation and assessment of and at work (Brennan & Little, 1996), the former being within the primary ambit of college staff. One advantage of assessment for work conducted in the college is that it is possible to expose students to a range of potential tasks 'all at once' in addition to affording them the opportunity to learn from their mistakes – a luxury not always afforded students during work placements (Berner, 2010; Öhman, 2018; Schwendimann, Kappeler, Mauroux & Gurtner, 2018).

Through highlighting the ways in which CBA has been used productively, it is hoped that this review article will provide current vocational lecturing staff with a mirror against which they can critique their own practices and perhaps expand their assessment repertoire.

In so doing, and more specifically, this article may also help lecturers, managers and policy-makers to respond to some of the issues raised in the South African *Report on the Quality Assurance of the Examinations and Assessment of the National Certificate (Vocational) and NATED N2–N3* (Umalusi, 2015). For this reason, a summary of the report is given below.

While acknowledging that much has already been written about CBA, this article attempts to consolidate understandings of and suggestions for the implementation of more recent forms of CBA from various countries and sources. Following on from this purpose, the aim is that this consolidated understanding can be used to help TVET staff expand and improve on their assessment repertoires and practices, in part responding to criticisms of current practices.

It must be pointed out that this is a review article of the available literature on assessment rather than an empirical article on actual practices carried out in South African colleges. While recognising this as a limitation, it is the intention of the author to use the review findings as an analytical framework with which to examine current practices in future research. This work is planned for the second half of 2022.

### **Umalusi quality report on assessment**

The quality assurance body, Umalusi (2015), raised concerns about the quality of assessment in the TVET sector in South Africa. Although much of the criticism centred on examination and moderation systems and other procedural issues – for example, the lack of internal moderation and non-adherence to the subject assessment guidelines – concerns were also raised about the suitability, quality and cognitive demand of some of the in-house college assessment practices.

The current assessment practices in the TVET colleges were criticised for not providing room for student creativity or sufficient cognitive challenge (Umalusi, 2015:62, 80). Umalusi suggested that there should be more adherence to cognitive analytical frameworks such as Bloom's taxonomy. The tasks set tended to be more theoretical rather than challenging students about how knowledge and skills can be used in actual practice (Umalusi, 2015:38, 80). This was the case with technical subject assessments, such as those for plumbers and electricians, with business or social assessments, such as those for tourism, and with core subjects such as Mathematics, Language and Life Orientation (this difficulty was also raised by Sephokgole and Makgato (2019) in their analysis of TVET college assessment practices). There was, furthermore, a need to 'better link theory to practice' and provide students with assessment experiences that develop and cement this link (Umalusi, 2015:128). What may provide benefit here, it is suggested, would be more involvement of stakeholders from the target workplaces (Umalusi, 2015:82).

Secondly, the assessment tools used are often criticised in the report for being ‘inferior’, with limited ‘opportunities to assess skills, attitudes, values and reasoning’ (Umalusi, 2015:5–18). Finally, students are not always provided with post-assessment feedback to guide them towards improving their performance (Umalusi, 2015:49) – a point also raised by Nkalane (2019) in her study of TVET business assessment practices.

## **Method**

This review article is based on an analysis of trends in vocational assessment reported on in the literature over the previous 15 to 20 years. The author first targeted the main vocational journals in the field and searched for articles with ‘assessment’ in their titles or keywords or discussed substantively in the text. The journals investigated were:

- *Empirical Research in Vocational Educational and Training*
- *International Journal of Vocational Education and Training Research*
- *Journal of Education and Work (JEW)*
- *Journal of Workplace Learning (JWL)*
- *Journal of Vocational Education and Training (JOVET)*
- *Journal of Vocational, Adult and Continuing Education and Training (JOVACET)*
- *Nordic Journal of Vocational Education and Training*
- *Vocations and Learning*.

Secondly, a search was performed for ‘vocational assessment + colleges’ more generally as some assessment articles were published in other journals. Some reports on vocational assessment in different regions were also uncovered (for example, in Australia and Europe) and these were mined for evidence of assessment trends. Articles which dealt predominately with assessment in workplaces (during Work-integrated Learning (WIL)) or higher education were eliminated, leaving a core sample of approximately 41 articles and five reports which formed the basis for the trends reported in this article.

The review broadly followed the structure of a systematic review in that there was a reproducible search strategy and further explicit criteria for screening articles for inclusion or exclusion were applied (Evans, Menaca, Andrew, Koffman & Harding, 2012). A key overall trend in assessment practices emerging in the articles sourced was that of CBA, which constituted a theoretical framework that enabled the author to thematically analyse the data gathered. Such thematic, theoretically based analysis is characteristic of a critical, systematic review (Evans et al., 2012). Furthermore, in a critical review the reviewer wishes to gain an enhanced understanding of problems in the field so that gaps can be identified and improved practices suggested, rather than simply reporting what others have stated (Eva, 2008).

The reader will note that in the present article some articles are more extensively referenced than others. These were authors who appeared to have impact in the field. For example, 16 of the 46 articles reported on here make reference to Gulikers (2011), and the Sluijsmans et

al. (2008) and Poikela (2004) articles are quite highly referenced more generally, at 58 and 45 citations respectively. One or two earlier articles were also included because they highlighted key principles (for example, Inman & Vernon's (1997) reference to assessment for, of and at work, with 27 citations).

The following section explores the way the authors reviewed in the article understand more recent versions of CBA, and some of the principles these authors suggest should underpin this important assessment concept.

### **Principles of competency-based assessments**

Vocational competency, in more general terms, refers to the knowledge and skills which can be used to solve specific workplace problems and which can be taught and in this way be made available to students (Monnier, Tschöpe, Srbeny & Dietzen, 2016). CBA is therefore derived from the kinds of problem typically experienced by workers on the job in specific contexts (Biemans, Wesselink, Gulikers, Schaafsma, Verstegen & Mulder, 2009:268). Competency-based learning and assessment practices may in the past have focused more on an individual's acquisition of isolated technical skills, particularly at British colleges (Rolle, 1996; Inman & Vernon, 1997), or such skills with their underpinning knowledge and attitudes (Garavan & McGuire, 2001), which was more typical of European vocational education (Brockman, Clarke, Mehaut & Winch, 2008). However, because of the nature of educational institutions and their need to measure skills precisely, often based on curriculum standards, assessment designers may have reduced assessments to easily measurable atomistic tasks which did not capture the real skills and knowledge required in workplaces. In such instances, students' focus may then be on passing tests rather than on being motivated to develop appropriate workplace competencies (Ehman & Roth 2008). Furthermore, as Kvale (2007) points out, the messy, incomplete and often contradictory nature of real-world problems is difficult to capture and measure through more typical institutional standardised tests and exams.

The more recent trends in competency-based learning and assessment have accordingly progressed beyond an individual's possession of isolated technical skills, knowledge and attitudes. Assessments have rather developed in the direction of focusing on the way in which skills, knowledge and attitudes may be articulated within the variations and complexities of the social and material settings typical of authentic workplaces (Brockman et al., 2008; Gulikers, Bastiaens, Kirschner & Kester, 2008; Sluijsmans, Straetmans & Van Merriënboer, 2008; Department of Training, Australia, 2013; Rausch, Seifried & Wuttke, 2016; Gulikers et al., 2018).

Gulikers, Bastiaens and Kirschner (2004) highlight a key facet of validity in vocational assessment: construct validity. This refers to whether the assessment reflects real-world purposes and the kind of thinking required by experts. Furthermore, the authors highlight the fact that a valid assessment should also support desirable forms of learning in the

curriculum, or consequential validity. This concept of ‘consequential validity’ relates to Biggs’ (2012) principle of constructive curriculum alignment.

Somewhat surprisingly, given that this was originally a higher education concept, constructive alignment is referred to specifically as an important assessment principle in CBA by Stenström and Laine (2006), Sluijsmans et al. (2008), Gulikers (2011), the European Union review of vocational assessment (CEDEFOP, 2015) and Gulikers et al. (2018).

The rationale for using this traditionally higher education principle becomes clearer, however, when assessment is considered to be a means of promoting students’ ability to operate competently in complex social and material work environments – which is underpinned by higher-order learning and is a key component of CBA.

In the CBA-oriented articles referred to here, validity is mostly anchored to the concept of ‘authentic assessment’, or assessment which mirrors real-world problem-solving, which is itself a core principle of CBA (Gulikers et al., 2018; Yusop et al., 2022). Principles of reliability, fairness and the related concept of formative preparation are in turn embedded in the use of criteria in integrated holistic assessment approaches (see, e.g., Sluijsmans et al., 2008). Authenticity, the design of integrated, holistic assessments and the use of criteria as key CBA principles are further elucidated below.

### *Authenticity in assessment*

Authenticity refers to replicating, as closely as possible, the actual conditions students will encounter at work without their actually being at work (Gulikers et al., 2008:402). Such assessment should, furthermore, correspond to, or at least link to, their college learning (Rusalam, Munawar & Hardikusumah, 2019). Case studies, roleplay, simulations and contained and structured ‘real situations’ are all used as authentic assessment methods (Gulikers, 2011). Authenticity is not just about replicating regular tasks but also about how these tasks may carry an element of surprise or upset, requiring quick response and creativity, and the ways in which they may occur in the social and material systems of workplaces, often over more extended periods. These latter observations are drawn from Herrington, Parker and Boase-Jelinek’s (2014) conceptualisation of authentic assessment in the school or university classroom, and include teamwork and group reflection, which also serves to incorporate something of the social aspects of solving workplace problems.

One approach to authentic assessments is to choose ‘critical incidents’ to showcase what matters in a field and about which appropriate decisions have to be made and courses of action followed (Schwendimann et al., 2018). These are typically complex problem-solving situations that new employees will be exposed to. Lecturers can seek out such incidents through working collaboratively with their respective workplaces and transform them into problem-solving tasks (Achtenhagen & Winther, 2014). Such collaboration helps to shift assessments from an internal, curriculum-oriented process to a more outward-looking focus,

as well as providing a bridge between the two sites. The usefulness of assessment design collaboration more generally is described in Northern Europe as the 'tripartite system' (Stenström & Laine, 2006). Here, students, lecturers and workplace representatives are involved in the co-construction of assessment tasks.

However, as Monnier et al. (2016) point out, the social skills required at work are difficult to pin down in any concrete fashion, and are even more difficult to access successfully in college tasks. This difficulty may explain why, despite the evidence of the effectiveness and predictive value of authentic assessments, they are often avoided by college teachers (Sluijsmans et al., 2008; Gulikers et al., 2018).

A further rationale for teachers' resistance to assessing social skills is their potential variability. While the social skills that are characteristic of particular occupations may be identifiable (Winch & Clarke, 2003) and therefore assessable, different firms within the same broad occupation may valorise some skills over others (Brockman et al., 2008). For college teachers, therefore, it may make more sense for students to learn these social skills during work practice rather than their being constituted and taught as some form of standardised and assessable curriculum item.

Gulikers et al. (2004) and Gulikers, Bastiaens, Kirschner and Kester (2006) have developed a series of criteria for evaluating the authenticity of assessment tasks set within the ambit of the college curriculum. The authors highlight the need for representing as much of the complexity of a real work situation as possible in student learning. In addition, students need to be willing to engage in such tasks and understand what is required of them. The authors have attempted to capture as many as possible of the dimensions of authenticity discussed above in a series of criteria, each of which may be allocated a score according to its resemblance to real-life situations. Their proposed criteria (after Gulikers et al. 2004) are:

- How real is the content of the assessment task? Does it reflect the kinds of task and problem typically found at work, which involve the integration of knowledge, skills and worker attitudes?
- How appropriate is the form of the assessment task in relation to the actual work practice? Is it, for example, a test or an exam, a roleplay, a simulation or a case study?
- Is the assessment meaningful for the student? Do they understand its relevance to their future vocation?
- Do the physical conditions in which the task is conducted reflect real-world messiness or disorder (for instance, a clean college workshop where time is not of the essence in completing tasks versus a noisy, messy work environment in which a task needs to be completed rapidly)?
- Are the criteria used to measure success those that are important in real work situations? Furthermore, are students apprised of what they will be expected to do and what level of performance is required?

- If the authentic work task typically involves social interaction and group decision-making, are these catered for in group activities? (Alternatively, the task may involve individual problem-solving and decision-making instead.)

As Engeström (2009) points out, though, attempts to make school practices authentic are always moot, because authenticity derives from the objective of the activity and the context in which it occurs. In college assessments, the object would be overt testing or learning rather than ‘doing the work’.

A further issue is that what teachers may see as ‘authentic’ may not be viewed in a similar light by students (cf. the third bulleted criterion above). The problem may be that whereas teachers interpret and reassemble a work situation for educational purposes, the resultant assessment task may no longer manifest itself as authentic to the students. The students may as a consequence be less motivated to engage with the assessment. Gulikers et al. (2008) therefore suggest that teachers and students first discuss a task. During such discussion, the task of the teacher should then be to highlight why the task is authentic and why it is done in the way proposed according to such-and-such criteria.

### *Holistic, integrated assessment*

Gulikers et al. (2018) suggest that for CBA to be effective, lecturers need to understand what is meant by ‘competency’ and how competency may best be assessed. First, workplace competencies are complex to measure and cannot be determined by simply displaying knowledge of technical skills (Gulikers, 2011). Furthermore, competencies cannot be measured as a number of separate pieces of knowledge and skills (Johnson, 2008). They need, rather, to be assessed in an integrated, holistic fashion (Gulikers et al., 2018). Holistic assessments should therefore be an attempt to overcome the ‘disintegrative’ list of competencies favoured by vocational assessors in the past (Biemans et al., 2009:268). Furthermore, a number of CBAs of a similar type at the same level of demand should be applied in order to capture students’ ability to cope with contextual variation. A need exists, therefore, for contextual, holistic and complex forms of assessment to be applied that focus on assessing multiple competencies rather than a single competency (Gulikers et al., 2018). In addition, CBA should involve different forms of assessment, such as simulation tasks, roleplay and paper-based cases.

Furthermore, the concept of holism in assessment highlights the fact that competencies are complex and multi-faceted qualities. CBA therefore needs to be integrated within a framework of increasingly complex tasks, with simpler tasks building up to more complex ones, with the later tasks being most similar to real workplace tasks (Gulikers et al., 2018).

### *Assessment criteria for reflection and learning: The role of feedback*

Assessment criteria provide an important tool with which to direct students towards what it is they are expected to focus on in their assessments. They are therefore integral to ensuring

the fairness of assessment practices (Bloxham & Boyd, 2007). In vocational assessment, as well as in other forms of assessment, authors recommend that the assessment criteria to be applied be discussed with students before they are assessed so that the assessment requirements and criteria are more fully understood (Sluijsmans et al., 2008). By doing so, vocational students may be helped to grasp the real-world relevance and importance of the assessments, in this way helping them to improve their motivation to engage with them.

Reflection requires students to take stock of what they need to bring to a task and which gaps need to be explored (and closed) in the moment, in addition to the new knowledge and skills that may be required for future similar tasks. Authors refer to Schön's (1995) helpful distinction between reflection before action, reflection in action on what is happening during a task, and reflection after a task on the efficacy of the students' actions. One aspect of such reflection is sometimes also the repurposing of taught skills and knowledge from the classroom to the often-novel task at hand; in other words, the development of the working knowledge required to complete a certain task satisfactorily (Poikela, 2004; Schwendimann et al., 2018).

Reflection forms an important function in the process of learning from assessment; it can influence the extent to which students are able to learn from experience, which is understood to be a valuable workplace ability (Schön, 1995; Akkerman & Bakker, 2012). Specifically, workers are often required to perform in circumstances that are different from prior experiences and learning, however small or substantial those differences may be, and they therefore have to be able to detect differences and adapt their performance to new situations (Rausch et al., 2016).

Assessing in this way may provide some measure of what Walker, Link and Nickolaus (2016:5) refer to as 'fluid intelligence', or the ability to transfer learning across similar tasks in a field. As suggested by the authors, the ability to transfer learning is an important, though often underrepresented, component of CBA.

Furthermore, professional and vocational competency is more than simply showing an ability to use the right skill and knowledge in a particular work situation; it is also about possessing the ability to attune one's knowledge and skills to the work culture. For example, who else should be involved in solving a problem in accordance with the particular rules and procedures of the workplace (Poikela, 2004)? Being able to conduct such reflection may go some way towards resolving difficulties in working with and assessing variances in social skills – a point raised earlier about the need to reflect variance and the difficulty of doing so (Winch & Clarke, 2003).

Furthermore, Poikela (2004) suggests that a true measure of competence should include attempts to measure processes that students select and take towards task accomplishment. The author therefore suggests the formulation of assessment criteria which can be applied to these learning processes. For example, those assessment criteria which zoom in on the reflective and social processes students undergo when working on the assessment.

### *Summary of principles*

In summary, current conceptions of CBA expose students to realistic or authentic situations. Doing so necessitates a number of skills and knowledge being mobilised holistically all at once and involves formative or learning elements, assisted by the use of appropriate assessment criteria and student reflection. The need for assessment experiences to be authentic requires that assessment tasks should be designed in collaboration with workplaces and should as closely as possible match realistic and complex workplace contexts (see Gulikers et al.'s (2004) authentic criteria above) – for example, by simulating critical incidents. Such incidents often involve creative responses on the part of students, and some decision-making. Holistic tasks integrate the assessment of related competencies, including social and dispositional aspects, and use a variety of challenging assessment types. Furthermore, the assessment of competencies should ideally be graduated: from simpler (i.e. challenging but involving fewer variables) to complex, and with sufficient feedback to support student learning at the different stages. Feedback can be enhanced by providing assessment criteria, which are preferably to be discussed with the students before their assessments are performed. Criteria can also be used as a tool to promote students' reflection on how they have approached their assessment tasks and whatever else besides that they need to respond to.

The following section gives examples of initiatives in CBA design, drawn from the available literature, to illustrate the incorporation of the above principles of CBA.

### **Exemplars of CBA from the literature**

Writers of the articles referenced in this assessment review were mostly concerned with developing authentic and holistic assessments which represented the complexity of real work activities that could be delivered predominantly in the institutional environment. The assessment tasks were therefore mostly in the form of case studies, roleplay and simulations. Simulations could further be divided into those that were practical and interpersonal and those that were computer-generated, although still interactive. Approximately 10% of the articles reviewed also dealt with portfolio or reflective journal assessments. Accordingly, the exemplars of CBA are divided into three sections: practical case studies, roleplay and simulations; interactive computer-assisted simulations; and portfolio and journal assessments. As stated above, the cases were selected because they exemplified the principles underpinning CBA; in addition, many of them were drawn from the most strongly referenced authors in the review (Gulikers, Sluijsmans, Stenström and Poikela).

#### *Practical case studies, roleplay and simulations*

Attempting to measure multiple competencies in a single assessment may involve too great a cognitive overload for students, and it may also be difficult to identify where 'gaps' in their knowledge and skills lie and what can be done about them. Furthermore, a single

assessment event may not capture all the real-world contingencies that a student will encounter at work. Sluijsmans et al. (2008) therefore suggest that a raft of linked, developmental and summative assessments at different levels of complexity be employed, using different methods. This is a task-focused curriculum model which closely ties the curriculum to assessment, drawing on Biggs' (2012) concept of constructive alignment. A key component of this model is the identification of sub-competencies as criteria which are assessed reiteratively across the different tasks, thus both ensuring a more valid measure of competency and also being able to identify more precisely where problems might lie – which can then be dealt with through further supportive instruction. The example given is the training of a security guard in the competence of 'supervising a public space'. This involves the sub-competencies of recognising problems, managing conflicts and using adequate conversational techniques.

This means that tasks are set at different levels of complexity. For example, a public space under normal conditions, one when there are market stalls, and another under conditions of a large-scale event such as a concert. At each level, the students engage with written tasks, simulations and roleplay or real tasks for which they are observed in situ, all at the same level of complexity. In addition to differing in method, the tasks at each level start with much support, which is gradually withdrawn, until the final task at that level can be used as a summative assessment. Once they have passed that level of assessment, the student can move to the next level of complexity. Theoretical and procedural knowledge (e.g. writing a ticket) is provided in accordance with the needs of the particular task. As Sluijsmans et al. (2008) note, the approach can be flexible here because the students may have different prior learnings. During the assessment process against the required sub-competencies, the students effectively build up a portfolio of evidence of what they can do well, as measured against their knowledge, skills and attitudes, and what may need further attention.

The authors acknowledge that the assessments do not effectively measure groupwork and decision-making, something that also needs to be built in to improve the validity of assessments. One example of assessing social competencies in healthcare work is suggested in the scenario or simulation assessment given below. Although such competencies are generally important in most workplaces, they have a particular relevance to lower-level health workers (Monnier et al., 2016). The first stumbling block to such assessments is defining exactly what is meant by 'social competencies'. Are they, for example, about interpersonal communication, understanding others or personal attitudes such as showing assertiveness? And under what conditions should these skills or competencies be demonstrated? Such competencies, Monnier et al. (2016) assert, are likely to be strongly specific to particular fields and situations. In order to get around this problem, Monnier et al. (2016) asked health workers in the field to suggest some typical 'critical incidents' in their day-to-day work and the kinds of socially oriented responses that could actually occur. Their responses were then graded according to their situational and professional appropriateness. From these it was possible to develop three core competencies: emotional

regulation, perspective coordination and communicative strategies. These could be further broken down into three different locations, each with its associated contexts (hospital reception, ward and meeting room) and whether they concerned mostly internal (e.g. ‘Do I need to be more assertive?’) or external (e.g. ‘Do I need to calm a patient down?’) conflicts.

The next stage is to develop a simulation or roleplay as a video clip of an interaction related to the critical incident. Students are then asked to pass judgement on the interaction and provide answers to open-ended and multiple-choice questions regarding what action they would take. In this way, there was room for creativity in passing judgement. These were assessed using graded criteria (from most to least appropriate), based mostly on the grounded expertise of practitioners (computer-assisted assessments are discussed below).

A further refinement of the critical incident concept is advocated by Gulikers et al. (2018:217). The authors suggest that CBA tasks should include ‘situated professionalism’, which refers to the particular fashion in which generic competencies play out in different fields (e.g. problem-solving in plumbing as opposed to accounting).

The authors therefore propose a system that both assesses students’ competencies and helps teachers to design and grade assessment tasks. In their vocational assessments, employers and teachers identify ‘critical tasks’ that students will be expected to perform at work. One or more of these is used to design a representative and authentic case study which integrates knowledge, skills and attitudes. The next stage is to select the four most relevant generic competencies for the particular case and to articulate these in the vocational field and the demands of the critical task set in the case (in the Netherlands, for instance, there are 18 national generic competencies for vocational education). For example, in the case of floristry training (Gulikers et al., 2018), under the generic of ‘professional expertise’, the student must select flowers by shape and colour appropriate to the requirements of the customers. These then form the competencies to be assessed when students work on the assessment case. The underpinning knowledge, skills and attitudes associated with these competencies are then covered in documentary (materials for students) and classroom teaching provision but they are not directly assessed. The design of the actual assessments is devised by groups of teachers (and sometimes employers).

Once the generic competencies, knowledge, skills and attitudes have been identified, the teacher groups are engaged in discussions about what constitutes a CBA approach. For example, more expert assessors would raise the six dimensions of ‘authentic assessment’ in CBA (see above), as described by Gulikers et al. (2004). In being so exposed and undergoing the above steps, the researchers claim that teachers gain an enhanced understanding of the competencies in their respective fields and the best way to assess them. Once the design has been completed and the tasks implemented, two assessors then grade the students on their planning of how to do things, their actual performance and their justification for their actions. Although this is not specifically stated, it is assumed that students are observed in some form of simulation of the case, in addition to through written and oral responses.

In interviewing students who have completed this style of assessment, Gulikers et al. (2018) report that students gain a better understanding of the requirements of the field and of what they know and can do in relation to this – which is a measure of their own self-efficacy.

### *Interactive computer-assisted simulations*

Authentic CBA tasks are often problematic to design because they may require individual observation if they are ‘hands-on’ or they can lose some of their authenticity if they are answered in written form (De Klerk, Eggen & Veldkamp, 2014). Observations are, furthermore, difficult to standardise. One solution is to design computer-based simulations (De Klerk et al., 2014). A problem with such simulations, though, is that they have to be authentic enough to cover a variety of possible contexts, but they cannot at the same time capture particular organisational cultures (Achtenhagen & Winther, 2014). One useful response to this problem in computer-simulated assessment design is to gather a diverse group of field experts or employers, to highlight typical field-related tasks and to develop assessment criteria accordingly that apply to a variety of authentic contexts (Achtenhagen & Winther, 2014).

In Gekara, Bloor and Sampson’s (2011) ship maintenance example, the simulation is performed entirely on a PC by individuals and groups of students. Scenarios illustrating authentic mechanical problems are designed by mechanical engineers in the field and transposed by teaching staff into IT simulations. The students are first required to prime the engines to work most efficiently under different circumstances and they are then assessed on their adoption of the appropriate protocols (instrumentation, flue lines, air flow, etc.). Subsequently, the simulation shows the engine running but a problem occurs, as signalled by an alarm. The students then have to analyse the problem within a time limit (they get marked down for taking too long) and effect solutions, which are then assessed for their appropriateness. One problem acknowledged by the authors is that only a limited number of typical problem scenarios have been developed and that students are able to prepare for these rather than having them problem-solve from basic principles. One solution would be to develop a large number of problem situations, but this takes time and resources.

At higher levels of problem-solving in the VET sector, electrical technicians being trained to operate automated systems (e.g. conveyor belts) can be assessed using computer-generated scenarios (Walker et al., 2016). In this approach, lecturers and employers collectively generate analytical scenarios in which students have to troubleshoot problems through arriving at proposals for their correction. At a higher diploma level, students actually have to design programmes to improve the efficiency of the conveyor.

The above computer-based assessments are mostly technically orientated. Again, they do not necessarily cover the more social aspects of work nor do they assess the additional complexities that go with this. Therefore, these assessment methods may not be as authentic as the designers had hoped for. De Klerk, Eggen and Veldkamp (2014; 2018) propose a more complex form of computer-based assessment: multi-media-based problem assessments, or MBPA. Here, real

work situations are first identified. After that, the lecturers, with workplace assistance, design scenarios which highlight problematic situations or behaviours that a student must recognise as requiring attention. These problematic situations are then videotaped and the resultant scenarios are used as assessment tools. The students must then suggest ways in which the social problem could be resolved; they do so by typing a solution in a drop-down textbox.

In Rausch et al.'s (2016) modelling of domain-specific competency assessments in the secretarial or clerkship field, there is an attempt to capture and measure more complex behaviours, albeit again at an upper-secondary or diploma level. The students are first presented with a quite detailed computer-generated virtual tour of, for example, a bicycle manufacturing company, its offices, capabilities, working conditions, etc. They are then presented with different problem-solving scenarios: for example, whether to buy a particular model for resale or to manufacture the bicycle in-house. As the students work through the scenario, they are offered 'prompts' which are aimed at assessing their motivational and self-concept issues. Drop-down menus ask the students to select whether, for example, they feel nervous or not during a particular stage in the decision-making. The object is to derive a sense of the ways in which students approach problems and the extent to which they are able to learn through and respond appropriately to difficulties. The students are also required to apply and develop knowledge through gap recognition and metacognitive processes (e.g. reflection, planning and monitoring). The inclusion of these different factors – for example, knowledge development, metacognitive application and dispositional factors – in assessment in open and dynamic problem-solving situations confers on the task what the authors refer to as 'ecological validity' (Rausch et al., 2016:7). Such validity reflects some of the more personal and social difficulties students may encounter in workplaces, which may in turn influence their problem-solving ability.

Online CBA has a particular resonance with business fields, because much work is already conducted online – for example, preparing invoices, reports and financial statements and responding to queries via email (Achtenhagen & Winther, 2014).

The computer-based assessments reported on here may provide a viable method for assessing students' responses to complex problem-solving situations which otherwise would require actual observation in work situations. Such assessments may also involve students having to work with social and dispositional factors. As Rausch et al. (2016) and De Vos, Baartman, Van Der Vleuten and De Bruijn (2019), acknowledge, however, more work still needs to be done on successfully embedding such factors in assessments. Two related issues which are not highlighted are, first, the quite high level of technical assistance required to construct these assessments and, second, the time teachers would need to devote to assessment design.

### *Portfolios and journals*

In general, a portfolio will attempt to group a number of competencies that need to be assessed into one coherent whole (Mukhtar & Ahmed, 2015). As with other forms of assessment, the evidence presented by the student is assessed against set criteria. In the

Assessment Guidelines (DOE, 2007) and the Umalusi (2015) report, the use of portfolios is based more on the concept of a 'portfolio of evidence' of students' learning. Here, the students are expected to provide a collection of assessment tasks that have previously been assessed by their teachers.

Portfolios (and learning journals), as mentioned in the articles sourced in this study, on the other hand, are referred to as a means of testing whether curriculum objectives have been met in an authentic, holistic and integrated fashion (Nore & Lahn, 2014). They are typically used as a means of relating what is learnt at college to sites of application in workplaces or to practical tasks in the college context. In this way, they serve a theory–practice bridging function or one between the two sites (Enochsson, Kilbrink, Andersén & Ådefors, 2020). In so doing – as was also suggested with bringing critical incidents into assessments – this assessment method may also bring together workplace supervisors and college instructors in the design and practices of assessment tasks (Stenström & Laine, 2006).

Journals and portfolios are also used in vocational education as a form of formative assessment through promoting students' reflection on gaps between their college learning and actual practice, and as a guide to the initiatives they may need to take (Mukhtar & Ahmed, 2015) to fill those gaps in their knowledge and/or skills. They therefore frequently draw on Schön's (1995) model of reflection in planning tasks, in the process of conducting tasks and, finally, after the completion of tasks. As portfolios and journals cover an extended period and involve assessment criteria, there is much opportunity here for teachers to provide feedback to students on where their work could be improved.

Left-hand–right-hand reflective narrative learning journals are suggested by Inman and Vernon (1997) as both a reflective tool and a form of assessment. More specifically, Schwendimann et al. (2018) propose the use of structured online learning journals for bakery apprentices (these can be used during periods at work or at the college). The journal attempts to meet the need for apprentice bakers to develop metacognitive skills that help them to respond to changes, solve problems, maintain current learning and seek new learning.

Becoming a baker in the modern industrial world involves much more than learning and making recipes (Schwendimann et al., 2018). To this end, students of baking are required to record their recipes learnt on the left-hand page of their e-journal and to respond to metacognitive prompts about the recipes on the corresponding right-hand page. Students write about critical incidents on the right-hand page in response to prompts provided by teachers, such as 'in this recipe I must pay attention to ...' and 'I still have to learn ...', and they receive feedback from their teachers on these responses.

Reflective journalling may also be conducted orally. For example, it may be conducted through 'assessment discussions' (Stenström & Laine, 2006:26). Here, students doing practical assessments are encouraged to self-evaluate against criteria and so identify areas for further development (although not specifically stated, the assumption is that students are

prompted with questions such as ‘What problems did you encounter?’ and ‘What areas require further development?’).

An interesting version of the assessment discussion as an ‘interactive classroom dialogue’ is described by Öhman (2018:426). Hairdressing students work with their teachers on mannequins and are encouraged to come up with new ways of hair design in response to the teacher’s input. Here, feedback is embodied in actual practice and is two-way, serving as assessment of appropriate concept-practice links and at the same time supporting learning and the development of creative insights (Öhman, 2018). In this sort of feedback in action (Schön, 1995) the tacit can be made more overt as students display their understanding of concepts, tools and processes through their responses to queries and suggestions from teachers.

Mazin, Norman, Nordin and Ibrahim (2020) describe an additional form of portfolio assessment: that of student-developed videos of their auto-mechanic competence. Although the article’s focus tends to be on the technology involved, the suggestion is that such videos may serve to capture multiple competencies, including social ones.

## **Discussion and conclusions**

The Umalusi report (2015) suggested that TVET assessment practices should resolve a number of burning issues. Key among these were improving task types; better integration of theory and practice; greater involvement of workplace stakeholders; improved levels of challenge for students; promoting creativity in students; and providing them with feedback so that they may improve their performance. The CBA tasks reported on here, which take the form of innovative simulations, roleplay and cases that confront students with real-world, often crucial and complex problems in practice, and reflective journals or portfolios, may contribute to resolving some of these issues.

Through focusing on CBA and guided by the principle of authenticity and holism, students are required to orientate *theoretical learning*<sup>1</sup> with practical problem-solving (see e.g. Gulikers et al., 2004; Enochsson et al., 2020). In addition, *workplace stakeholders* can be recruited to provide lecturers with critical incidents as a basis for authentic, problem-based assessment design (Achtenhagen & Winther, 2014; Walker et al., 2016; Schwendiman et al., 2018).

Furthermore, such innovative curriculum-based assessments engage students in *high levels of challenge* – for example, Rausch et al. (2016) on clerkship and Walker et al. (2016) on electro-technical training. Many of the assessments require students to construct responses, often *creatively*, rather than reiterate a set answer – for example, Monnier et al. (2016) in health and Öhman (2018) in hairdressing. All the CBA tasks reported on in the literature provide opportunities for lecturer–student *feedback* that can lead not only to self-improvement but

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1 *Italics highlights references to the above Umalusi issues.*

also to the development of structures for self-reflection – for example, using the left-hand–right hand journal entries of Schwendimann et al. (2018) in bakery training. Student feedback and reflection on the learning required is also supported through the use of cognitively and practically demanding criteria. The ‘policing a public square’ criteria of Sluismans et al. (2008) provide a good example of this fruitful use of criteria.

It can be suggested, therefore, that promoting a stronger version of CBA as described in the international literature can support the development of improved assessment practices and task design in the TVET colleges, both more generally and in response to the Umalusi (2015) criticisms, and ultimately to improved graduate outcomes. Such outcomes would necessarily be orientated to students’ potential to operate successfully and competently in their future workplaces.

As suggested in the 2015 Umalusi report, TVET college staff would require some level of training in assessment methods or techniques. Although assessor training was not the focus of this review, some suggestions were put forward in the literature. Teaching staff could be involved, for example, in designing assessments in which the principles of CBA are meshed with the generic competencies, theoretical knowledge and practices required at work, as was suggested in the article on the assessment of floristry students by Gulikers et al. (2018). Furthermore, such initiatives involve recruiting workplaces into identifying ‘critical incidents’, and this may go some way to responding to Umalusi’s call for a greater degree of workplace collaboration in assessment design. The suggested use of critical incidents as case or simulation material for assessment design could furthermore support the development of a closer constructive alignment of curriculum teaching and assessment that could lead to significant workplace outcomes (Stenström & Laine, 2006; Biggs, 2012), which could also be a focus of assessment training.

One caveat for assessment development is that, as Biemans et al. (2009) point out, it is often much easier for staff to carry out paper-and-pen tests than to construct these often complex, technologically and time-demanding CBA tasks. Improving assessment practices with a stronger CBA focus would consequently involve more than just ‘training’, as is suggested by Umalusi (2015); it would necessitate developing a better understanding of both the assessment materials (e.g. technical assistance for videoing) and the social conditions under which assessment could be considerably enhanced.

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# TVET leaders' experiences of an enquiry-based blended-learning programme

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## ABSTRACT

A grave need exists among managers in Technical and Vocational Education and Training (TVET) in South Africa to have their leadership and managerial skills developed. The Postgraduate Diploma in TVET programme at the University of Pretoria was developed in 2019 as an enquiry-based blended-learning programme aimed at contributing to an appropriate response to this need. The purpose of this exploratory case study was to describe the experiences of the first cohort of programme participants according to the way the design of this programme influenced their engagement in the programme and how it supported the development of their leadership and managerial skills. Data were generated using reflective essays and a group reflection session with all the participants. The essays and the transcription of the group reflection session were thematically analysed. The findings suggest that the programme promoted the development of the participants' leadership and managerial skills. It also developed their critical thinking skills, their ability to work independently and their inclination to become self-efficacious learners. The facilitators in this programme became powerful role models to the research participants to replicate their learning experiences in their own institutions. Although the participants found it challenging to adjust to working from home while also studying during the COVID-19 lockdown period, they were inspired and motivated to persist through their networking experiences with international and national peers and leaders in their fields of education and industry.

## KEYWORDS

*Vocational education, TVET, leadership development, blended learning, enquiry-based learning*

## **Background and context**

Technical and vocational education and training colleges (TVET) in South Africa have been in existence for 20 years after the former technical colleges and colleges of education and training centres were merged in 2002. Considerable expectations existed about how these 50 colleges would become more vital institutions with the capacity to teach increased numbers of students in a variety of programmes (HRDC, 2013). Despite having received substantial funding from the government at the launch of the TVET colleges, these institutions still face significant challenges (Mohlokoane & Coetzer, 2007; Badenhorst & Radile, 2018). In assessing the quality of TVET colleges, Worku (2019) identified a lack of leadership as one of the primary challenges. This lack of leadership was identified in both administrators and academics, which resulted in a lack of resources, poor curriculum design, a lack of quality lecturers and inadequate facilities in colleges (Mohlokoane & Coetzer, 2007; Badenhorst & Radile, 2018; Robertson & Frick, 2018; Worku, 2019). Specific areas of underperformance include a failure to attend scheduled council board meetings, to form partnerships with relevant stakeholders or to ensure that the curricula are aligned to the labour markets (Worku, 2019). It was also found that more accountability, fairness, objectivity and transparency were needed to warrant the effective use of college resources (Worku, 2019).

In a study by Robertson and Frick (2018), it was found that TVET managers often come straight from a teaching environment and are expected to lead and manage TVET colleges without having undergone the necessary training. Furthermore, the studies by Worku (2019) and Robertson and Frick (2018) show the gap between what is expected of TVET managers and their current performance, indicating a need for them to participate in further training and development (Worku, 2019). Similarly, Robertson and Frick (2018) alluded to the need for TVET managers to obtain the necessary skills and knowledge to manage and lead their institutions effectively in order to meet the mandate set for TVET colleges. But investment in the professional development of TVET managers is needed to enable the quality of leadership in the colleges to improve. Improving leadership could, in turn, result in improved curriculum design and implementation, which could lead to the quality graduates needed in the labour market being produced (Balkrishen & Mestry, 2016; Badenhorst & Radile, 2018; Worku, 2019).

A needs analysis conducted in 2018 by the Department of Higher Education and Training (DHET, 2018) similarly identified the skills gap evident in TVET college leaders. The Post Graduate Diploma in Technical and Vocational Education and Training (PGDip in TVET) programme that is reported on in this article was developed at the request of the DHET in support of the College Lecturer Education Project which was part of the Teaching and Learning Development Capacity Improvement Programme (TLDCIP) – a partnership programme between the DHET and the European Union (EU).

The University of Pretoria, in consultation with TVET colleges, the DHET, industry and the Technical University of Munich (TUM), developed the PGDip TVET programme in 2019. The German Agency for International Cooperation (GIZ) funded the development of the

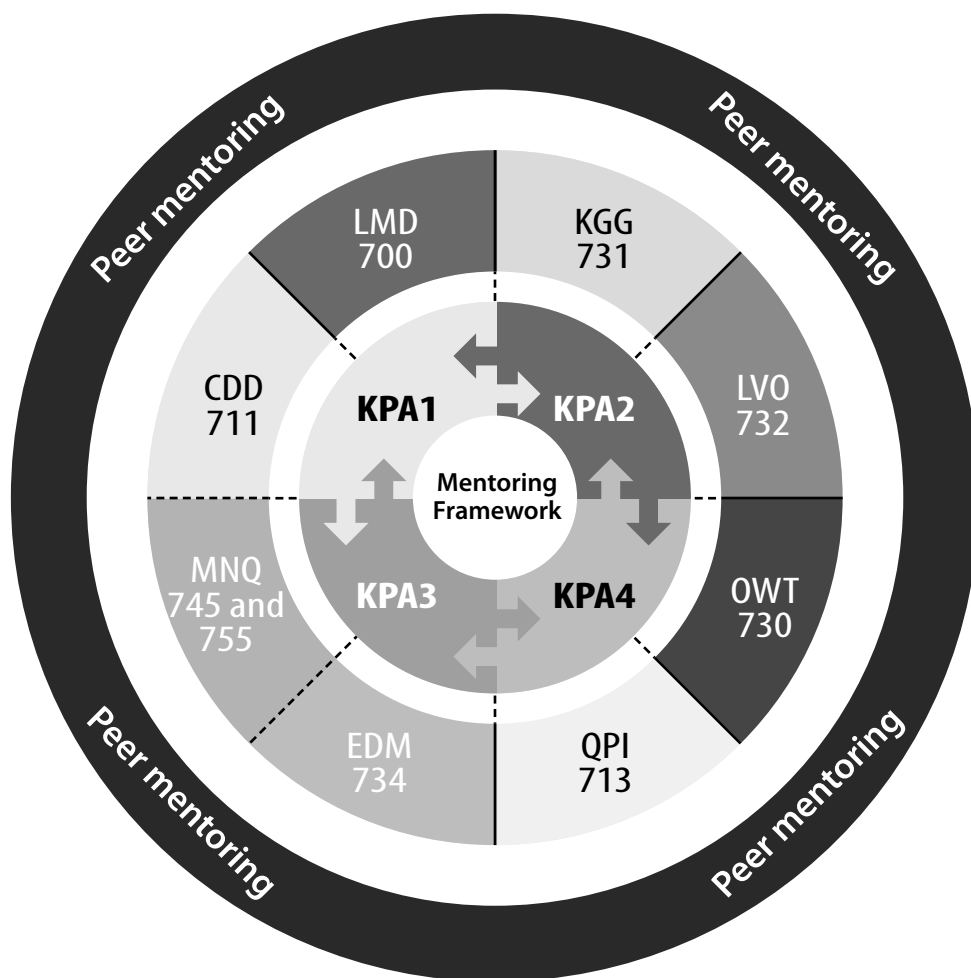
programme and the Education, Training and Development Practices Sector Education and Training Authority (ETDP SETA) sponsored the tuition fees of the programme's participants. This internationally benchmarked, one-year enquiry-based blended-learning programme was envisaged as a means of supporting leaders in the TVET sector in developing strategic leadership skills and advancing their professional competency.

The programme consists of eight compulsory modules and one optional module. The purpose of the programme, as illustrated in Figure 1, is to create enabling opportunities for TVET leaders that could help them to develop the professional knowledge, skills and values required to become innovative, visionary and strategic leaders who are able to navigate context-specific demands and perform leadership functions in the following key performance areas (KPAs): Curriculum Design and Development, Managing and Leading People, Managing physical infrastructure and Finance with the last about developing innovation and quality. The professional development and mentoring framework was central to the programme and it provided opportunities for the participants to develop and network with other TVET leaders or experts. Various approaches to enquiry-based learning – such as problem-based learning, project-based learning, game-based learning and discovery learning – were used in the different modules. The programme leaders took a decision that the word 'student' would not be used when referring to the managers and leaders who decided to enrol for the programme. Instead, they would be called 'programme participants'. The reason for this is that the teaching and learning approach in the programme was collaborative and participatory in nature and therefore it made sense to refer to the future graduates in the programme as programme participants.

Figure 1 shows the structure of the PGDip in TVET programme and how all eight modules, the KPAs and the mentoring framework are interlinked. The programme challenges the participants to understand the TVET context, think critically, communicate, collaborate, and develop their professional and strategic leadership competencies as TVET leaders.

The Professional Development (PFO 700) module is an integration of all the modules and KPAs. In KPA 1, the modules Curriculum Leadership (CDD 711) and Instructional Leadership (LMD 700) are included. The modules Emotional-Social Well-being (KGG 731) and Management and Leadership in Education (LVO 732) form part of KPA 2. In KPA 3, the Financial and Human Resource Management (EDM 734) module is a compulsory module and then the research module NMQ 745 and 755 are optional modules that programme participants could take in addition to the eight compulsory modules if they wish to pursue postgraduate studies further. In KPA 4 the modules included are Educational Technology in Higher Education (OWT 730) and Assessment and Quality Assurance (QPI 713).

Following the implementation of this programme in 2020, the programme developers and facilitators embarked on a series of research studies to investigate various aspects of this programme. This study reports on one aspect currently under investigation: the experiences of the first cohort of participants in the enquiry-based blended-learning programme.



**FIGURE 1:** Overview of the PGDip in TVET programme and module alignment

### **Conceptual framework**

The fundamental changes in the global economy, jobs and the industry have reshaped the nature of work, driving new and different skills compared to those required in the past (Choudaha & Van Rest, 2018). According to the World Economic Forum’s (WEF, 2020) ‘the world of jobs’ report, the top two skills that will grow in prominence in the next five years are critical-thinking and problem-solving skills. Newly emerging skills this year are those in self-management such as active learning, resilience, stress tolerance and flexibility – which is why, according to Gleason (2018), higher education needs to prepare thinkers of the Fourth Industrial Revolution (4IR) more adequately. These changes in the world of work drive

changes in educational practices, and for this reason authors such as Jonker, März and Voogt (2018) and Lubua (2019) suggest flexible, diverse and individualised approaches to learning. According to Chu, Reynolds, Tavares, Notari and Lee (2017), enquiry-based approaches to learning are vital for developing 21st-century skills and practices.

Simply stated, enquiry-based learning emphasises an active approach to learning, which assumes that learners are actively involved in their learning, solving problems unique to their contexts and constructing new knowledge in the process. Pedaste, Mäeots, Siiman, De Jong, Van Riesen, Kamp, Manoli, Zacharia and Tsourlidaki (2015) cite several studies that provide evidence to support the effectiveness of enquiry-based learning and state that it is generally regarded as a vital element of building a scientifically literate community. As part of an enquiry-based approach to learning, learners are normally guided through an authentic process of scientific discovery. They are encouraged to formulate problems, ask questions, construct knowledge, formulate solutions and then evaluate, refine and test their solutions. It is important to remember that enquiry-based learning is not a linear process and that it requires active engagement in a continuous cycle of exploration and refinement. Facilitating learning in accordance with this approach implies that lecturers or facilitators play a facilitating and mediating role in learning and that no 'traditional' teaching practice is involved.

Technical education is extremely important to the development of an industrial society, but in the post-industrial world employers value softer skills such as leadership skills, creativity, the ability to think outside the box and openness to multiple perspectives. These skills are poised to become more important as artificial intelligence replaces human workers in many technical fields (Lewis, 2018). According to Lewis (2018), higher education needs to emphasise pedagogy that is student-centred and individualised. Assessments are arguably the most effective when grounded in project-based learning and authentic experiences. In the enquiry-based learning approach adopted as a conceptual framework for this programme, the programme participants followed methods and practices similar to those of professional scientists in order to construct knowledge (Pedaste et al., 2015) and they were mentored to move through five distinct phases of enquiry: orientation, conceptualisation, investigation, conclusion and discussion. The cycle is often viewed as an approach to solving problems and involves the application of several problem-solving skills.

The findings on the merits of enquiry-based approaches to learning are mixed, though. Whereas some consider it to be an effective instructional approach or educational strategy (Alfieri, Brooks, Aldrich & Tenenbaum, 2011; Furtak, Seidel, Iverson & Briggs, 2012), others suggest that it may not offer any special advantages over traditional approaches to teaching and learning (Jerrim, Oliver & Sims, 2019). It has also been noted that the implementation of enquiry-based learning creates challenges such as a lack of resources and training, an over-emphasis on assessing content, the level of difficulty of this approach and the time-consuming nature of enquiry-based learning (Gutierrez, 2015).

The enquiry-based approach followed in this programme has two elements that the authors hypothesised could strengthen the effects of such learning on student achievement. First, it is designed around a three-pillar mentoring framework (individual, peer and expert mentoring) and, second, the online blended-learning component has been designed to prepare and engage programme participants maximally through online learning activities (such as podcasts, videos) and professional self-assessment activities (leadership competencies and skills, readiness for learning and engaging). The learning approach of the PGDip in TVET programme aligns with Cronje's definition of blended learning, which the author has described as 'the appropriate use of a mix of theories, methods and technologies to optimise learning in a given context' (Cronje, 2020:120).

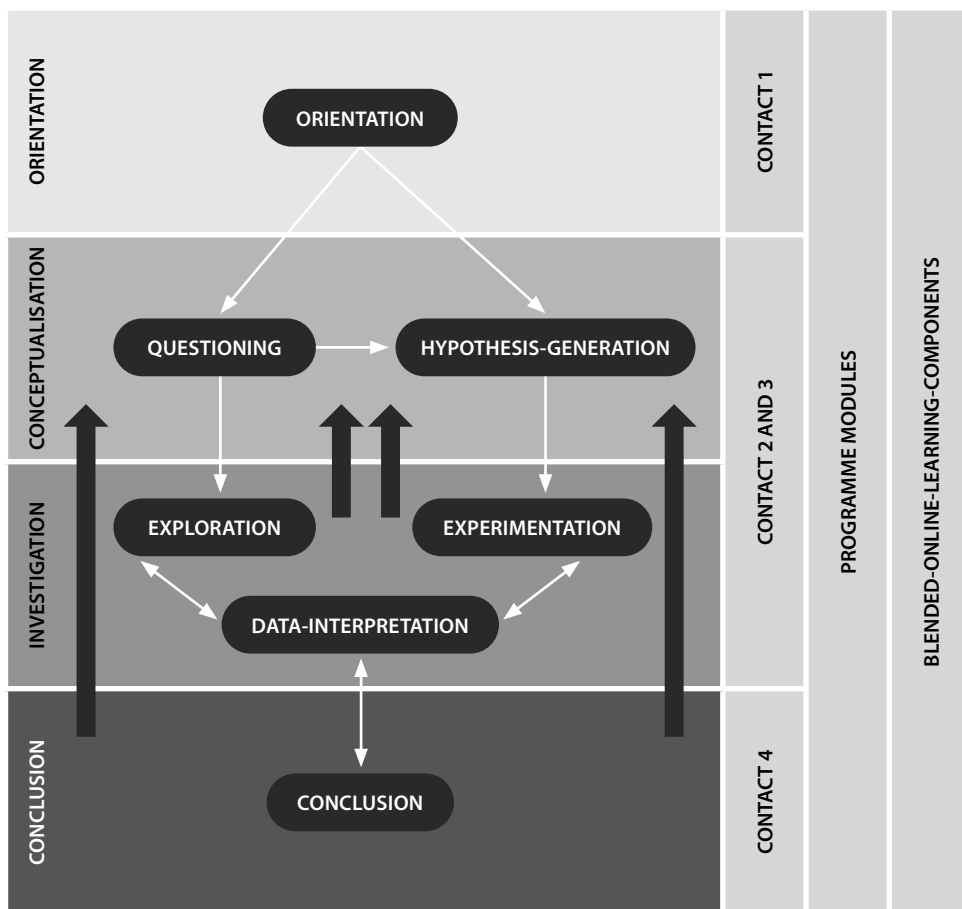
In alignment with the enquiry-based learning approach, the programme participants were given opportunities to think critically, solve real-life problems and develop technological literacy while engaging in instructional leadership design and development. In addition, the blended-learning meta-structure used in the PGDip in TVET programme emphasised active engagement: the programme participants were challenged to think, plan and make decisions strategically so as to be agents of change and to emerge as visionary leaders.

Pedaste et al. (2015) agree on the effectiveness of enquiry-based learning since it focuses on the student and is regarded as a vital element in building a scholarly community. The TVET leadership programme participants took responsibility for their learning while engaging and participating in the four contact sessions, continuous blended-learning activities and a study visit to Germany. The objectives of the study visit component were for the programme participants to engage with experts in the dual approach to vocational education in Germany and to collaborate on strategic plans that they could implement in the South African context. Unfortunately, the study visit had to be adjusted due to the COVID-19 pandemic: instead of an in-person visit, the programme participants engaged in streaming video tours of German industry and TVET college sites, using recorded or live interviews, webinars and presentations at study visit events or seminars. The programme participants also took part in collaborative sessions on Design Thinking. This contextually driven change to the programme was supported by Zhao and Watterston's (2021) view that COVID-19 constructed a distinctive opportunity for education change.

As stated previously, the programme's components were integrated and employed a three-pillar mentoring approach, namely individual professional mentoring, peer-group mentoring and KPA mentoring. Various components, activities, media, technologies and support materials were included. The meta-structure of the programme expected the participants to participate actively during, for instance, the action research, expert panel discussions, podcast discussions, reflective journal writing, the design of posters, scholarly readings and the making of videos and presentations. Instructional technology and apps such as Linoit, Mentimeter, Miro, Wiki's, Loom, Anchor, PhotoCircle and Canva were used. The programme participants engaged continuously with their peers and national, international, industry and higher education experts or facilitators.

The participants resided across South Africa and had demanding work schedules as TVET leaders. Apart from their busy schedules, they entered this programme at a time when struggles to access electricity, stable internet data, learning materials, etc, were commonplace for most learners in South Africa. Cronje (2020:117) cautions that there must be ‘sensitivity to the context in which learning occurs’ for blended learning to be successful.

During the programme and following the enquiry-based blended-learning approach, the participants progressed through a non-linear scholarly discovery process by formulating problems, asking questions, constructing knowledge and identifying, implementing, evaluating, refining and testing solutions. Dewey agrees that enquiry is ‘a backward and forward connection, a discovery of the connection of things’ (Dewey, 1916:206). The PGDip in TVET enquiry-based framework was adapted from Pedaste et al. (2015) and implemented as outlined in Figure 2.



**FIGURE 2:** PGDip in TVET adapted an enquiry-based blended-learning framework

The programme participants progressed through four stages of the framework, as illustrated in Figure 2. During the orientation phase, the participants explored a problem regarding their strategic plan development. They reflected critically on their TVET college and stimulated curiosity and interest in their chosen problem as a means of exploring their strategic plan development.

The second phase, conceptualisation, entailed creating theory-based questions or hypotheses. This phase was divided into two sub-phases: questioning and hypothesis generation. The programme participants questioned and tried to understand the concepts connected to their identified problem. During questioning, they formulated an open question about their context. In addition, they formulated a vision for their TVET college.

In the third phase, investigation, further exploration was planned, and the data or information was collected and analysed. In the last phase of the framework process, the programme participants completed their strategic plan by drawing conclusions from the data. The overarching communication phase was an external but integrated part of the enquiry-based blended-learning process, as it was present in every phase. Throughout, the programme participants communicated and gained feedback from their peers and mentors to help articulate their understanding. Furthermore, they reflected on their learning as Leijen, Allas, Toom, Husu, Marcos, Meijer, Knezic, Pedaste and Krull (2014) advised by describing, justifying, critiquing and discussing their experiences, their learning and the meaning made.

## **The present study**

### *Research theory underpinning this study*

For this study, an interpretivist meta-theoretical paradigm and a qualitative methodological paradigm were used. Interpretivists believe that people construct reality through their lived experiences and that one needs to consider the context in which research is conducted in order to interpret data accurately (Willis, 2007). Interpretivists value subjectivity and believe that reality is constructed by means of individual interpretations through which people construct their own meaning of events (Mack, 2010). Interpretivists view events as distinctive phenomena that cannot be generalised and include the acceptance of multiple perspectives on and experiences of one incident (Mack, 2010). Therefore, researchers within this paradigm explore real-world situations that unfold naturally while they remain unobtrusive, non-controlling and non-manipulative observers (Tuli, 2010).

Qualitative approaches are generally preferred methods of enquiry within an interpretivist paradigm (Thomas, 2003; Willis, 2007). Such approaches often yield the rich information necessary to understanding specific contexts accurately (Willis, 2007). Qualitative research is an exploratory approach to enquiry that aims to understand the meaning that individuals or groups assign to social phenomena (Creswell, 2014).

Similarly, in this study, the authors believed that the participants had varying real-life experiences that could influence their viewpoints about the way in which this programme influenced their engagement and how it supported the development of their leadership and managerial skills. Since the participants were directly exposed to the programme, the authors believed that their personal viewpoints would inform the purpose of this study. Through qualitative enquiry, they were able to ask broad, open-ended questions that enabled the participants to respond freely in reflecting on their experiences of the programme. By exploring those experiences, the authors could reflect on the implications for further research and for enhancing the programme.

### ***Purpose of the study***

The purpose of this interpretivist, qualitative exploratory case study was to describe the experiences of the first cohort of participants to enrol for the PGDip in TVET programme in 2020, relating to the way in which the design of this programme influenced their engagement in the programme and how it supported the development of their leadership and managerial skills. Although this study is not aimed specifically at programme design improvement, it could offer insight into aspects of the programme that might need refinement and improvement based on the participants' experiences. It could also inform other programme developers who want to develop similar programmes in the future.

### ***Method***

#### **Participants and recruitment**

The project received ethical clearance from the Research Ethics Committee in the Faculty of Education. The participants were recruited during the first contact session in February 2020 before the programme commenced. The recruitment was done during a face-to-face information session before the COVID-19 lockdown came into effect. The participants received verbal and written information about the purpose of the study and the data that could be included in it. Their participation was motivated by the altruistic notion that their contribution could influence the improvement of the programme, benefitting those who would be following in their footsteps. All 29 participants opted to be included as research participants in the study. They were also informed that non-participation would not affect them academically and that they could withdraw at any time by sending an email to the programme coordinator. This was reiterated before every data-collection activity and again at the end of the programme.

Drawn from TVET colleges located around the country, most of the participants (51%) were men. One participant had a PhD and two had previously obtained Master's degrees in education. Of the participants, 12 held Honours degrees, 12 had obtained BEd degrees and two had BCom degrees. Twelve of the participants were campus managers, six were deputy principals, three were heads of school, three were heads of department and one was a TVET college principal. The participants were all older than 40, with half being over 50 and three being older than 60.

### **Data collection and analysis**

Data were generated using reflective essays and an online group reflection. The participants were asked to reflect on the following topics:

- How the programme dealt with their needs or expectations as TVET managers (or not).
- How they experienced the design of the programme.
- Whether they preferred the blended approach instead of a traditional face-to-face only approach, and why.

The reflective essays, the recording and the transcription of the group reflection session were analysed thematically using a six-phase reflexive thematic framework (Braun & Clarke, 2020). The data were analysed inductively. Initial categories were generated, analysed for similarities and collated into preliminary codes that identified major themes.

### **Findings**

Two major themes emerged in the data. The first related to the perceived benefits or gains the participants reported, whereas the second related to the challenges they faced or how the programme had not met their needs. The two themes are discussed under the sub-themes developing leadership and managerial skills, the blended-learning approach, and the enquiry-based approach.

#### *Theme 1: Benefits and gains*

##### **Developing leadership and managerial skills**

The TVET programme places a strong emphasis on networking and mentoring as leadership skills and the participants in the programme were exposed to various opportunities to experience the value of mentoring and networking. Concerning their networking experiences in the programme, one of the participants stated:

[W]e always worked in isolation as TVETs; this programme has actually brought us close to even share knowledge and resources outside this programme.

Another felt that the networking opportunities reframed the way he viewed himself and his college, stating:

... having to see myself and my college as part of a global village is quite great.

This sentiment was shared by another participant, who stated:

I am now thinking outside my environment – looking at provincial, national, continental and global perspectives.

The programme encouraged the participants to evaluate not only their own leadership and managerial practices but also the practices that exist in their colleges. One participant stated:

[I]t [the programme] helped me take an in-depth look at my leadership strengths and weaknesses.

Several participants commented on how the programme had helped them to develop specific skills, such as strategic planning. One participant concluded:

The college has year after year developed a strategic plan but consistently failed to achieve the set objectives. I now understand why we failed to achieve our objectives. We only developed the plan but ignored the organising, delegating, and coordination of leadership and management tasks. Maybe it might be that we lacked knowledge on those concepts.

The same participant also concluded by remarking:

[I]t is now up to me to be the change agent in the college by ensuring that the knowledge gained in this course is put to good use and also benefit[s] the college.

Some participants also reported developing soft skills such as being more inclusive and accepting of others, gaining more confidence, managing conflict better, involving staff, and focusing on improving staff and student morale and well-being. One participant said the following in this regard:

I became more consultative and inclusive in decision-making processes because of this programme.

### **Blended learning**

As stated earlier, the blended learning in this programme consisted of various activities such as self-study, podcasts, videos, assignments, mentoring, discussions, face-to-face contact sessions and a study visit to industry partners. When asked if they preferred a blended-learning approach to the traditional face-to-face only approach, the participants indicated that they preferred the blended learning. They believed the online activities augmented the face-to-face virtual contact sessions during block weeks. The following two quotations from the participants illustrate this:

E-learning allows more effective interactions between me and my instructors with emails, discussion boards and chat rooms. Blended learning enabled me to access the materials from anywhere at any time while enjoying the benefits of face-to-face support and instruction through contact sessions.

[P]rogramme participants from various provinces in our country could interact and engage meaningfully with learning without having to be in the same physical

room with the facilitators. Hybrid technology successfully replaced the physical classroom.

The University of Pretoria, where this programme is presented, is a contact learning institution and the initial planning for the programme was that the face-to-face contact sessions would be conducted in person on campus. Similarly, the scholarly visit to TUM in Germany would have been in person. However, this plan had to be amended due to the hard lockdown that existed in South Africa and globally for most of 2020, when this programme was launched. Both the face-to-face contact sessions and the study visit had to be moved online, with no direct in-person contact taking place between the facilitators and the programme participants. Although the participants expressed their gratitude that the programme could continue online, the message was also clear that they needed both online activities and in-person contact with their facilitators and the peer group. This is evident in the following statement by one of the participants:

Although we could continue studying online, I was so much looking forward to experience having contact sessions at the university.

This was confirmed by another participant, who stated that they needed the human contact associated with face-to-face learning.

Another benefit that the participants reported was that the programme enabled mastery learning. They were able to learn at their own pace, in their own time, through a variety of activities. This is evident from the following quotations:

I can tailor my learning experience while at the same time offering flexible time frames that can be personalised to me, offering me the ability to learn at my own pace.

Learning platforms provide access to all kinds of multimedia and interactive content that significantly expand classroom face-to-face interaction.

It was more engaging to me and enabled me to manage time efficiently. Kept me to plan and to develop self-accountability while at the same time learning skills in the use of technological devices/equipment such as computers to study.

A third benefit was that the participants believed the programme enabled them to take responsibility for their own learning and to master various skills. This is evident from the following statement:

It challenges programme participants on how we do things in going forward as it is bringing a different dimension on how a student conducts his or her studies. The online component of this programme had a very positive impact on my studies and has taught me self-reliance and discipline skills.

Finally, the programme inspired the participants, who are teachers themselves, to use their blended-learning experiences to transform their own colleges. At the time of this study, they were struggling with the implementation of online learning that had been forced on them by the COVID-19 lockdown regulations. This is evident in the following two statements:

The impact is so great to the extent that my college has started doing the same. I made inputs based on what I was exposed to in this programme and now for me teaching and learning has no borders.

... as a campus manager leading one of the campuses in the deep rural province of the Eastern Cape with poor facilities and infrastructure not conducive for virtual teaching and learning, noting that most students own smart phones, I inspired lecturers to make sure they interact with students by all means.

### **Enquiry-based learning**

The enquiry-based learning approach that was followed in this programme aimed to emphasise the participants' role in the learning process and to encourage them to explore, ask questions, share ideas and promote their critical thinking skills. Some of the participants commented on the ways in which the programme had encouraged them towards self-efficacy and to apply what they had gained from the programme in their own colleges. The following quotations illustrate this:

It [the programme] encourages independence and innovation.

The programme is very well suited to a business development manager who must at all times encourage innovation and creativity in the college offering.

It [the learning approach of the programme] is the most creative way of producing learners who will be able to research and look for information whenever they are in a particular situation.

Hybrid learning [with reference to the entire approach in the programme] is important because it breaks down the traditional walls of learning, and now with access to present-day technologies and resources hybrid learning forces time management, working independently, flexibility in your learning as [a] student and has taught me independence and discipline. Personally, it has covered all the critical skills needed by a leader in an ideal TVET college.

Through this programme I have learned that for every challenge there is a solution. Through enquiry-based learning one can be able to understand the problem [one is] faced with, identify the reasons why the problem exists and explore possible solutions available and decide on the best solution to address the problem.

## ***Theme 2: Challenges and unmet needs***

The benefits and gains the participants in this study reported exceeded the challenges and unmet needs they shared. The researchers reflected on why this was the case and concluded that there may have been many explanations. For instance, it could be that they mostly had overwhelmingly positive experiences of the programme. Alternatively, it could be that they wanted to please the facilitators, who were also the data collectors, or that they felt they could not criticise the programme because they were sponsored financially by the DHET/ETDP SETA and had been selected above other candidates to be part of this programme. The researchers comment on this again in the 'Limitations' section below.

### **Developing leadership and managerial skills**

Three participants reported that COVID-19 posed a significant challenge to acquiring all the necessary leadership skills. One participant believed the pandemic, with the associated lockdown regulations, to a certain extent limited his opportunities for networking and receiving mentoring. This is illustrated by the following statement:

COVID-19 did have an impact on my progress in the PGDip programme because we could not visit Germany to be fully exposed to the dual approach system for vocational education.

A second participant noted that her progress was affected by the many changes she had to adapt to which affected her progress, such as:

[A]djusting to work from home, attending online meetings, at times managing the crisis of infected colleagues and family.

A third participant indicated that:

[T]he pandemic increased my workload at work and that impacted my studies negatively ... and I felt overwhelmed at some point.

Some expectations of the programme regarding the development of specific leadership and managerial skills that were not met are evident in the following statements:

Project management was not addressed. As leaders we are often expected to manage projects.

I wish the strategic plan was aligned to monitoring and evaluation of the action plans developed.

The programme is more focussed on teaching and learning and it does not talk of support staff of which (sic) at the college they play an important role.

The programme did not address the capacity to deal with strikes by students and staff and the political tension that mobilise[s] and cause[s] college instability.

### **Blended learning**

The challenges the participants experienced with the learning activities primarily related to practical matters such as having limited or no access to the internet or experiencing problems with connectivity. An unreliable electricity supply and having to balance their work lives with learning activities were challenging.

The participants dealt with many upheavals in their schedules and faced staff challenges arising from COVID-19. This is evident in the following statements:

The important ingredient [in the programme] is the access to a stable Wi-Fi and reliable electricity connections.

Online interaction was possible though not as convenient at times (network problems, wrong times, and congested college).

### **Enquiry-based learning**

When they developed this programme, the developers were concerned about the complexity of enquiry-based learning. They felt this could be a potential barrier to the participants' learning if they had demanding work schedules and, in most instances, they had not undertaken postgraduate studies at all or recently. Some of the participants commented on how they initially felt overwhelmed by the programme and struggled to find some rhythm and routine. One participant stated that she felt overwhelmed by the programme's complexity during the orientation session, where they were introduced to the programme structure and the mode of delivery. She stated the following:

During orientation the programme seemed complicated and I was not sure if it was a good decision for me to continue.

A few participants commented on how they struggled to adjust to the programme. One stated:

It was a struggle at first.

Another stated their challenges a little differently:

At the beginning of the course, I was unable to balance my work and my studies but that changed after developing a strategy to at least, in a day, read or complete an activity; that is when I started to enjoy the online learning and sharing information with some of my colleagues.

One participant highlighted various issues they struggled with in the programme:

It [the programme] was difficult for an older learner like myself who had to make an extra effort ... I felt sort of out of my depth and was shy to ask questions in front of my peers.

## **Discussion**

The findings of this study show that the subjective experiences of the participants of the enquiry-based blended-learning design of the PGDip in TVET programme were predominantly positive. The programme encouraged the participants to evaluate themselves critically as leaders and managers and also to evaluate the leadership practices at their colleges. It challenged them to identify the problems and challenges they encountered in their colleges and to develop a strategic vision and plan to resolve them. The programme also promoted the development of soft skills such as being flexible and adapting to change, being resilient and overcoming challenges, and being inclusive in decision-making processes.

This finding is significant when one considers that this programme is an attempt to redress the lack of leadership in TVET colleges, as identified by various scholars, with a call for increased accountability and objectivity in colleges (Mohlakoane & Coetzer, 2007; Badenhorst & Radile, 2018; Robertson & Frick, 2018; Worku, 2019).

Our findings concerning the enquiry-based and blended-learning approach followed in the programme show that these approaches to learning complement each other. The combined approaches encouraged the participants to become independent, critical and self-efficacious learners. They discovered that co-constructing their learning with peers and experts in the TVET sector creates a strong community of practice that promotes their learning even during challenging times.

These findings have implications for practice. They align with Jonker, März and Voogt (2018) and Lubua (2019), who recommend flexible, diverse and individualised approaches to learning which prepare learners for the 4IR. This can be achieved by developing skills such as critical thinking, problem-solving and self-management, including active learning, resilience, stress tolerance and flexibility (WEF, 2020).

The challenges the participants shared were driven mainly by the adverse circumstances that they faced as a result of the COVID-19 pandemic. This also affected the way in which the programme was delivered. Similarly, access to resources such as electricity and stable internet connectivity played a significant role in the way the participants experienced this programme – which relied heavily on these resources. Given that for learners in South Africa these challenges are unlikely to disappear in the foreseeable future, it is essential that TVET facilitators who plan to use enquiry-based blended-

learning methods are sensitive to these challenges and plan to overcome and manage them in ways that will not compromise learning (Cronje, 2020). It is also important to note that when challenging pedagogical approaches such as enquiry-based learning are pursued, learners may feel overwhelmed and this may inhibit their growth and undermine their self-belief. It may be necessary, therefore, to normalise the challenging nature of this approach by making them aware of the level of difficulty associated with it and suggesting strategies that could possibly support them while they are adjusting to this approach (Khalaf & Zin, 2018).

### **Limitations of this study and future research**

This study was conducted during the COVID-19 lockdown in 2020, when face-to-face contact learning was primarily converted into online modes. This had implications for the ways in which the participants evaluated the programme, since they were unable to experience the entire design of the programme, which would have included in-person face-to-face learning during week-long contact sessions on campus. They would also have experienced the scholarly in-person study visit to Germany, which had to be experienced online instead. To understand fully the ways in which the participants experience the intended design of the programme, this study may have to be repeated with a subsequent cohort now that more relaxed lockdown measures permit contact and travel. This may result in their reporting different experiences, especially their mentoring and networking experiences.

Another limitation that was identified relates to the method of data collection. As stated previously, the data were collected by two of the facilitators in the programme. In addition, the participants were asked to report on a programme that the ETDP SETA and the DHET had funded fully. It is plausible that the participants' feedback was mainly positive due to the unequal dynamics that may have existed between participants and facilitators, and the participants' need to please the facilitators and their funders could have been an inhibiting factor. Future research could include a follow-up study with the participants to gain their perspective on the ways in which this programme changed and benefitted their leadership skills after applying their newly acquired knowledge gained from the programme.

As noted, the purpose of this study was to explore the subjective experiences of the first cohort of participants who enrolled for the PGDip programme. The programme design and the way it influenced their engagement in the programme were considered. From a programme improvement perspective, this study provided a number of valuable insights. However, the study was limited to experiences that are subjective and contextually bound. Considering the need to advance research relating to the ways in which leadership skills can be developed in the TVET sector, it would be prudent to conduct studies that objectively assess the effectiveness of enquiry-based learning and blended learning, specifically in TVET leadership development programmes.

## **Conclusion**

Exploring and describing the experiences of the PGDip in TVET participants of the enquiry-based blended-learning approach used in the programme showed that this approach to learning was well received by the participants and that they found it well suited to developing their leadership and managerial skills. The participants acknowledged that the enquiry-based blended-learning approach influenced their engagement in the programme and that it enabled them as TVET leaders to function in the South African context. The challenges that were noted with this approach were mostly related to contextual factors that could easily be managed and resolved by the facilitators of the programme. Leaders are not developed overnight and there is not one single approach that could be regarded as the best to deal positively with the leadership skills crisis in the TVET sector. However, this study suggests that an enquiry-based blended-learning approach could be one option that has the potential to develop critical and self-driven leaders in this sector.

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# EDITORIAL POLICY AND PROCEDURE

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The *Journal of Vocational, Adult and Continuing Education and Training* (JOVACET) recognises the need for critical engagement through studies in TVET and Adult and Continuing Education and Training, and for encouraging critical scrutiny of this expansive knowledge area on the African continent.

The voices and experiences of practitioners, reflecting on all aspects of teaching and learning within vocational education and adult education settings, should be heard through publication of empirical and robust research. While the journal clearly wishes to take forward academic scholarship, it also seeks to strengthen opportunities for reflective practice that makes a scholarly contribution to the field. New knowledge emerging out of complex developmental contexts has significant value and needs to be showcased beyond existing geographical and political boundaries. The journal is therefore committed to also supporting the development of emerging researchers by providing them with a space to present and defend their research among a network of global scholars. Within the field of vocational and continuing education there is substantive ‘grey literature’ that remains in project report form. The journal is potentially a vehicle for the translation of this important work into an academic contribution to a wider community of practice and thereby enhancing its value.

The JOVACET will appear at least once a year. Unsolicited articles are welcome for consideration and should be uploaded onto the JOVACET’s website online journal or else emailed to the journal’s managing editor.

The editors are accountable for everything published in the journal and should therefore:

- work towards improving the contents of the journal;
- adopt peer-review methods best suited for the journal and the research community it serves;
- ensure that all manuscripts have been reviewed by appropriate reviewers;
- ensure quality assurance processes are in place for the material that is published; and
- uphold the highest standards of integrity, intellectual rigour and ethics.

The editors will not disclose any information about the submitted manuscripts or their authors to anyone other than the author(s) and reviewer(s), as appropriate.

Submitted articles will be reviewed by two anonymous external referees in a 'blind' peer-review process. Appropriate papers will be reviewed according to their significance and soundness. Articles that have been submitted must not have been published or accepted for publication elsewhere. The editors are responsible for deciding which of the manuscripts submitted to the journal will be published. The editors' decision to accept or reject a manuscript should be based on the importance of the manuscript, its originality and clarity, the validity of the study and its relevance to the journal's scope. Considerations will also include current legal requirements regarding libel, copyright infringement and plagiarism.

Submissions may not exceed the 8 000-word limit and must contain a title, abstract of not more than 200 words and be correctly and completely referenced according to the Harvard system of referencing. Footnotes should be kept to a minimum. Tables should be positioned where they are referred to and not be submitted separately. Authors are requested to consult the author's guidelines on the website.

The article should not contain any identification of the author and should be anonymised as far as possible. The name(s) and affiliations of the author(s), as well as their email address, should appear on a separate page.

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## **VOLUME 6, ISSUE 1**

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You are invited to submit an article for the sixth volume of JOVACET to be published in October/November 2023. JOVACET is an accredited publication with the Department of Higher Education and Training.

Articles should be topical with regard to current debates/discourses and recent research in the TVET, Adult, and Continuing Education and Training domains. Submissions should be of high quality and follow academic research/writing conventions of journal articles in the social sciences. Specifications can be found on the JOVACET website ([www.jovacet.ac.za](http://www.jovacet.ac.za)) or obtained from Dr Catherine Robertson at [cathy@tcrobertson.co.za](mailto:cathy@tcrobertson.co.za).

Articles should comprise a maximum of 8 000 words, including the abstract of approximately 200 words and a list of references, and be submitted in MS Word format via the journal website at [www.jovacet.ac.za](http://www.jovacet.ac.za) or emailed to Dr Catherine Robertson at [cathy@tcrobertson.co.za](mailto:cathy@tcrobertson.co.za). Kindly follow the style guide which is provided on the website.

We look forward to receiving your submissions!

**Due date for full paper submissions: 31 March 2023**

# THE JOURNAL OF VOCATIONAL, ADULT AND CONTINUING EDUCATION AND TRAINING

The Journal of Vocational, Adult and Continuing Education and Training (JOVACET) recognises the need for critical engagement through studies in technical and vocational education and training (TVET) and adult and continuing education and training, and for encouraging critical scrutiny of this expansive knowledge area on the African continent.

Editorial

*Joy Papier*

A comparison of the performance of learners transitioning from TVET college and their certificated high-school counterparts

*Rodney Stops, Darren Lortan, Deepak Singh and Suresh Ramsuroop*

From out-of-school-youth to TVET student: Exploring the funds in families and communities that facilitate second-chance learning

*Jennifer Esau and Doria Daniels*

Exploring the value of the sociological Careership Theory in the South African TVET context

*Lucky Maluleke, Lesley Powell and Shervani Pillay*

Beyond 'supply and demand': Moving from skills 'planning' to seeing skills as endogenous to the economy

*Stephanie Matseleng Allais*

An examination of the English curriculum in Technical and Vocational Education and Training colleges

*Mary Mmatsatsi Madileng*

Curriculum reform in agricultural vocational education and training in Zimbabwe: Implementation challenges and possibilities

*Chenjerai Muwaniki, Simon McGrath, Muneta Grace Manzeke-Kangara, Volker Wedekind and Tafireyi Chamboko*

Designing complex, challenging and creative assessments for work preparedness:

A review of competency-based assessment

*James Garraway*

TVET leaders' experiences of an enquiry-based blended-learning programme

*Tanya Smit and Suzanne Bester*



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