CriSTaL
CRITICAL STUDIES IN TEACHING & LEARNING

2023, Volume 11, Special Issue
DOI: 10.14426/cristal.v11iSI.626

A reflection on critical reflection in professional education research

Chris Winberg#, James Garraway, and Penelope Engel-Hills
Professional Education Research Institute, Cape Peninsula University of Technology
#Corresponding Author: winbergc@cput.ac.za

(Submitted: 5 January 2023; Accepted: 1 March 2023)

Abstract

The roots of universities of technology can be traced back to technical colleges, which required compliance with industry standards, and the rule of labour markets. Universities of technology thus entered the university space, largely without an established critical tradition in teaching, learning, and research. This is the issue that we address in this paper, which is intended to inform potential authors in technical, vocational, and professional higher education who would like to publish their educational research studies in *Critical Studies in Teaching and Learning (CriSTaL).* The issue is important as universities of technology in South Africa are increasingly taking on the mantle of professional education, particularly in the fields of health, engineering, and applied sciences. In this paper, we discuss examples of published educational research that critique some of the 'taken-for-granted' ideas that have shaped the practices and aspirations of universities of technologies. The examples show that by judiciously drawing on traditions of critical reflective practice, and by bringing new ideas, concepts, and theories into educational research studies, further critical concepts can evolve. These new critical concepts will be of interest to the readers (and reviewers) of *CRiSTaL*, but more importantly could inspire universities of technology to reaffirm their connection to practice and begin to create a critical space for their own scholarly – and critical – identities.

Keywords: critical reflection, critically reflective practice, critical reflection as research, universities of technology

Introduction: The university and professional education

Universities and the professions share a common history, dating back to the Middle Ages. Professional education was the starting point of universities, whose role it was to educate the 'learned' professions of law, medicine, and theology (Millerson, 1964: 2). There was mutual influence between universities and the professions; they shaped each other's practices and 'ethos' (O'Day, 2009: 79), including traditions of logic, debate, and openness – the foundational practices of critical reflection. The close connection between universities and the professions is seen in the etymology of the terms 'professor' and 'professional' that are designations 'enabling practitioners to profess a distinct speciality' (Millerson, 1964: 10).

The twentieth century saw technical institutes attaining university status, such as the German *technische hochschule*, the redbrick universities and the polytechnics in the United Kingdom, and the normal schools and land grant colleges in the United States, all originally established to provide technical training (Schwandt, 2005). The new institutes brought with them their own critical traditions, in particular, the idea of reflective practice in work-related problem-solving and decision-making. When university status was conferred on technical programmes, faculty members improved their qualifications and developed curricula that advanced theory and research, thereby putting the work of practitioners on a scientific foundation (Freidson, 2001). Bringing vocational and technical education within the purview of university education was also a route to enhancing the social status and authority of professional and other work-related practices. Accordingly, Ashwin (2020) and Barnett (2004) suggest that universities are institutions that have a developmental and transformative role in society and which support values such as critical thought, democratic rights, and social enlightenment in times of rapid change.

South African universities of technology made a late entry into higher education. Their roots can be traced back to technical colleges, which required compliance with industry standards, and the rule of labour markets. The neoliberal period has seen ever-increasing pressure on universities of technology to ensure the employability of graduates in the rapidly changing world of work, to offer degrees rather than diplomas, to produce innovative and responsive research, and to become entrepreneurial. Associated with these new pressures is the push for staff to pursue commensurate higher qualifications, conduct research, as well as adopt some of the historical core values of the traditional university (Gumbi & Mckenna, 2020; Mckenna, 2009). Universities of technology in South Africa, previously known as 'technikons', had the unambiguous purpose of preparing students for industrial vocations with the 'knowledge, skills, values and attitudes of the workplace' (South African Department of Education, 1997). Later documentation from the South African Technology Network expanded the notion of work preparation to include innovation, entrepreneurship and responsiveness to rapid industrial change. Applied research was also highlighted, but the strong orientation to workplace preparation remained. There was little or no reference to critical reflection on work, work practices or curriculum design in the professional practices of academics (Du Pré, 2009). Universities of technology thus entered the university space, largely without an established critical tradition in teaching, learning, or research. This is the issue that we address in this paper, in which we focus scholarly attention on critical reflection on practice within professional education research to critique the key 'taken-for-granted' ideas that have shaped the practices and aspirations of universities of technology. In the next section we review key ideas in professional education that arise from the tradition and the trajectory of critically reflective practice.

Key concepts in critical reflection in professional education and research

The term 'critical' in 'critical reflection' does not imply a criticism of professional education, although that can be part of it, but refers rather to ways of thinking that question assumptions and taken-for-granted practices in order to improve provision. Critical reflection in professional

education is an educational practice that questions assumptions as part of reflecting deeply on practice, often with the intention to enhance practices towards furthering equality and social justice. The term 'criticality' is an important term coined for the purpose of extending critical thinking into a composite of thinking-being-acting in critical ways (Davies & Barnett, 2015: 25), however the idea of critical reflection on practice implies that thinking, being, and doing are embedded (to a greater or lesser extent) in its evolving concepts.

Since the earliest universities, professional education involved reflection on practice, but over time, the responsibilities of professional education separated into two distinct components, in which universities took responsibility for the scientific knowledge base underpinning practice, while the profession councils assumed responsibility for practice (Millerson, 1964). This separation of the scientific and practical knowledge bases of professional education resulted in the temporary loss of reflective practice in professional education and concerns about universities becoming 'disconnected from the lived realities of daily experience, of their losing a sense of embeddedness, personal moral responsibility, and interrelatedness to those they serve' (Schwandt, 2005: 320). Current models of professional education thus originate in different intellectual traditions – one in scientific knowledge traditions, the other in practical knowledge traditions (2005: 315). From these separate origins, scientific professional education and critically reflective professional education have coevolved, often in productive ways. In this paper our focus is on the concept of critical reflection arising from a deep commitment to practice, the education of practitioners and the building of practical knowledge.

The separation of theory and practice in professional education is the historical context to calls for the return of reflective practice in professional education, for which Dewey's (1933) *How We Think* is a seminal text. Dewey's theory of reflective thought laid the conceptual and philosophical basis for curriculum and pedagogy in professional education (VanSickle, 1985). Dewey (1933) defines reflective thinking as an 'active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends' (1933: 118). Dewey thus established a tradition of critical reflection as involving 'holistic views formed from a synthesis of discourses surrounding knowledge, method, culture, work and so on, and they are manifest in our ways of 'knowing' and 'doing' (thinking, speaking and acting with respect to) the practice fields' (Schwandt, 2005: 315).

Schön's two influential works, *The Reflective Practitioner* (1983) and *Educating the Reflective Practitioner* (1987), prepared the groundwork for a more critical and less instrumentalist version of professionalism that foregrounded the role of reflection in and for practice. In the same spirit, Shulman drew on the 'wisdom-of-practice' to map processes of pedagogical reasoning and action across professions (1987: 12). Shulman's work has tended to be reduced to a Venn diagram of 'pedagogical content knowledge', an 'amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding' (1987: 8). However, his work foregrounds different types of knowledge required by teachers of different professions that arise from critical reflection on practice, such as 'knowledge of learners, knowledge of educational contexts, communities and cultures, and

knowledge of educational ends, purposes, and values, and their philosophical and historical grounds' (1987: 8). For Shulman, critical professional education must be grounded on the underpinning knowledge of the profession and in reflective practice and working knowledge. Such an education is likely to 'provide the foundation for the discretionary judgment that professional work demands' (Freidson, 2001). Reflection on practice had become a mainstay of professional education (Eraut, 1994; Ashwin, et al., 2020).

In universities of technology, reflective practice has taken root to the extent that it is now commonplace to find graduate attributes related to reflection on practice included in most professional education programmes. In his end-of-year message to students, the vice-chancellor of a university of technology writes:

> Do yourself a favour and reflect on your year by listing your achievements and victories, and also include the lessons you learned in challenging moments and how you overcame them. Reflection is a concept that many of you will be familiar with since it is often included in [the university's] courses. This is because we understand that learning takes place when you act, reflect then repeat. Incremental positive change takes place in those moments of self-reflection. I hope that by doing this you will identify your unique key strengths and continue to build on those (Open Email, 15 December 2022).

This message represents the importance of being reflective in the university of technology sector. It proposes a normative version of reflection on practice that promotes 'learning' and 'positive change', but falls short of the kind of critical reflection that requires a deep questioning of the processes, values, assumptions, and actions of practitioners in society.

While 'reflection' and 'critical reflection' are often used interchangeably, there is a difference between them. The shift from reflection to critical reflection owes much to the critical philosophies of Habermas and the Frankfurt School, in particular, their critiques of contemporary capitalism and the conditions that might allow for social change (Geuss, 1981). Mezirow (1990) explains that we learn differently when we learn to do something, as opposed to learning content or theory. Reflection on our learning enables us to correct distortions in our beliefs and errors in problem-solving. Critical reflection involves a critique of the presuppositions on which our beliefs have been built, and is defined by Mezirow as 'the process of making a new or revised interpretation of the meaning of an experience, which guides subsequent understanding, appreciation and action' (1990: 2). Mezirow explains that what we perceive, or fail to perceive, and what we think, or fail to think, are powerfully influenced by the habits and assumptions that constitute our frames of reference. Mezirow (1990) argues that it is not possible to understand professional learning or education without taking into account the central role played by prior habits of making meaning. He proposes three levels of reflection. At the most basic level there is 'content reflection,' or reflecting on what a speaker or text is saying to you, including thoughts, ideas, beliefs, facts, data, and so on. At the next level there is 'process reflection', that is, reflecting on how you experienced something, how it changed, and how it might relate to future learning

or other experiences. At the most complex level there is 'premise reflection', or reflections on one's personal assumptions and values – which Mesirow later referred to as 'critical reflection' (e.g., Mesirow, 1998; 1998). Critical reflection is both a reflective (or problem-oriented) and reflexive (or self-oriented) practice. One can understand the three levels of reflection as a developmental trajectory in which a student, teacher, researcher, or practitioner moves from a transactional learning mindset to an exploratory framing of the learning process and the self.

While Mezirow's focus was on critically reflective *learning*, Brookfield's (1995) focus is on critically reflective *teaching*. Brookfield explains that critically reflective teachers are required to examine their own practices in a variety of different ways. Brookfield proposes that teachers use different 'lenses' to examine their practices from: 1) an autobiographical perspective, 2) through their students' eyes, 3) through peer review of their teaching, and 4) through engagement with the theoretical literature. These lenses align with self-reflection, student feedback, peer review, and the scholarship of teaching and learning. Schwandt (2005) understands critical reflection as a starting point that leads one to question ethics, values, as well as the underpinning knowledge base of professional practice. Critical reflection is thus the basis for scholarly research and theory-informed practice. As Schwandt puts it 'critical examination of human beliefs and actions holds forth the promise of clarity and objectivity in human actions' (2005: 320). For Freire (1974), critical reflection on practice is a route to becoming critically conscious, achieving what he calls *conscientização*, or the middle ground between radical critique of dominant educational practices and profound respect for local contexts and traditions.

There have been many critiques of critical reflection, intended to extend or refine the concept or to warn about potential misapplication. Young and Muller (2014), for example, reject the idea that practitioners are able to construct knowledge from reflection on practice, as an underestimation of the role of disciplinary knowing in underpinning professional practice. Debate continues as to whether critical reflection is anti-disciplinary (e.g., Sinnerbrink, et al., 2006). Michelson is concerned that foregrounding the individual 'ideal' critical thinker could impose 'an epistemological hierarchy that is deeply complicitous with power differentials of gender, class and race' (1996: 438). Zembylas (2014) takes issue with the stance of 'clarity and objectivity' implied in critical reflection practice and proposes instead the idea of 'critical emotional reflexivity'. Zembylas explains that becoming critically reflective usually involves opening oneself up to unsettling experiences and ideas. He argues for the recognition of the 'emotional dynamics involved in reflexive processes and the significance of socialized emotions in reproducing or interrupting professional practices' (2014: 211). These ideas are further developed by Bozalek and Zembylas (2017), who propose the concept of 'diffraction' in place of 'reflection'. Diffraction is a process where one or more theories is read through another or others. It is more usual for one text to be foregrounded, compared and contrasted against the other, which is backgrounded. In contrast, diffraction could be understood as 'a process of being attentive to how differences get made and what the effects of these differences are' (2017: 112). Diffraction questions the appropriateness of the metaphor of reflection and mirroring in representing experiences beyond the epistemological realm, proposing in its place a reconstruction of the

'ontological and ethical' (2017: 113). While Dewey, and others, have implied the ontological, epistemological, and ethical dimensions of reflection on practice, the critiques above are useful as they foreground these elements and open up new ways of thinking about, and critiquing, critical reflection.

There is an inherent instability in critical reflection that has to do with the nature of practice and its contextual responsiveness. Consequently, any tendencies to stabilize critical reflection as a method to be followed could lead to a reductionist way of thinking and an instrumentalist approach to practice, which would be the opposite of critical reflection. It should be pointed out that theorists from Dewey onward have rejected the notion that reflection comprises a 'regime of exercises abstracted from contents' (VanSickle, 1985: 18).

There has, to a certain extent, been historical continuity in the trajectory of critical reflection on practice, but also the foregrounding and backgrounding of the relation between critical thought and critical practice, as well as the introduction of new concepts. The critiques of critically reflective practice suggest that there is still important conceptual work to be done in developing critical concepts and models of critical professionalism and critically reflective professional education research.

Critical reflection as/within a research process

For this study, we selected four examples of professional education research in the university of technology sector: 1) a comparative study of work-integrated learning, 2) research on curriculum development, 3) a reflection on innovation, and 4) a study of entrepreneurial thinking. These 'case studies' were selected because of their centrality to universities of technology. We highlighted elements within these case studies that illustrated critically reflective research practice.

We were guided in our approach to reflecting on these case studies by Fook's (2011) understanding of critical reflection as a research process. Fook describes research as:

> … all the different ways in which we create knowledge – some occur on a more formal and systematic basis, yet others are used daily, and often in unarticulated ways to make sense of immediate surroundings. (2015: 443)

Critical reflection as a research process is located somewhere between these two research types. Fook argues that because critical reflection as a research process draws on both theoretical and practical knowledge, it can elicit deeper and more complex understandings that can 'unearth and unsettle assumptions (particularly about power) and thus help identify a new theoretical basis from which to improve and change a practice situation' (2010: 61). As a research process, critical reflection is 'dialogic, integrative and transformative' (2010: 6). Gardner foregrounds 'the idea of working with unconscious assumptions and values' in critical reflection as a research process, while 'framing questions sensitively to explore challenging issues' (2012: 81).

Following Fook (2010; 2015) and Gardner (2012) our approach in this paper was, firstly, to identify the 'dialogic' aspects of the case studies, for example, in how researchers collaborated across difference. Secondly, we considered ways in which the case studies understood the reflective process as integrative such as how researchers had articulated their meanings in their different contexts. Finally, we focused on the transformative potential of the case studies for challenging the 'unconscious assumptions and values' of the university of technology sector in constructive ways.

The aim of our paper is to focus scholarly attention on critical reflection on practice within professional education research. We thus discuss examples of published educational research that critique key 'taken-for-granted' ideas that have shaped the practices and aspirations of universities of technology. In the following sections we identify, and problematise, key concepts associated with professional education in universities of technology, and we explore new ways of doing education research that arise from the tradition of critical reflection on practice.

Case study 1: A critical reflection on work-integrated learning

One of the constructs that is central to the identity of universities of technology, is work-integrated learning. Work-integrated learning is an 'umbrella term for a range of approaches and strategies that integrate theory with the practice of work within a purposefully designed curriculum' (Patrick, et al., 2008: iv). It is a taken-for-granted practice that has shaped the identity and core business of universities of technology. Academics worldwide are, however, increasingly burdened with new tasks, with the consequence that less attention can be paid to student learning (Zukas & Malcolm, 2018). As with other forms of learning, work-integrated learning has been affected by the increasing pressures that universities of technology place on students, academic staff and workplaces. These pressures have undermined many of the core principles and characteristics of work-integrated learning. The sector nevertheless assumes that work-integrated learning is a good practice. Consequently, this cornerstone of university of technology existence tends not to be critiqued and remains essentially untheorised by educators and researchers. In this section we draw on a study of work-integrated learning to consider the role of critically reflective practice in educational research in universities of technology, as well as more generally in higher education. The study that we draw on is a recently published article, titled 'Enhancing work-integrated learning through South-North collaboration: a comparative analysis' (Winberg, et al., 2022). The study shows how critical reflection on practice enabled an international research team to develop new understandings of work-integrated learning.

Collaboration, in particular collective questioning of taken-for-granted ideas and practices, is a cornerstone of critical reflection on practice (see e.g., Leibowitz, et al., 2017). A comparative analysis that includes a critical reflection on practices in different contexts, can reveal differences and critique long-held assumptions. In this case study of South-North collaboration, the team started off by raising critical questions such as: for whom is work-integrated learning a good practice? under what conditions? and why? By thinking through these issues together, the research group shared and compared practices, expanded their ideas, and challenged

assumptions. When members of the group are diverse, as tends to be the case in South-North collaborations, collaboration across difference alters 'processes of perception and acting in terms of individual and social consciousness' (Freire, 1974: 39). Thus, in this collaboration, partners found themselves learning from one another in unexpected ways. The South African team began to question the adequacy of their work-integrated learning provision, while the Irish partners found that the struggle for socio-economic justice in the South African context made visible dynamics that were so obviously at play in the Irish context.

Theoretical framing is central to a critical approach to educational research (which would include a critique of the theory in order to understand the strengths and limitations of its explanatory power). Thus, to deepen their understanding of work-integrated learning, the team drew on Activity Theory (Engeström, 1999). Activity Theory offers a view of education as an 'activity system' which enabled the researchers to reframe work-integrated learning at the systemic level, rather than at the level of individual action or competence. Activity Theory provides a multidimensional and systemic approach to examining professional practices in that it takes into account the influences or power, culture and history and how these interact with individuals in their work context. It supports both practitioners and researchers in engaging in reflective research (Foot, 2014). As a critical theory, Activity Theory places emphasis on 'contradictions' in the activity system. Contradictions are the paradoxes, tensions, inconsistencies, conflicts or dilemmas that are deeply rooted within sociohistorical contexts (Engeström & Sannino, 2021). The activity analysis of the work-integrated learning case studies in South Africa and Ireland highlighted several contradictions, or 'sticking points', that are understood by activity theorists to indicate critical opportunities for change. The study identified the resource-intensive nature of work-integrated learning programmes. In South Africa, the lack of resources constrained the quality of provision, while the focus at diploma level limited the breadth of provision. The need for support for students in work-based learning was identified in both contexts. The dominance of the academic partners was identified, with the rules for work-integrated learning set by them. The contribution to knowledge that the study offers is a deeper understanding of work-integrated learning as an activity system and the ways in which the different elements of the system impact the system as a whole and the achievement of outcomes. The contradictions arising as a consequence of bringing work practices and working knowledge into academia point to potential ways of enhancing work-integrated learning practice.

The critically reflective approach made evident that a new way of thinking and approaching the problems linked to work-integrated learning, as a foundation of universities of technology, was needed. The tools of critical reflection, collaboration, comparison, and theorisation, allowed the researchers to look at work-integrated learning differently and from this critical comparison key findings emerged that provided the team with a more nuanced understanding of the challenges facing work-integrated learning. Yet to gain maximum benefit from critical reflections researchers cannot stop at the point of looking back to learn from past experience; they must also look forward and explore ways to implement changes to the system that would improve the work-integrated learning experiences for all students in the university of technology context.

Social inequalities are easily reproduced in education, including work-integrated learning. The assumptions that underpin work-integrated learning in the different contexts, show the need to engage in critical reflection on practice to enable the transformative potential of work-integrated learning towards a productive and just society.

Case study 2: Critical reflection on curriculum development

Universities of technology have typically offered diploma-level qualifications that prepare students for employment, supported by practice-oriented curricula, internships, and other forms of work-integrated learning. More recently, however, there have been pressures from both outside and inside the university to offer degrees, either to replace diplomas or as a parallel offering. Much of the impetus arises from the perceived need to increase the scientific content of diplomas so that students are better able to adapt to increasingly complex workplace demands. While it is more common to critically reflect on a prior practice or educational intervention, in this section we consider critical reflection on a potential future state that could be caused by present actions.

In a special issue of the Cape Peninsula University of Technology's in-house journal, *Paradigms*, titled 'University, curriculum and society through a scenario analysis lens,' the authors critically reflect on the potential impact of the shift to degree programmes. As a curriculum aims to prepare students for the future, it should be explicit about the kind of future it wants the students to be prepared for, including offering them the understanding and skills to work towards a desirable future.

Scenario methods are utilized widely as forecasting tools in the economic and technological arenas (Wright, et al., 2013) and to some extent for Higher Education policy and curriculum development (Blass & Woods, 2012). They have not, however, been extensively used as tools to promote future-orientated, anticipatory learning in universities, and how such learning may be put into practice, as was done in this case. In the case of universities of technology, debate and discussion on degrees and diplomas is important to enable a critical consideration of the roles of various qualifications in relation to potential future practice. To this end, the authors in this special issue drew on scenario or future-oriented approaches to think through the implications of new degree programmes.

De Waal (2013), in a contribution to the special issue titled 'Scenario scripting of future intersections between degrees, curricula and professionalization in prehospital emergency care', found that scripting different scenarios provided a way to critically reflect on the proposed future state that might arise from a degree programme in emergency medical care. It was thus 'a potentially useful method to evaluate the path, or paths, which Emergency Care may take in its quest to become a profession with an appropriately qualified workforce' (De Waal, 2013: 31). De Waal proposed possible futures for emergency medical care if a formal course in diagnostics, similar to those offered in medicine and other health professions, was introduced. With improved diagnostic reasoning skills, he argued that 'novice paramedics may be better equipped and may also have a shorter and less steep learning curve when entering independent practice' (2013: 31).

However, there were social dynamics involved. For example, senior colleagues, who had not had formal training in diagnostics but who had accumulated a wealth of practical knowledge, might challenge the new qualified paramedics. Thus, instead of improving emergency care, the introduction of a diagnostics course 'may hamper workplace learning and relationships, as the novice paramedic may not have the skills to articulate a diplomatic argument to convince a more senior colleague.' Moreover, 'in concrete situations, [emergency medical] practitioners must address novel situations, and may have to deviate from what the rules prescribe' (2013: 32) – and this is precisely where experience counts.

De Waal developed further scenarios and complications that illustrated the need for protected spaces in which curricular changes could be carefully and critically thought through. They also illustrate that there are possible unintended consequences of prematurely introducing new practices into stakeholder communities that have not been prepared for, or consulted on, the proposed changes. De Waal's critical approach to curriculum development involved what Dewey (1960) calls 'dramatic rehearsal', a way of deepening decision-making processes and integrating ethics into the core of decision-making. Dramatic rehearsal involves groups of knowledgeable participants confronting a problematic situation and suggesting remedial actions that could be carried out. The consequences of these actions are then followed through as 'rehearsals' in the imagination (Dewey, 1960), or in this case a curriculum planning exercise. The resulting narrative follows a plausible number of causal links that can sometimes lead to participants exposing unexpected and unforeseen consequences, which can result in them rethinking or discarding the original actions. The method is well-known in social studies of science and technology, as a form of reflective enquiry to better understand the possible impacts of new technologies, innovations or processes on society. The narratives developed are sometimes referred to as 'fictive scripts' (De Laat, 2000). The fictive script is a plausible set of occurrences and possible outcomes resulting from the intervention and may be deliberately developed from both a more and less positive perspective so as to promote further discussion on the intervention.

In De Waal's curricular scenario, it was important to understand the forms that resistance to an innovative curriculum might take in order to better prepare for ways to extend the theory and practice of emergency medical care. Within the protected space of the university, academics can engage in new ways of thinking about the curriculum. These new ways of thinking may need to be nurtured and protected by the university, because they are not yet accepted by society, even though they may clearly have benefits when seen from the point of view of the creative lecturer. Universities, because of their separateness can provide this protected space. In his conclusion to the special issue, Rip argues that:

> Present requirements may be conservative, and a university of technology should build on its distance to the world of work to look ahead and consider the future world of work and how to prepare its students for it … This is a challenge, and fictive scripting cannot address

> it. But what it can do, when integrated in teaching and research, is help in creating a culture of which forward looking is an integral part. (2013: 37)

Case study 3: Critical reflection on research innovation

Innovation is a key, but largely unquestioned, objective that has shaped the aspirations of universities of technologies. Innovation has become part of the discourse of universities of technology, for example: academics should be innovative in their teaching and learning, curricula should similarly be innovative, innovation is necessary for the larger decolonisation project and its social benefits, and so on. In research, innovation is held up as the solution to reducing South Africa's dependence on imported technologies and for its potential contribution to the economy. In such a context, challenging the 'sacred cow' of innovation can be difficult. While there has been research into the development of innovation in university departments, much of this has focused on developing students with the appropriate kinds of skills, technological knowledge and ways of thinking about approaching problems (Hansen, 2019). These trends are also evident in recent (2020-2025) university of technology strategic documents on innovation development, with an additional focus on how it can be commercialised. Rip (2012) suggests that in order to help address the limitations in many innovation studies, attention should be paid to the widely fluctuating socio-material contexts in which innovation plays out, that may serve to enable or constrain its development. The social uptake of innovation in a highly diverse and unequal society such as South Africa is of particular importance. Rip therefore proposes that a more productive way to view innovation development is as an innovation journey. In 2016, Rip, Garraway and Winberg published another special issue of *Paradigms*, this time with the intention of critically reflecting on innovation.

In his introduction to the special issue – and in the critical tradition – Rip starts to lay out his argument that innovation is a complex and arduous process, rather than an event. It is a journey involving many iterations rather than a straightforward process. He warns that drawing on random 'how to' guidebooks in order to become innovative is likely to be counterproductive. The problem is that 'how to' guides, like policies on innovation, tend to assume that innovation is 'a linear process of successive steps to be followed', while in fact, 'it is more realistic to view innovation as what happens in and through innovation journeys, full of twists and setbacks' (2016: 3). Rip draws on theoretical concepts from the sociology of science and technology to help readers to re-think innovation in a more critical way. Drawing on his own work and that of colleagues (e.g., Deuten & Rip, 2002; Rip & Schot, 2002), Rip firstly distinguishes between competing fields in the innovation space: science, technology, and social economy – and their different interests. He then develops a language of description for key concepts in the innovation journey, such as the 'protected space' for innovation experimentation, and the 'hopeful monstrosities' that emerge in the development process, but have to undergo many iterations before they can be presented to potential users through 'socio-technical demonstration'. This stage of 'tentative introduction' is still a long way from social uptake. The process is thus lengthy and complex, but Rip claims that there are two main phases in any innovation journey, namely a

'gestation phase' and a phase of 'social innovation' (2016: 5). Thus, while the 'how-to' books on innovation should be treated with some scepticism, one can learn from the patterns created by the dynamics between the technical and the social across innovation journeys 'in spite of the contingencies, and the vicissitudes of innovation' (2016: 3). Rip goes on to discuss the contributions to the special issue, pointing out the 'dynamics at two levels' that 'may well be a general feature of social innovation' (2016: 5).

Rip's introduction to the special issue shows the need for universities of technology to critically engage with innovation, in particular to seek to understand the process of innovation. The uptake by users and social embedding of innovation – whether within teaching and learning or research – is of particular importance in order to shift from aspiration and rhetoric towards engagement with academic staff and user communities in attaining innovation.

Case study 4: A critical reflection on entrepreneurship

Entrepreneurship, like innovation, has become an obligatory component of university of technology strategic documents. This is evident in current Strategic Plans for the Technological Higher Education Network of South Africa (THENSA, 2022) and is reflected in individual universities of technology's vision, strategic plans and often their graduate attributes. The origins of the push towards entrepreneurship can be seen in earlier work on the identity of universities of technology by, for example Du Pré (2009), drawing on Burton Clarke's (1998) seminal work on the entrepreneurial university. Entrepreneurship in universities of technology's strategic documents is typically described as being related to student employability and particularly students' ability to develop small scale businesses. The overall thrust is thus commercial which, given the need to create employment opportunity in a country with a reported 34% unemployment rate (QFLS, 2022), is a commendable outcome. The argument put forward in this section is that the understandings of entrepreneurship as a commercial enterprise tend to dominate university of technology discourse. However, entrepreneurship can be examined more critically and expansively so that its underpinning thinking skills are made more apparent. Highlighting these underpinning skills can open up new avenues for understanding and researching entrepreneurship education and, in addition, how entrepreneurial thinking may accord with the sorts of principles valued by universities.

If developing entrepreneurship has become an obligatory outcome for universities of technology, how then is this to be achieved against the apparently contradictory and problematic push to take on university values, in particular critical reflection on practice? As an example of this contradiction, strategic documents exhort academic staff at one university of technology to develop students' commercial abilities, primarily for individual financial benefit. At the same time staff are expected to develop students' awareness of historical and current injustices in society so that they may contribute to societal well-being. The case study in this section has a focus on entrepreneurship within the university of the future (Shumar & Robinson, 2019). In interrogating entrepreneurship in Higher Education, Shumar and Robinson (2019), like Spinoza and colleagues (1995), wish to disassociate the concept from its more commonplace commercial purpose, that

of generating financial capital. They highlight that there are already other, non-commercial forms such as green entrepreneurship and social entrepreneurship. Universities, they suggest, should thus rather foster spaces where staff and students can frame and question current cultural practices, to identify what needs to change. Thereafter, they should knowledgeably, skillfully and collectively put forward transformatory ideas thus potentially 'disclosing new worlds'. Within the university context, therefore, entrepreneurs are:

> individuals who remain focused on disharmonies and think about how to overcome them. In order to do this, they need to assess how much the disharmony is a social phenomenon—how many others share the same discomfort. And then they must marshal their resources, imagination and social capital in order to think about how to change their situation. (Shumar & Robinson, 2019: 154)

Such an approach to entrepreneurship may be more in line with universities as institutions that have a developmental and transformative role in society (Ashwin, 2020) and which support values such as critical thought, democratic rights and social enlightenment in times of rapid change (Barnett, 2004). Through a more detailed and critical reflection on what it takes to be entrepreneurial, it is possible to relate the concept to what a university could be. In a sense, through working with this apparent disharmony between commercial/neoliberal entrepreneurship and critical university values, we are able to disclose a new world, an entrepreneurial university of technology of the future. This future university of technology would encourage a more inquisitive, democratic and problem-solving mindset towards improving institutional and societal conditions. Shumar and Robinson (2019) point out, as Spinoza et al. (1995) had previously done, that this version of entrepreneurship is not necessarily oppositional to the current dominant view of commercial entrepreneurship. Locating anomalies, disclosing worlds, and working to reconfigure them are necessary skills in bringing products or processes to the market as well. Some authors have even gone so far as suggesting that repurposing entrepreneurship towards the common good is something of a 'trojan horse' to lead recalcitrant academics to, ultimately, engage with the dominant commercial aspect of entrepreneurship (Komulainen, et al., 2011). However, entrepreneurial education and practice in higher education does not have to lead to individual profiteering and can be redirected towards social responsibility for the common good (Lackéus, 2017). This sentiment is evident in the UN report on Entrepreneurship in South Africa (UNECA, 2021). While the report mostly focuses on the need for commercial development, it raises the particular importance of African universities' role in addressing societal issues and contributing to development (2021: 19). To this end, the report discusses social entrepreneurship initiatives in some South African universities. A further, though limited indication of this outlook at a university of technology, is that student teachers are taught the basics of social entrepreneurship so as to facilitate work with marginalised youth (Waghid & Olivier, 2017).

So what does it mean to be a critically reflective educational researcher?

In this paper, we identified and built on a number of key concepts relevant to a critical reflection on practice in our critical reflection on professional education research. Our particular focus was the interrogation of taken-for-granted ideas and aspirations (such as work-integrated learning, responsiveness, professionalism, innovation and entrepreneurial thinking) of the university of technology sector. Our purpose was to reconnect academics in professional education with the tradition of critical reflection on practice, as well as introduce new ideas, critiques, and different ways of engaging critically in educational research. We addressed these intentions in three sections of the paper: 1) we provided the historical context of the professional fields in higher education, 2) we identified, elaborated and critiqued key concepts in critically reflective educational research, and 3) we critically reflected on case studies that illustrated ways in which researchers could practice a more critically reflective way of doing educational research.

Our reflections on the case studies enabled us to probe what it means to be a critically reflective educational researcher. We found that collaboration across difference was central to critical reflection in educational research, whether the collaboration had a global, South-North reach, or whether it involved academics and their broader communities (students, workplaces, or other potential beneficiaries of research projects). Thinking through ideas with others and being open to different interpretations and perceptions, built researchers' critical consciousness and enabled insights into taken-for-granted practices and aspirations. Collaboration across difference illustrated Fook's (2011) understanding of critically reflective research as 'dialogic'. Co-researchers' interactions with one another and their broader communities enabled new understandings to evolve (2011: 61). Fook points out that because critical reflection is 'not necessarily a process that happens naturally in our often-technocratic learning environments', it is vital to establish 'clear cultural ground rules' for dialogic engagement (Fook, 2011: 65). Protected spaces are required for dialogic research practices – away from the demands of academic work and where 'dramatic rehearsals' (Dewey, 1960) of what might be possible can be performed. The researchers found that the case study researchers created 'protected spaces' in which to think through research problems, try out ideas or practices, or to find ways through seemingly opposing forces. Spinoza et al. describe such spaces as 'disclosed' (1994: 11). Through foregrounding of, and focusing on, the anomaly within a disclosive space, the case study researchers were better able to see how their practices could be changed or 'reconfigured' and what new ways of thinking and doing might need to be imported from other spaces (1994: 13) to assist in this reconfiguration. The case studies showed that disclosed spaces could stretch beyond the university to include a South-North academic exchange or extend into a workplace where researchers could engage with practitioners. Gardner's (2015) insistence on 'sensitivity' in critically reflective research is particularly pertinent when there are socio-economic and educational differences between the researchers and the communities in which they practice.

Fook describes the critical reflection process as integrative, in that it 'provides a framework and process for integrating all aspects of complex experience (emotions, beliefs, values, actions)' (2011: 64). As examples of integration, the case studies developed frameworks for understanding

their research problems and analysing their findings. Integration emerged as the researchers moved beyond the dialogic to draw on the constructs provided by Activity Theory, scenario planning, innovation journeys, or social entrepreneurship (amongst others). For Fook integration in a form of meaning-making that requires both preserving the 'uniqueness' of experience and articulating its meaning by representing it through 'relevant language' so that 'it can be communicated, discussed, modified and so on with others' (2011: 62). The process of publishing research findings, as in the case studies, could thus be understood as an important example of critical reflection as research, for it is in disseminating research findings that forms of integration are achieved.

In order for critically reflective educational research to be transformative, Fook (2011: 2015) argues that frameworks for action need to be developed. By linking personal learning, research findings and change possibilities, researchers and the communities they serve were better able to see how research and learning could translate into actions, and could also envision how this process might transfer to different settings.

The study has implications for practice at universities of technology. It is by understanding our own research practices within our own, and broader, social contexts, that researchers find better ways to act within their local contexts. These understandings may increase researchers' sense of agency, and in the university of technology sector, the critically reflective research process reaffirms the value of practice and practical knowledge while also creating a legitimate role for the practitioner as researcher. These are spaces that the critical reflection on the case studies have begun to open up as areas for further research.

Becoming a critically reflective researcher of professional education means both working within the tradition of critical reflection, and challenging it. Critical reflection means asking difficult questions. It means self-critical awareness, thinking through the effects of actions. Respecting and challenging the tradition of critical reflection involves exploring new dimension of critical reflection. The examples show that by judiciously drawing on traditions of critical reflective practice, and by bringing new ideas, concepts, and theories into educational research studies, further critical concepts could evolve. New critical concepts, such as work-integrated learning towards a productive and just society, curriculum development that prepares students for the future world of work, socially engaged innovation, and entrepreneurial education and practice redirected towards social responsibility for the common good can be uncovered. These new concepts will be of interest to the readers (and reviewers) of *Critical Studies in Teaching and Learning*, but more importantly could inspire universities of technology to reaffirm their connection to practice, and begin to create a disclosed space to enable their own scholarly – and critical – identities to emerge.

Acknowledgements

We acknowledge the kind assistance of Professor Arie Rip, Emeritus Professor, University of Twente, for his critical feedback on an earlier draft of this paper.

Author biography

Chris Winberg holds the South African National Research Foundation Chair in Work-integrated Learning and leads the Professional Education Research Institute at the Cape Peninsula University of Technology in Cape Town, South Africa. Her research focus is professional and vocational education.

James Garraway is an Adjunct Professor in the Professional Education Research Institute at the Cape Peninsula University of Technology. His current work involves exploring university-society relationships and institutional change through the lens of the Activity Theory-inspired change laboratory methodology.

Penelope Engel-Hills was Dean of the Faculty of Health and Wellness Sciences at the Cape Peninsula University of Technology and is currently an adjunct professor in the faculty and the Professional Education Research Institute. The latter represents her continued interest in higher education research, particularly professional education in the University of Technology sector.

References

Alvesson, M., & Sandberg, J. 2011. Generating research questions through problematization. *Academy of Management Review,* 36(2): 247–271.

Ashwin, P. 2020. *Transforming University Education: A Manifesto*. London: Bloomsbury.

Ashwin, P., Boud, D., Calkins, S., Coate, K., Hallett, F., Light, G., Luckett, K., McArthur, J., MacLaren, I., McLean, M. and McCune, V. & Tooher, M. 2020. *Reflective Teaching in Higher Education*. London: Bloomsbury Academic.

Barnett, R. 2004. The purposes of higher education and the changing face of academia. *London Review of Education*, 2(1): 1-14.

Blass, E., & Woods, P. 2012. Futures of university learning. *Futures*, 44(1): 117–118.

Bozalek, V. & Zembylas, M. 2017. Diffraction or reflection? Sketching the contours of two methodologies in educational research. *International Journal of Qualitative Studies in Education*, 30(2): 111-127.

Bradbury, H. 2010. Beyond reflective practice. In Bradbury, H., Frost, N., Kilminster, S. & Zukas, M. (eds.) *Beyond Reflective Practice: New Approaches to Professional Lifelong Learning.* London: Routledge.

Brookfield, S. 1995. *Becoming a Critically Reflective Teacher*. San-Francisco: Jossey-Bass.

Clark, B. 1998. *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*. Oxford: IAUPress/Pergamon.

Davies, M. & Barnett, R. (eds.) 2015. *The Palgrave Handbook of Critical Thinking in Higher Education*. London: Springer.

De Laat, B. 2000. Scripts for the future: Using innovation studies to design foresight tools. In Brown, N., Rappert, B. & Webster, A. (eds.) *A Sociology of Prospective Techno-Science*. New York: SASTU, 175-208.

Deuten, J.J. & Rip, A. 2002. Narrative infrastructure in product creation processes. *Organization*, 7(1): 67-91.

De Waal, B. 2013. Scenario scripting of future intersections between degrees, curriculums and professionalization in prehospital emergency care, *Paradigms*, 18: 31-34.

Dewey, J. 1933. *How We Think* (rev. ed.). Boston: D. C. Heath.

Dewey, J. 1960. *The Quest for Certainty*. Capricorn Books.

Du Pré, R. 2009. *The Place and Role of Universities of Technology in South Africa*. Bloemfontein: South African Technology Network.

Edwards, A. 2005. Let's get beyond community and practice: the many meanings of learning by participating. *The Curriculum Journal*, 16(1): 49-65

Engeström, Y. 1999. Activity theory and individual and social transformation. In Y. Engeström, R. Miettinen, & R. L. Punamäki (eds.) *Perspectives on Activity Theory*. Cambridge: Cambridge University Press, 19-30.

Engeström, Y. & Sannino, A. 2021. From mediated actions to heterogenous coalitions: four generations of activity-theoretical studies of work and learning. *Mind, Culture, and Activity*, 28(1): 4-23.

Eraut, M. 1994. *Developing Professional Knowledge and Competence*. London: Psychology Press.

Fook, J. 2011. Developing critical reflection as a research method. In Higgs, J., Titchen, A., Horsfall, D. & Bridges, D. (eds.) *Creative Spaces for Qualitative Researching. Practice, Education, Work and Societ*y, vol 5. Rotterdam: SensePublishers, 55-64.

Fook, J. 2015. Reflective practice and critical reflection. In Lishman (ed). *Handbook for Practice Learning in Social Work and Social Care: Knowledge and Theory* (3rd edition). London: Jessica Kingsley Publishers.

Foot, K. 2014. Cultural-Historical Activity Theory: Exploring a theory to inform practice and research. *Journal of Human Behavior in the Social Environment,* 24(3): 329-347.

Freidson, E. 2001. *Professionalism, the Third Logic: On the Practice of Knowledge*. Chicago: University of Chicago press.

Freire, P. 1974. *Education for Critical Consciousness*. Bloomsbury Publishing.

Gardner, F. 2012. Using critical reflection to research practice in a mental health setting. In Fook, J. & Gardner, F. (eds) *Critical Reflection in Context: Applications in Health and Social Care*. London: Routledge, 80-92.

Geuss, R. 1981. *The Idea of a Critical Theory: Habermas and the Frankfurt School.* Cambridge University Press.

Gumbi, T. & McKenna, S. 2020. Reimagining academic identities in response to research demands at Universities of Technology. *Critical Studies in Teaching and learning*, 8(1): 96-110.

Hansen, F. 2019. Learning to Innovate in Higher Education Through Deep Wonder. *Philosophy and Theory in Higher Education.* Special Issue: Imagining the Future University, 1(3): 51-74.

Komulainen, K., Naskali,P., Korhonen, M. & Keskitalo-Foley, M. 2011. Internal Entrepreneurship – a Trojan horse of the neoliberal governance of education? Finnish pre- and in-service

teachers' implementation of and resistance towards entrepreneurship education. *Journal for Critical Education Studies*, 9(1): 341-374.

Lackéus, M. 2017. Does entrepreneurial education trigger more or less neoliberalism in education? *Education+ Training*, 59(6): 635-650.

Leibowitz, B, Bozalek, B, Farmer, J, Garraway, J, Herman, N, Jawitz, J, McMillan, W, Mistri, G, Ndebele, C, Nkonki, V, Quinn, L, van Schalkwyk, S, Vorster, J-A & Winberg, C. 2017. Collaborative research in contexts of inequality: the role of social reflexivity. *Higher Education: The International Journal of Higher Education Research*, 74: 65–80.

McKenna, S. 2009. 'Only a name change': the move from Technikon to University of Technology. *The Journal of Independent Teaching and Learning*, 4(1): 37-48.

Mezirow, J. 1990. *Fostering critical reflection in adulthood*. San Francisco: Jossey-Bass Publishers.

Mezirow, J. 1997. Transformative learning: Theory to practice. *New Directions for Adult and Continuing Education*, 1997(74): 5-12.

Mezirow, J. 1998. On critical reflection. *Adult Education Quarterly*, 48(3): 185-198.

Michelson, E. 1996. Usual suspects: Experience, reflection and the (en) gendering of knowledge. *International Journal of Lifelong Education*, 15(6): 438-454.

Millerson, G. 1964. *The Qualifying Associations*. London: Routledge.

Patrick, C. J., Peach, D., Pocknee, C., Webb, F., Fletcher, M., & Pretto, G. 2008. The WIL (Work Integrated Learning) report: A national scoping study. Queensland University of Technology. Available at: https://eprints.qut.edu.au/216185/ (Accessed: 16 March 2023).

Rip, A. 2012. The context of innovation journeys. *Creativity and Innovation Management*, 21(2): 158-170.

Rip, A. 2013. Comparative advantages of a university of technology: fictive scripting in training and in research. *Paradigms*, 18: 35-38.

Rip, A. 2016. Reconstructing innovation journeys. *Paradigms*, 19: 3-5.

Rip, A. & Schot, J.W. 2002. Identifying loci for influencing the dynamics of technological development. In Sørensen, K. H. & Williams, R. (eds.) *Shaping technology, guiding policy: concepts, spaces, and tools*. Cheltenham: Edward Elgar.

Quarterly Labour Force Survey (QLFS). 2022. Pretoria: Department of Statistics South Africa. https://www.statssa.gov.za/

Schön, D.A. 1983. *The reflective practitioner*. New York.

Schön, D.A. 1987. *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions*. Jossey-Bass.

Schwandt, T.A. 2005. On modeling our understanding of the practice fields. *Pedagogy, Culture & Society*, 13(3): 313-332.

Shulman, L. S. 1987. Theory, practice, and the education of professionals. *The Elementary School Journal*, 98(5): 511-526.

Shumar, W. & Robinson, S. 2019. Agency, risk-taking and identity in entrepreneurship education. *Philosophy and Theory in Higher Education* (Special Issue: Imagining the Future University), 1 (3): 153-174.

Sinnerbrink, R., Deranty, J. P. & Smith, N. 2006. Critique, hope, power: Challenges of contemporary critical theory. In Sinnerbrink, R., Deranty, J. P. & Smith, N (eds.) *Critique Today*. Leiden: Brill, 1-21.

South African Department of Education. 1997. General policy for Technikon instructional programmes Report 150 (97/01). Pretoria: Government Printers.

Spinoza, C., Flores, F. & Dreyfus H. 1995. Disclosing new worlds: Entrepreneurship, democratic action and the cultivation of solidarity. *Inquiry*, 38: 3-63.

The Technological Higher Education Network of South Africa (THENSA). 2022. Strategic Plan 2020-2025. THENSA.co.za

United Nations Economic Commission for Africa (UNECA). 2021. Study on Advancing Entrepreneurial Universities in Africa. Pretoria: Universities South Africa (USaf) publication.

VanSickle, R.L. 1985. Research implications of a theoretical analysis of John Dewey's *How We Think*. *Theory & Research in Social Education*, 13(3): 1-20.

Waghid, Z. & Oliver, H. 2017. Cultivating social entrepreneurial capacities in students through film: implications for social entrepreneurship education. *Educational Research for Social Change*, 6(2): 76-100

Wild, S. 2015. *Innovation: Shaping South Africa through Science*. London: Pan Macmillan.

Winberg, C., Finn, F., Sheridan, I., Engel-Hills, P. & Jacobs, H. 2022. Enhancing work-integrated learning through South-North collaboration: A comparative analysis*. International Journal of Work-integrated Learning*, 23(4): 463-479.

Wright, G., Cairns, G. & Bradfield, R. 2013. Scenario methodology: New developments in theory and practice. *Technological Forecasting and Social Change*, 80(4): 561–565.

Young, M. & Muller, J. 2014. From the sociology of the professions to the sociology of professional knowledge. In Young, M. & Muller, J. (eds). *Knowledge, Expertise and The Professions*. London: Routledge.

Zembylas, M. 2014. The place of emotion in teacher reflection: Elias, Foucault and 'critical emotional reflexivity'. *Power and Education*, 6(2): 210-222.

Zukas, M. & Malcolm, J. 2018. Reassembling academic work: A Socio-material Investigation of Academic Learning. *Studies in Continuing Education,* 41(3): 259 - 276.