Learning at Sea: Blended courseware creation for non-accredited vocational education and training for sea-farers at sea and ashore

Robin Ferguson, Rhodes University, South Africa

Abstract

Approximately 80% of South Africans do not receive formal post-school education and training (Southafricami, 2020) which implies that the majority of adults may receive non-accredited Vocational Education and Training (VET) or teach themselves. This article provides a theoretical and practical lens for VET educators and researchers on *non-accredited VET courseware creation* at an intra-programmatic level and it joins a long conversation in the regional and international academy on VET. It draws upon the case study of a production programme which was rolled out in three phases over five years for approximately 400 seafarers. The production programme was a forerunner in the deep-sea trawl industry and facilitated the inclusion of sea-going factory workers in workplace training for the first time. The Theory of Practice Architectures was employed as a conceptual framework to analyse and synthesis the corpus of data arising from a case study with nine methods for data collection. The findings reflect four characteristics concerning the practices of courseware creation for non-accredited VET. Three recommendations are made in the conclusion of this article which concern theoretical, methodological and systemic areas of of non-accredited VET.

Keywords: *non-accredited Vocational Education and Training (VET); Theory of Practice Architectures; courseware creation; sea-going workers*

Introduction

This article aims to explain the practices involved in the creation of a non-accredited Vocational Education and Training (VET) programme in the South African fishing industry. The reference to non-accredited VET refers to workplace training which falls outside of the South African National Qualifications Framework. The insights presented arise from the five-year roll-out of a production programme which was designed to upskill 400 seafarers to process fish aboard the factory ships of a multinational deep-sea trawl company (Company A). The article draws upon a broader doctoral study (Ferguson, 2023).

This article joins the long conversation on VET in the region and beyond. This is a conversation intended to provoke engagement around VET policy, practice and research

in order to meet the challenges of VET (for sustainability) in the Age of the Anthropocene. Examples of recent and significant contributions to this conversation can be found in the scholarly body of work emanating from the southern African academy on non-accredited VET which focuses on agriculture and fishing (Kachilonda, 2014; Lotz-Sisitka et al., 2017; Mphepo, 2020; Mukute, 2010; Mukwambo, 2021; Pesanayi, 2018). Another example is a large-scale international research project completed by a scholarly collective entitled VET Africa 4.0 (VET 4.0 Collective, 2023).

Implicit in this article is the premise that non-accredited VET is significant. Understanding how non-accredited VET works, including how courseware is created, is particularly important as over 80% of South Africans, whether employed or not, do not receive an accredited post-school education at a tertiary institution (Southafricami, 2020). They may only ever receive non-accredited VET in the workplace or they may simply be left to teach themselves. This was the case with the majority of the sea-going factory workers of Company A who received no workplace training until 1995; from then onwards sea-going staff were offered non-accredited VET through the company.

The foundation of the current post-school education and training institutions system was laid in the White Paper for Post-School Education and Training (Department of Higher Education and Training [DHET], 2014). Although these formal institutions have recently experienced an increase in enrolments, demand outstrips supply:

> The upsurge in the number of 'people not in employment, education or training' suggests the need to expand access to post-school education and training opportunities in the system beyond current provisioning levels in order to accommodate such growing number of people who are 'people not in employment, education or training'. This requires Post School Education and Training institutions to offer a diversity of programmes not only to take account of the needs of the youth who completed schooling, but also for those who did not complete their schooling. (Khuluvhe & Negogogo, 2021, p. 3)

While non-accredited VET falls outside of the accredited post-school education and training system, it may offer one way of provisioning demand-led VET to ease the gap identified by Khuluvhe and Negogogo cited above. This could be achieved by capacitating workers for specific jobs, required at a specific times in a specific company through non-accredited in-house training programmes such as the production programme in this study. As a large multinational organisation, Company A invested in both accredited VET for senior and technical staff and non-accredited VET for sea-going factory workers over the last 25 years. Without these non-accredited VET programmes, the majority of the sea-going workers would neither have received any form of post-school education, nor reaped the socio-economic benefit of continued employment which these non-accredited workplace VET programmes afforded them. Despite the fact that the production programme was non-accredited, it was nevertheless recognised in the deep-sea trawl industry because the improved skills and knowledge of the sea-farers had become known along the quayside.

The contribution which this article seeks to make is to deepen both the theoretical conception and the practical application of the practices required to create non-accredited VET courses which equip workers with an "education to live well in a world worth living in" (Kemmis & Edwards-Groves, 2018, p. 134). This work speaks to Goal Four of the Sustainable Development Goals 2030 which seeks to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations [UN], 2019).

The scope of this article is firstly limited to the *intra*-programmatic level of *non-accredited* VET. It neither addresses matters of the industry-wide or national VET system, nor the broader scholarly debates on VET within the region or abroad. Secondly, although it is acknowledged that there are other practices involved in the development and deployment of non-accredited VET, this article is limited to the practices of creation of non-accredited courseware. This is because the data in the doctoral study, on which this article is based, indicated that the creation practices had a disproportionately large effect on the production programme as they informed the teaching and assessment practices and influenced the transfer and scaling of the programme as it matured. With this in mind, it seemed appropriate to privilege the creation practices of non-accredited VET in this article.

This article traces the creation practices of non-accredited VET through four sections. The first section lays out the context of the production programme, while the second section focusses on the conceptual framework, research design and methods employed to open up the creation of courseware practices of the production programme. The third section addresses the findings of the study and the article concludes with a number of recommendations.

Context of the production programme case study

Use of terms: Accredited and non-accredited VET

This article addresses the creation of coursework for a *non-accredited* VET programme. It is thus important to understand the use of the terms 'accredited' and 'non-accredited' VET in the context of the production programme case study. Accreditation is a significant area of study, however, the description provided here is limited to providing context for this study. The distinction between accredited and non-accredited in the South African VET landscape is important to this topic as the type of VET informs the range of creation practices required for the development of either an accredited or a non-accredited training programme.

It is noted that there are many different definitions of accredited, non-accredited, formal, informal and unformal education which appear to hinge around a number of criteria inter alia, un/structured nature of learning; un/recognised qualifications; whether the intention of the learning was deliberate or incidental; the use of artefacts e.g. curricula and assessments; and the agency of the learner and the teacher (Ramsarup, 2017, pp. 118-120). For the sake of clarity, this study uses the terms 'accredited' and 'non-accredited' VET.

In this case study *accredited* VET is considered to be those programmes which are conducted under the aegis of the South African National Qualifications Framework and delivered through the Post-School Education Training Institutions.

Non-accredited VET includes training programmes which are not accredited by the South African National Qualifications Framework and may be regarded as,

> … education [which] consists of courses which draw upon a particular body of knowledge and are delivered with clear objectives. The aim is most commonly to share knowledge and build skills and competence required by an organisation. The form of assessment may vary, or there may be no assessment at all, and learners are issued with a certificate of attendance. Non-accredited VET is often delivered by private providers at the behest of the company. (Ferguson, 2023)

The rationale behind Company A's substantial investment in 14 *non-accredited* VET programmes over an almost continuous period of 25 years is worth elucidating. The organisation's motive was three-fold, Firstly, the content of the production programme contained intellectual property around the firm's processes and premier products; by formally accrediting this course, this information would have fallen into the public domain. In addition, there were no suitable accredited VET courses available for sea-going production. Secondly, the need to improve production efficiencies through improved knowledge and skills was urgent and the formal accreditation route through the Sectoral Education and Training Authorities (accrediting bodies of the South African National Qualifications Framework) can be a time-consuming and inflexible process. Thirdly, Company A could claim a portion of the costs, albeit a smaller portion, of the *non-accredited* VET through the Skills Development Fund (generated through employee taxation and distributed to companies for providing VET to their employees as per a Workplace Skills Plan).

The production programme case study

The deep-sea trawl sector is regulated by the South African Maritime Safety Authority (SAMSA, n.d.) and the Department of Forestry, Fisheries and the Environment. Entities compete for the 33 long-term fishing rights and may be granted rights with an annual Total Allowable Catch which is measured in landed seafood product. The South African Deep-Sea Trawling Industry Association (SADSTIA) reports that the industry earns approximately R 4.3 billion in annual sales, and employs 12 400 directly and indirectly (SADSTIA, 2022). There are 53 freezer and fresh fish trawlers operating out of Cape Town, Saldanah, Gqeberha (Port Elizabeth), Gansbaai and Mossel Bay. The industry has a strong sustainability directive and organisations hold memberships with the Responsible Fisheries Alliance and the Marine Stewardship Council.

Company A operates freezer vessels and fresh fish vessels. The former are bigger, produce market-ready frozen fish fillets and stay at sea for about 35 days, while the latter process fresh fish as the raw material for a shore-based seafood processing plant and these vessels average five- to seven-day trips. The objective of the production programme was to

improve production efficiencies aboard the fresh fish and freezer fish vessels. This was both good for business and good for the environment as more products could be made with less fish. Company A had embarked on 14 non-accredited VET programmes with the author over a period of 25 years from 1995. This meant that the non-accredited VET production programme benefitted from the programmes which preceded it and contributed to those which followed. There were three phases or generations of the production programme which ran over five years. Roughly speaking, the first generation covered production principles and key procedures; the courses followed a classic 'talk and chalk' pedagogical model <u>ashore</u> and very limited assessment was introduced. The second generation occurred at <u>sea and ashore</u>, covered every single procedure on every freezer vessel and introduced strong, workplace-based and continuous assessments. The third generation was in the pilot phase when this case study was finished and was pursuing a bold model of <u>blended online</u> learner-driven VET at sea using ubiquitous internet apps. Each generation was a pioneer in the industry at the time. Several hundred men were equipped to process fish at sea through the creation of course content, the teaching and assessment of the production programme. Processing seafood in the onboard factories is complex, precise and dangerous. This requires employees to develop specialist knowledge and practical skills which are demonstrated in the hard measurements of production efficiencies commonly applied to food processing factories.

The essential pedagogical problem to solve for the sea-farers working on the factory ships was how to produce effective learning for staff with an average level of English literacy and numeracy of Grade 7 (primary school), who had very little or no internet connectivity when at sea, and who were mostly unreachable as their workplace was at sea. The sailors came from many southern African countries and had diverse cultures and spoke many languages (multiple southern and central African languages, French, Portuguese and English). The sea-going workforce consists of only men aged 18-60 years-old, and the workplace is also the living and learning space which comes with significant social opportunities and challenges. For most of the learners, the production programme was their first training experience since leaving school many years before. There was a universal fear of 'book' learning and a lack of confidence amongst the learners. The creation of courseware practices were foundational in meeting these pedagogical challenges and surmounting the emotional and relational hurdles to learning mentioned.

Framing of the study

Conceptual framework
The Theory of Practice Architectures (TPA) was used as the conceptual framework to analyse and synthesise the data. The choice of TPA for this study enabled the isolation and identification of the *creation of courseware practices* from the corpus of data which held many different kinds of practices, for example, practices of teaching and learning or assessment.

TPA is one of a group of socio-material practice theories and it provides a site ontological perspective on practices i.e. what *courseware practices* <u>actually</u> took place rather than what *courseware practices* <u>one thinks or assumes</u> took place. TPA afforded a granular 'zoom in' perspective of the sayings/thinkings, doings and relatings of the *creation of courseware practices* for sea-going staff, and whether these practices confounded or promoted the production programme. This theoretical approach also allowed for a 'zoom-out' abstraction of the data for the identification of an overarching dimension or the Practice Architecture of Range (see fourth section of this article) which held the *creation of courseware practices* identified in place. A metaphor for practices and Practice Architectures is a river and its banks – where the river (practices) shapes, and is shaped, by the river (Practice Architectures). TPA, embedded in a theory of education, is a complex and comprehensive theory. For the purposes of this article, only the building blocks of TPA most relevant to the *creation of courseware practices* and the Practice Architecture of Range are described. A detailed account of TPA as an educational theory may be found in Kemmis and Edwards-Groves (2018), Mahon et al. (2016) and Kemmis et al. (2014).

Figure 1 below illustrates the dynamic and multi-directional process of thinkings/sayings, doings and relatings practices bundling together into practice arrangements as the practices move through the cultural-discursive, material-economic and social-political inter-subjective spaces respectively. These arrangements combine to form Practice Architectures over time. In Figure 1 the illustration starts with practice arrangements (T1) and moves left to influence practices (T2) which in turn moves right to influence practice arrangements (T3) and moves left again to influence practices (T4) and so on over seven time periods in this illustration. Figure 1 shows a cycle of mutual shaping which occurs between practices and practice arrangements combining to form overarching Practice Architectures (Ferguson, 2023).
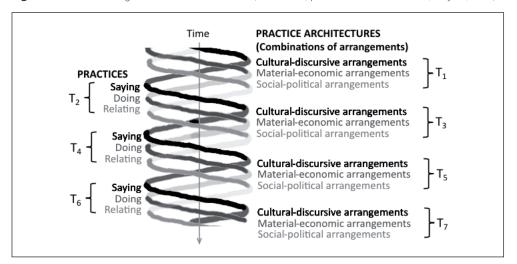
Figure 1: *Practice arrangements and architectures (S. Kemmis, personal communication, July 31, 2021)*

Recent theoretical developments of the TPA helped to make visible, the invisible pedagogical practices of the *creation of courseware* in the Production Programme. These enhancements included inter alia, embedding TPA in a theory of education (Edwards-Groves et al., 2018); the conception of leading as a transformational practice in education (Edwards-Groves & Grootenboer, 2021; Edwards-Groves et al., 2020; Gibbs, 2020; Wilkinson, 2021); the idea of travelling practices (Wilkinson et al., 2013); and the description of the 'leverage professional' (Jenkin, 2020). Practice theory in combination with social theories of time (Blue, 2019; Blue et al., 2020; Karger, 2021; Southerton, 2003) was also useful as the practices described took place over five years and built upon 20 years of *creation of courseware practices* which preceded them.

Research design and methods

The research design was a nested case study. Nine methods for data collection were used, namely, a historical reflective narrative; two semi-structured focus group interviews; three semi-structured individual interviews; four WhatsApp videos and one mini-podcast; two mobisodes (3–4-minute teaching videos); 29 documents, ten questionnaires and 16 photographs.

Noteworthy in the collection of data for the practices of courseware creation was the flexibility required to accommodate the changing circumstances brought about by the Covid-19 pandemic and a switch of company executives at Company A. Covid-19 was particularly disruptive to the collection of data using in-person methods as the sea-farers were isolated on the vessels whilst in port, and the researcher was not permitted on site to prevent the spread of the disease ship-shore. A "methodology of chance" (Yahalom, 2020) was adopted which enabled an agile approach to convenience sampling. As the data collection deviated from what had been planned, determining how much data was enough become crucial. Malterud et al. (2016) offered the practical concept of "information power" as a way of assessing the quality and quantity of data collected based upon five criteria – aim, specificity, theory, dialogue and analysis. Information power also provided a reflective tool throughout the data analysis and synthesis stages.

The practices of the *creation of courseware* were identified from this corpus of data using the TPA-heuristic tools provided for the analysis and synthesis of data (Kemmis, 2022; Kemmis & Edwards-Groves, 2018; Kemmis et al., 2014). These tools were useful in ameliorating positionality and are worth further research and application for this reason (cf. section on Recommendations).

Discussion on findings

The findings concerning the *creation of non-accredited VET courseware practices* were fourfold namely, 1) 12 distinct courseware practices were identified; 2) the process of the creation of courseware was both fun and iterative; 3) the creation process was disruptive; and 4) the bigger context of the practices of courseware creation was explored. These four characteristics are described below.

The twelve practices of non-accredited VET courseware creation

The creation of courseware for Generations One and Two of the production programme started from scratch as there were no similar training programmes in the industry or the company to use as a departure point. The creation of courseware began with mapping out the variable production processes on the fresh fish and freezer vessels, then determining each procedure which made up this process, and finally creating qualitative and quantitative measurements for each procedure. The knowledge products created for Generations One and Two were a number of physical workbooks, a 500-page comprehensive manual and approximately 35 standard operating procedures with measurements. Supporting material for the *non-accredited* VET educator and assessors was also created. The creative output of courseware for Generation Three is discussed under the disruptive element of courseware creation (two sections ahead). The use of TPA as a conceptual framework allowed the researcher to isolate and identify particular courseware practices by asking: What were we thinking/saying (cultural-discursive), what were we doing (material-economic), and how were we relating (socio-political) as we created non-accredited courseware? The heuristics available to work with data using the TPA conceptual lens (Kemmis, 2021; Kemmis & Edwards-Groves, 2018) were useful. These helped firstly, to 'zoom in' and disaggregate the data into sayings, doings and relatings and secondly, to 'zoom out' to spot trends and dimensions i.e. the overarching practice architectures which are combinations of the arrangements which hang together and move through time making practices possible as illustrated in Figure 1 above.

Twelve practices of courseware creation were identified in the data. These practices are represented in Table 1: The range of courseware creation practices or tools and their use in each generation of the production programme. As described earlier, there were three phases or generations of the production programme; two thirds of the practices of courseware creation were used in all three generations (shaded blocks), while one third were used in some of the generations (unshaded blocks). The last mentioned relate to the creation of simulation exercises, and the creation of a blended (ashore and at sea) offering. The reason for this is that these creative practices were 'once-off' in the instance of the production programme.

Table 1: *The range of courseware creation practices or tools and their use in each generation of the production programme (Ferguson, 2023)*

#	Course creation tools	Generation 1	Generation 2	Generation 3
1	Research content	X	X	X
2	Map (production) process	X	X	X
3	Observe process	X	X	X
4	Interview subject matter experts	X	X	X
5	Experiment with different methods of presenting content e.g. simple simulation exercises	X		X
6	Discussion amongst co-creators (Knowledge was held collectively as not one of us had all the information)	X	X	X
7	Curate content and draft the courseware material for the Learner's Guide, Facilitator's Guide, Portfolio of Evidence, assessments	X	X	X
8	Shooting of videos and/or photographs for content purposes	X	X	X
9	Creation of online content i.e. mobisodes			X
10	Create online platform – internet-based community TV			X
11	Creation of online and offline learning platform called the Future People Online-In-Person Learning Platform (FOIL)			X
12	Revise courseware and PowerPoint	X	X	X

The creation of courseware was collaborative, iterative and fun

Having fun and the institutional space to experiment with was key to the creation of courseware in this pioneering work. The courseware creation group consisted of a subject matter expert (production manager), the researcher-practitioner and a VET consultant. The quote below is taken from a focussed group interview with the courseware creation team which illustrates the dynamic process of creativity and relationality amongst the courseware developers as they iteratively developed the courseware for Generation One over *time*. The extract also shows the interrelated nature of the doings, sayings and relatings of the TPA framework.

> **Researcher-practitioner:** If we take a big, giant step back and say what we were thinking … [explain] your gin moments [a reference to the manager's moments of inspiration on Friday evenings after work] …
>
> **Manager:** I wasn't thinking much to be honest; I was <u>doing</u> … [laughing]
>
> **Facilitator:** And experimenting …

Researcher-practitioner: I think it is brilliant. It was experimenting. It was a very creative process.

Manager: <u>It had to be because it was new and hadn't been done before.</u> So it wasn't just taking something that was there and dusting it off and improving it with a little bit of creativity…we had to be creative all through …

Facilitator: And brainstorming … I think there was a lot of brainstorming.

Manager: <u>There had to be a lot of brainstorming</u> …

Facilitator: So your [Manager] experience of hands-on understanding of the business and our influence from training, practical things, and exercises. <u>I think it was a good team to develop and brainstorm and figure out what would work or what didn't work.</u>

Manager: <u>It didn't have to be done alone.</u>

Researcher-practitioner: Why do you think the brainstorming, the creativity worked well between the three of us? What made that happen well?

Facilitator: For me, we challenged each other. <u>And then we would land on something. And then we would try something, and it didn't work</u> …

Manager: <u>One of the bigger things was there like-mindedness in the sense of we all wanted something better.</u>

(Ferguson, 2023. Emphasis added by author)

Due to the urgency of the Company A executives' instruction to improve production knowledge and skills amongst the sea-going factory workers, the courses were 'built in flight' i.e., the delivery of the course began whilst the course was still being created. This meant that the courseware creators could be responsive to the reaction of the material by the learners and tailor-make meaningful courseware. For example, this dynamic allowed for the inclusion of additional training activities to help the learners get over the emotional and language obstacles to learning in the classroom. The courseware development led to the introduction of practicals, artefacts, and simulations, props and metaphors into the training material because,

> The challenges of trying to find simple and applicable ways to get complex messages across… it was just trying to find these because you couldn't use words because of the literacy issues … (Production manager in Ferguson, 2023)

The challenge of creating courseware sufficient to get complex principles and practices across to the learners is unlikely to have been successful without the collaborative, iterative and fun element of courseware creation. The conceptual lens of TPA was helpful as it speaks to changing practices, arrangements and architectures over *time*. The TPA lens opened up the data which indicated that the courseware creation practices mutually shaped each other over time i.e. material was created in T1, tested in the classroom in T3, reviewed and further developed in a virtuous cycle of courseware creation in T3 and so on (c.f. Figure 1)

The creation of non-accredited VET courseware was disruptive

Creation of courseware practices for Generation Three of the production programme (and another *non-accredited* VET course being developed at the time in Company A) was entirely different and was done by the researcher-practitioner working alone. The courseware creation practices disrupted the 'chalk and talk' shore-based training model to meet changing operational requirements, and differently constituted doings, sayings and relatings in the *non-accredited* VET context. The courseware development involved both the creation of a technical solution and the generation of course content which was suited to the technical delivery. The objective of the *non-accredited* VET blended online model was described in a report to the executive:

> A disruptive methodology for [non-accredited] VET, dubbed the 'Earning & Learning' Model, is proposed to achieve the above deliverables. [Non-accredited] VET is moved out of the shore-based classroom and onto the vessel, and learning moves from facilitator-led to learner-led. Assessment is no longer achieved using simulated exercises but is done on the line by an assessor who is a subject matter expert e.g. Sea-going Production Manager. Material is presented in short, manageable chunks called mobisodes and continuous learning becomes part of the working day and training courses ashore are obsolete. The 'Earning & Learning' Model is an agile and responsive method of training which means that new content can be added easily to meet a business requirement e.g. introducing a new cutting pattern for fillets. Advances in both the VET field and technology enable the emergence of a 'disruptive' and innovative way of reaching sea-going staff which has not been possible before. (Ferguson, 2023)

To suit the learning context, this had to be achieved without a learner management system, and the online *non-accredited* VET model needed to cater for learners with English literacy, numeracy and digital literacy challenges; and low or no connectivity in the workplace on the ships. At the time the General Manager of Company A stated,

> To reach more people in less time and to add value efficiently all the time … time off is sacred … certification [industry marine and engineering tickets] has been done at an institution, therefore, do the developmental training at work to maximise time at work. The blended online model was the perfect vehicle for that.

Despite the challenges and the organisational resistance to change, the blended, learner-driven *non-accredited* VET model increased the inclusivity of the lowest paid workers in training; and it meant that they could direct their own learning in the workplace (ships) for the first time in the industry. The blended model of *non-accredited* VET was met with excitement by the learners and there was early adoption of the technology. The online blended model of *non-accredited* VET drew on the work of Metelerkamp and Ferguson (2021) concerning the functionalities and social networking capabilities which ubiquitous low data apps offered *non-accredited* VET in particular. The digitisation of the production programme was in the pilot phase at the time this case study came to an end. TPA as a conceptual tool

provides a *site ontological perspective* rather than an epistemic one. Practices are "*situated* in time and space" (Kemmis et al., 2014, p. 33). The TPA lens shows what *actually took place* rather than what could have, should have, ought to have taken place. It was thus possible to make the claim articulated in this point that the practices of non-accredited courseware creation were disruptive because the practices which substantiated this claim were in plain site as observed through the TPA lens.

The creation of courseware practices in context: The bigger picture

The creation of courseware practices rolled up into the Practice Architecture of Range which also included the practices of teaching and learning (18 practices identified) and the practices of assessment (12 practices identified) (further details of these are shared in Ferguson, 2023). This makes a total of 42 practices. The practices of courseware creation, teaching and learning and assessment could each be regarded as a toolbox with a number of tools in each toolbox where,

> Not only can each tool from each toolbox be used in different combinations with each other but so can the toolboxes be used in different combinations with each other. For example, in Generation One and Two of the Production Programme, the tools and toolboxes were learner-centric, whereas, in Generation Three the tools and toolboxes were arranged to be technology-centric and focussed on the Future People Online-In-Person Learning Platform. (Ferguson, 2023)

This represents a limited form of "fluid ontology" (Srinivasani & Huang, 2005) because tools can be curated in endless permutations by many users to suit a particular context of an *non-accredited* VET intervention.

Recommendations

There appears to be an opportunity to work into the space of *non-accredited* VET and three recommendations are made to this end.

TPA as a theoretical tool

A theoretical recommendation for VET researchers is to use TPA as an,

> Analytic toolkit to investigate the social and material accomplishments and connections that form the basis for work and learning but have too often been treated as invisible or unimportant. (Hopwood, 2014, p. 349)

One of the challenges of the research which informs this article was the proximity of the researcher to the data over many years. Kemmis and others (Kemmis, 2022; Kemmis & Edwards-Groves, 2018; Kemmis et al., 2014) published a number of TPA-related heuristic tools. Some of these were the Tables of Invention which were helpful in untethering the researcher from the data. This was done by disaggregating data into the different practices

and the Practice Architectures which they formed, which could then be considered afresh as they played out over time. The courseware creation practices and the Practice Architecture of Range discussed in this article emerged from the corpus of data, firstly, through the development of analytic memos through an iterative process of reading through and listening to the nine data sources mentioned, and secondly, by populating a table of invention for the practice of courseware creation. The application of TPA and the heuristic tools of TPA in VET is a study in itself, and this methodological angle is beyond the scope of this article; nevertheless investigating TPA is encouraged.

Practical training on the 12 practices

The equipping of VET educators on the practical knowledge and skills of courseware creation may be helpful. This could be done through a *non-accredited* programme, or ironically, through an *accredited* course which forms part of an *accredited* VET educators' programme which is currently offered by some higher education institutions in South Africa. This is likely to lead to a growth and diversity of creation of courseware practices amongst the VET community of practice which may 'speak to' the many and varied training needs in this country.

Articulation between non-accredited and accredited VET

In the instance of the production programme, the certificates of completion were recognised in the deep-sea trawl industry simply because it was known along the quayside that the learners had production skills and knowledge above industry norms. This enabled sea-farers to follow a job development pathway within the industry, and in some cases, within the broader food processing sector. However, this kind of recognition and mobility is not always the case. This recommendation is supportive of research and practice which explores the ground between non-accredited and accredited training especially in terms of a) access of learners; b) recognition of additional skills; c) a flow of resources (money, human resources, knowledge capital, space and place etc.) amongst institutions and private providers to the benefit of learners.

Conclusion

Circling back to the remark made by Khuluvhe and Negogogo that there is a "… need to expand access to post-school education and training opportunities in the system beyond current provisioning levels …" (2021, p. 3), one could consider actively including *non-accredited* forms of VET to contribute towards closing this gap. However, to do this effectively a deeper theoretical and practical understanding of *non-accredited* VET is required, as well as its place in the broader national post-school education and training landscape. This article provides a first building block towards this project by opening up both theoretical and practical knowledge and skills for the *creation of non-accredited courseware*. The reason that courseware creation practices were privileged in this article is that the content and

process of the creation of courseware is the genesis of the process of *non-accredited* VET, which significantly shapes the practices of teaching and assessment practices that follow. The *non-accredited* production programme described in this study enabled more than 400 seafarers to experience VET for the first time which enabled them to better 'live well' in a 'world worth living in'.

Notes on Contributors

Ferguson, Robin

Dr Ferguson was awarded her PhD in the area of non-accredited Technical Vocational Education and Training (TVET) for sea-going employees. Robin is the managing director of Future People (Pty) Ltd and has a special interest in developing and delivering blended learning for those who are (further) disadvantaged in the Digital Age.

References

Blue, S. (2019). Institutional rhythms: Combining practice theory and rhythmanalysis to conceptualise processes of institutionalisation. *Time and Society*, *28*(3), 922–950.

Blue, S., Shove, E., & Forman, P. (2020). Conceptualising flexibility: Challenging representations of time and society in the energy sector. *Time and Society*, *29*(4), 923–944. https://doi.org/10.1177/0961463X20905479

Cundill, G., Lotz-Sisitka, H., Mukute, M., Belay, M., Shackleton, S., & Kulundu, I. (2014). A reflection on the use of case studies as a methodology for social learning research in sub Saharan Africa. *NJAS - Wageningen Journal of Life Sciences*, *69*, 39–47. https://doi.org/10.1016/j.njas.2013.04.001

Department of Higher Education and Training [DHET]. (2014). *White Paper for Post-School Education and Training*. No. 37229. Available from www.dhet.gov.za.

Edwards-Groves, C. (2018). The practice architectures of pedagogy: Conceptualising the convergences between sociality, dialogue, ontology and temporality in teaching practices. In *New Pedagogical Challenges in the 21st Century - Contributions of Research in Education*. https://doi.org/10.5772/intechopen.72920

Edwards-Groves, C., & Grootenboer, P. (2021). Conceptualising five dimensions of relational trust: implications for middle leadership. *School Leadership and Management*, *41*(3), 260–283. https://doi.org/10.1080/13632434.2021.1915761

Edwards-Groves, C., Wilkinson, J., & Mahon, K. (2020). Leading as shared transformative educational practice. In K. Mahon, C. Edwards-Groves, S. Francisco, M. Kaukko, S. Kemmis, & K. Petrie (Eds.) *Pedagogy, education, and praxis in critical times* (pp. 117-140). Springer.

Ferguson, R.A. (2023). *Pedagogy of Love: Reflections on 25-years of informal vocational training and development practices in the commercial fishing industry in South Africa.* [Unpublished doctoral thesis]. Rhodes University.

Gibbs, L. (2020). "That's your right as a human isn't it?" The emergence and development of leading as a socially-just practice in early childhood education. *Australasian Journal of Early Childhood*, *45*(4), 295–308. https://doi.org/10.1177/1836939120966093

Hopwood, N. (2014). Four essential dimensions of workplace learning. *Journal of Workplace Learning*, *26*(6/7), 349–363. https://doi.org/10.1108/jwl-09-2013-0069

Jenkin, N. (2020). *Collaboration in South Africa's forestry-products biorefinery innovation system: Examining the knowledge network of leverage professionals* [Unpublished doctoral thesis]. University of the Witwatersrand. https://doi.org/10.13140/RG.2.2.32991.07843

Kachilonda. (2014). *Investigating and expanding learning in co-management of fisheries resources to inform extension training*. [Unpublished doctoral thesis]. Rhodes University.

Karger, T. (2021). The signs of frenetic standstill: The concept of change in the discourse of lifelong learning and the tempo of the Czech National Qualifications Framework. *Time and Society*, *30*(3), 423–444. https://doi.org/10.1177/0961463X211006082

Kemmis, S. (2021). A practice theory perspective on learning: Beyond a 'standard' view. *Studies in Continuing Education*. https://doi.org/10.1080/0158037X.2021.1920384

Kemmis, S. (2022) *Transforming practices: Changing the world with the theory of practice architectures*. Springer.

Kemmis, S., & Edwards-Groves, C. (2018). Understanding education: History, politics and practice. In *Springer Texts in Education*. Retrieved from http://link.springer.com/10.1007/978-94-007-6265-7

Kemmis, S., Wilkinson, J., Edwards-Groves, C., Hardy, I., Grootenboer, P., & Bristol, L. (2014). *Changing practices, changing education*. https://doi.org/10.1007/978-981-4560-47-4

Khuluvhe, M., & Negogogo, V. (2021). *Fact Sheet on NEETS*. Department of Higher Education and Training. Available at https://www.dhet.gov.za/Planning%20Monitoring%20and%20Evaluation%20Coordination/Fact%20Sheet%20on%20NEET%20-%202021.pdf

Lotz-Sisitka, H., Mukute, M., Chikunda, C., Baloi, A., & Pesanayi, T. (2017). Transgressing the norm: Transformative agency in community-based learning for sustainability in southern African contexts. *International Review of Education*, *63*(6), 897–914. https://doi.org/10.1007/s11159-017-9689-3

Mahon, K., Francisco, S., & Kemmis, S. (2016). *Exploring education and professional practice: Through the lens of practice architectures*. https://doi.org/10.1007/978-981-10-2219-7

Malterud, K., Siersma, V. D., & Guassora, A.D. (2016). Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research, 26*, 1753-1760. https://doi.org/10.1177/1049732315617444

Metelerkamp, L., & Ferguson, R. (2021). Chapter 5: Technical transformations. In I. Kulundu-Bolus, G. Chakona & H. Lotz-Sisitka (Eds.), *Stories of collective learning and care during a pandemic: Reflective research by practitioners, researchers and community based organisers on the collective shifts and praxis needed to regenerate transformative futures* (pp. 99-132). Transforming Education for Sustainable Futures (TESF) and the Environmental Learning Research Centre (ELRC). https://doi.org/10.5281/zenodo.5704833

Mphepo, G. (2020). *Non-accredited learning in local farming practices by rural women in the Lake Chilwa Basin, Malawi: Towards coping and adaptation to climate variability and climate change*. [Unpublished thesis]. Rhodes University.

Mukute, M. (2010). *Exploring and expanding learning processes in sustainable agriculture workplace contexts*. [Unpublished doctoral thesis]. Rhodes University.

Mukwambo, R. (2021). *Mediating and examining expansive learning in the context of multidimensional complexities affecting household food security activity systems in Nyanyadzi Irrigation Scheme in the Manicaland Province of Zimbabwe*. [Unpublished thesis]. Rhodes University.

Pesanayi, T. (2019). *Boundary-crossing learning in agricultural learning systems: Formative interventions for water and seed provision in southern Africa*. [Unpublished doctoral thesis]. Rhodes University.

Ramsarup, P. (2017). *A critical realist dialectical understanding of learning pathways associated with two scarce skill environmental occupations within a transitioning systems frame*. [Unpublished doctoral thesis]. Rhodes University.

South African Deep-Sea Trawling Industry Association [SADSTIA]. (2022). South African Deep-Sea Trawling Industry Association. Retrieved April 26, 2022, from https://www.sadstia.co.za/

South African Maritime Safety Authority [SAMSA] (n.d.). South African Maritime Safety Authority. Retrieved March 9, 2020, from http://www.samsa.org.za/Pages/default.aspx

Southafricami. (2020). South Africa's education statistics. Retrieved May 6, 2022, from http://www.southafricanmi.com/education-statistics.html

Southerton, D. (2003). 'Squeezing time': Allocating practices, coordinating networks and scheduling society. *Time & Society*, *12*(1), 5–25. https://doi.org/10.1177/0961463X03012001001

Srinivasani, R., & Huang, J. (2005). Fluid ontologies for digital museums. *International Journal on Digital Libraries*, *5*(3), 193-204. https://doi.org/10.1007/s00799-004-0105-9

United Nations (UN). (2019). *Sustainable Development Goals*. Retrieved from https://sustainabledevelopment.un.org/sdgs

VET 4.0 Collective (2023). *Transitioning Vocational Education and Training*. https://bristoluniversitypress.co.uk/transitioning-vocational-education-and-training-in-africa

Wilkinson, J. (2021). Introduction: Educational leadership through a practice lens. In J. Wilkinson (Ed.), *Educational Leadership Theory* (pp. 1–16). Springer. https://doi.org/https://doi.org/10.1007/978-981-16-7629-1_1

Wilkinson, J., Olin, A., Lund, T., & Stjernstrøm, E. (2013). Understanding leading as travelling practices. *School Leadership and Management, 33*(3), 224–239. https://doi.org/10.1080/13632434.2013.773886

Yahalom, J. (2020). Toward a methodology of chance: On obstacles to research and their advantages. *Qualitative Psychology*, 7(2), 153–168. https://doi.org/10.1037/qup0000172