Critiquing Teaching: Developing Critique Through Critical Reflection and Reflexive Practice

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Abstract This chapter will explore critique of teaching, with reference to reflection, critical reflection, reflexive practice, professional inquiry and learning. The aim is to illustrate why active engagement, with critique of teaching, practice and beyond, facilitates professional learning and professional development. In addition to the overview of *why* developing a mind-set for reflexive practice, critical reflection and critique of teaching is of value in terms of improving practice, the chapter explores models and strategies to support the *how* and *when* of these processes. It is through critique that teachers can ensure they are professional, fluid and informed in their responses as, and when, scenarios and contexts demand and be true to their personal ethics.

Critique is effortful, uncomfortable and disruptive. Teachers must want to involve themselves in the hard work of critique and see some results for their efforts; otherwise, why bother?

The chapter comprises three sections:

1. Exploration of conceptual frameworks of critique
2. The value of critique in developing design and technology (D&T) education practice
3. Models and methods of critical reflection to scaffold critiquing D&T teaching

Keywords Critique • Teacher-as-designer • Inquiry-as-stance • Learning journals • Creative growth

1 Exploration of a Conceptual Framework of Critique

The importance of reflection has been stressed for many years as a driver for the continued professionalisation of teaching (c.f. Dewey 1933; Schön 1983; Bandura 1993; Calderhead 1989; Hargreaves 1998; Boud et al. 1985, 2006). However, the ubiquitous promotion of reflection for professional learning and growth has

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often been presented, or adopted, too simplistically, and been assumed to be an instrumental, technical and individualistic tool or a 'recipe to follow' so as to be *seen to be* reflective. This has resulted in superficial approaches which offer little useful learning (Boud and Walker 1998). Perhaps it is time to reconceptualise reflection and develop more meaningful critique within the context of design and technology (D&T) teaching.

The aim for D&T teachers, as for any other subject discipline specialist, is to develop as a critical thinker, a professional who has the autonomy, motivation and high self-efficacy necessary to operate with wisdom and skill for the benefit of their learners (Bandura 1993). D&T teachers enter the profession with personal assumptions and beliefs, fears and desires developed through experience over many years prior to any professional indoctrination and/or education. They may not be fully cognisant of these nor aware of how such assumptions and beliefs shape their thinking and their practice as a teacher (Rogers 2002). In order to be in a position to engage in critique of teaching, a teacher needs to accept that their personal values can be challenged by others and by the systems in which they teach. Teachers do not teach in a vacuum. The context in which they are located is often one created by political ideology which may be underpinned by conflicting ideas about the purposes of education overall. Teachers work in collaboration with colleagues within the complex and shifting interrelationships of a school as a system, a structure, a community and curricula. All of which may be subject to change. In addition, the context is populated with learners who are unpredictable and create situations which are unique and variable.

LaBoskey (1993), as others (cf. Arnold et al. 2012; Mezirow 1990) suggest that the impetus for taking time to study the constructs and power structures of society, and analyse how these impact on educational policies, curriculum, assessment, accountability and pedagogical choices, is not linked to a particular professional life phase of a teacher but considered more as a professional frame of mind. This frame of mind demands that D&T teachers develop the skills to critique *what* they are doing, and *why* they are doing *what* they are doing, within the specific context they are operating by raising and asking questions. This helps to determine how their own beliefs, ideologies and assumptions impact on ways they enact educational policy, curriculum and assessment and adopt teaching methods and materials with agency.

To sum up, the critique of D&T teaching comprises:

- Critically examining interrelationships between pedagogy, curricula and assessment
- Adopting a mind-set of exploration and continual growth
- Exploring personal beliefs about teaching and learning processes (including emotional attachment to the discipline they teach)
- Transforming initial responses and tacit understandings into reflective action
- Praxis, i.e. taking creative risks to go beyond reflection to reflexive informed action

2 Conceptual Framework for Critique for Design and Technology Teaching

For a D&T specialist, the concept of critique involving aspects of professional life, such as managing complexity, coping with (and creating) uncertainty, challenging assumptions, embracing creative risk, taking responsibility for innovation and progressing action, maps well with the methodologies and attitudes of designerly thinking (Cross 2006) which is at the core of D&T learning experiences as determined by the majority of curriculum guidelines across the globe. Designerly thinking involves the learners working iteratively and creatively with cognisance of constraints or unforeseen challenges and issues within any given system, scenario or context to model an appropriate resolution or proposal for the client and user. Indeed, the construct of systems thinking and designerly learning places D&T in an interconnected and complex web and creates parallels with teaching and learning. Even when taken outwith political ideology, or a national/state definition of the purposes of education, the context in which D&T teachers are situated is one of continual change, surprise and challenge as engendered by the general underpinning construct of D&T education. This implies D&T teaching is dynamic, interactive and subject to scrutiny by the hierarchy of governance, subject to various external influences and technological cultural shifts, and by the teachers and learners themselves.

The processes of critique relate to what could also be considered as a framework for designing where designerly thinking involves:

- Seeking out issues and 'spark finding' (Kimbell 2002)
- Asking critical probing questions
- Challenging assumptions and personal beliefs
- Sourcing, identifying and critically analysing evidence that supports or conflicts
- Generating multiple alterative solutions and appraising each
- Taking intellectual risks
- Working iteratively to develop and arrive at a resolution that may be considered the best/elegant fit to offer a proposal or conclusion framed in consideration of consequences

Such characteristics work well to begin to describe D&T teaching where teachers encourage learners to suspend judgment, be willing and open to exploration, to deal with uncertainty, develop their technological creativity and take responsibility for their own learning and design decisions. Using designing as a framework offers opportunities to engage creatively in a critique of D&T teaching with the intention of gaining insights on educational issues, specific dilemmas and personal and professional pedagogical content knowledge and take informed action on the basis of interpretation of findings, discourse and dialogue with the intention to enact change. What is considered to be the purpose(s) of schooling and education in the

specific context the D&T teacher is teaching? What informs the basis of the planning and enactment of the learning experience? Who is granted (and who grants?) the autonomy to choose and plan appropriate D&T teaching approaches and learning experiences for learners? What knowledge should be taught, and what knowledge is not to be taught? Who decides? On what basis?

Boud et al. (1985) suggest that critique involves reflective thinking, emotions, feelings and cognition in a complex personal process with the intention of future action. Dewey (1910) as cited by LaBoskey (1993: 30) promoted an attitude of open-mindedness, responsibility and wholeheartedness as being integral to reflective action. Although not fully defining critique, accepting such principles as a framework for what D&T purports to involve lends itself to a framework of critique of D&T teaching in itself.

3   The Value of Engaging with Critique

This section argues the reasons for developing critique as a frame of mind and the value it offers D&T education practitioners. It serves to help teachers develop an understanding of the way they operate as a professional and what guides and frames their responses, actions, choices and decisions. Such enhanced understanding enables a deeper appreciation of what it is that makes teachers the teachers they are and informs them of how they can become the teachers they could be. Critique offers opportunities to develop an informed, personal and collegiate repertoire of actions through which professional teaching practices are enriched. The process of critique develops a proactive appraisal of experiences (Rogers 2002). It is less about immediate guilt or self-blame when, for example, learning is not achieved as had been anticipated, and more about developing a more secure understanding of what can be done to modify, enhance and/or address the aspects of practice which are spotlighted by the process. This, in turn, results in a renewed vigour and agency to address the issues at play.

Teachers are encouraged, from their induction as student teachers through to accomplished practitioners, to ask critical questions of educational policies and practice. Beliefs, values and practices need to be regularly reappraised as society and the needs of learners change and as a teacher's understanding develops. This notion of teachers engaging in critical reflection and adopting reflexive practice is central to ideas of responsiveness and relevance of the teaching profession. Eisner (1985) describes the value of critique as going beyond the skilfulness and effectiveness of being a teacher. He argues it helps practitioners, through meaningful professional learning, move towards 'connoisseurship' and to develop an 'artistry of teaching'. Eisner urges teachers to develop the ability to appreciate the different dimensions of their observations and experiences and to explore how they relate to each other and examine how these dimensions connect with their own values and commitments. Subsequently, by adopting the role of a critic and employing criticism to scrutinise all the various interrelationships of a complex system such

as education, 'as experienced' in the wider context, a teacher can make them explicit and engage in discussion with others to construct meaning or challenge existing paradigms. Larrivee agrees and suggests (2000: 294) 'Unless teachers engage in critical reflection and ongoing discovery they stay trapped in unexamined judgments, interpretations, assumptions, and expectations'. Critical reflection is not concerned with the how-to of action, but more keenly with the *why*, the reasons for and the consequences of what we do (Arnold et al. 2012). The more one develops knowledge and understandings of the ways in which environmental, social, cultural, political and economic systems function, the better one can appreciate, and be more curious about, how such systems interconnect with, and impact on, professional practice. Framing the questions to ask in order to challenge and develop personal and professional knowledge and understandings in interconnected systems takes effort, but this is a necessary part of the continuum of constructive, critical enquiry. The balance of the interrelationship between curriculum, teaching and assessment is sensitive to distortion if any one aspect dominates. The value of critique lies in examining the dilemmas, conflicts, puzzles and lines of enquiry that present themselves and proactively create opportunities for deeper, wider or further investigation. As a result, new models, alternative frames and different ways of thinking may be prompted.

However, the cognitive effort and energy required to engage with critique is great, and so some value must be recognised in return. Such critical inquiry and self-reflection enable teachers to acknowledge their strengths, to identify aspects for further development and to seek continuous improvement. In order to develop the skills and mind-set to engage purposefully in critique, teachers need to be willing to examine and challenge their personal and professional belief systems and the impacts and consequences of any enactment of these through their teaching. The processes of critique are not always comfortable; hence clarity in the value is paramount. In summary, critique has the potential to:

- Add and create meaning from what is already known and experienced through professional practice
- Challenge one's own actions and understandings, in order to develop/change practice
- Free one's own practice, in an informed and deliberate manner, from any externally imposed assumptions and beliefs
- Support teachers to engage in collegiate critical dialogue
- Facilitate processes of iterative enquiry related to teaching for purposes of transformation of teaching, learning and assessment practices
- Enable teachers to view themselves 'as transformative intellectuals' (Giroux & McLaren 1996)

The value of engaging with critique is teased out further in this chapter through discussion of creative growth and adopting inquiry-as-stance. This is followed by some illustrative models and exemplar scaffolding methods through which D&T practitioners can embark on the processes of critiquing D&T teaching.

3.1   Critique as Creative Growth

Designerly thinking involves turning the act of looking into seeing more specifically and critically through different lenses (Cross 2006). This helps the designer to appreciate the needs, desires and values of the various users and the range of stakeholders for whom they are designing. It is important, therefore, that any underlying assumptions, of all those involved, are uncovered and made explicit. Sterling (2009) and Schön (1987) discuss what can be achieved by reframing problems and illustrate the value gained in shifting from problem-stating and solution-finding strategies to creating question-framed problems. This enables the underlying causes, constructs and influences to be challenged and exposed and accepts that there are relational and complex factors to be addressed. Thus sensitivities and capabilities are required to interpret and explore a wide range of resolutions and empathise more authentically with those whose values and beliefs vary.

D&T learners are introduced to strategies to appraise existing environments, artefacts and systems. The relationship of the design outcome to the context, the user, the intended function and purpose is scrutinised and questioned, and informed judgments are formed and articulated. It follows, then, that the skills and strategies which the learners develop can be transferred to critiquing the efforts of their D&T teacher and their teaching. D&T teachers who value creative growth are those that have a keen appreciation of how their learners are responding to the D&T experience. Brookfield (1995) advises that by welcoming the learners' voice, inviting critique and listening to their perspective, opportunities arise to model genuine critical enquiry for the learners, thus stimulating them to do likewise. Learners in the D&T workshop, lab and studio can learn from their teacher's critical reflective approach and begin to be inducted into the model of critique to develop their own capabilities and growth mind-sets. Brookfield argues that this does much to alter the traditional teacher-learner relationship that is historically based on power and control or management of learner behaviours and attainment and can help to create a more productive partnership in learning.

D&T education strives to develop active, critical citizens and creative contributors who have the capability to adopt a designerly eye, to challenge, disrupt, evaluate and appraise the worlds they encounter. D&T also integrates objective and subjective, visceral and emotional values, with creative alternative and imagined worlds framed by personal, lived experiences and cultures. Transpose this conceit to the skills and values of a D&T teacher to adopt a teacher-as-designer stance, i.e. someone who critiques their personal pedagogical framework and values, who deals with uncertainty and thrives in a more than one solution design space, in order to create that very unique D&T educational experience which centres on creative growth. And yet, a D&T teacher may encounter a professional arena that is entirely contrary to designerly thinking and which offers no space for exercising creative growth. They may find themselves working in an environment that is bound by professional standards and that subscribes to professional competences which are at odds with their own. They may become accountable through statistics arising from

examination awarding bodies that prescribe criteria for standardised tests which reward formulaic performance over creativity (Atkinson 2000). This may, in turn, create a sterile environment of operation which conflicts with their view of D&T as an educational experience. Nicholl and McLellan (2008: 588) describe such tensions as 'dual values of creativity and performativity'.

Adopting a 'teacher-as-designer' stance and accepting that creativity is beneficial in the professional practice of education, particularly D&T, Christenson (2001, cited in Thompson and Jan Pascal 2012: 37) suggests that 'Any society that values creativity also needs to enable criticism. If we cannot question the way we are doing things and thinking about things at present, it will not occur to us that they could be thought of or done differently'. This concept of critique and the value of a 'critical approach', common language to the practice of art and design, is an 'important part of promoting creativity and preventing stagnation'. Thompson and Jan Pascal (2012) reiterate that this is entirely consistent with reflective practice and quote Adams (2002: 87) who notes, 'the two do not always go together: Critical practice is not just reflective practice, because the critical practitioner does not take the world for granted and does not automatically accept the world as it is. Reflective practice contributes to critical, transforming practice. . . . Critical practice involves reflectiveness but transcends it'.

The richness of designerly thinking is evident when shortcomings of models of reflection are scrutinised. Reflection, when regarded as an individual process and single perspective, personal view of an experience, is limited and can be counter-productive. It is not enough to seek and find a 'technical fix' for a specific issue as identified through a solo-internal reflective process. This in itself will not enable creative growth as a professional nor contribute to any genuine development of a practitioner. It will, perhaps, simply 'sort' a *specific* problem (as defined in a *particular* way) in a *specific* scenario, in a *specific* culture, or environment, if indeed it does achieve that much.

Why then would a D&T teacher not engage in critique? There are many possible answers to this question. LaBoskey (1993) noted in her study that some teachers were secure and confident with their practice and felt as though they had 'got it sussed'. They considered themselves to be effective in their teaching. They obtained results for their learners, and, more importantly, the results were those required by the system, and therefore they had no need to take time to engage in critique. As a D&T specialist teaching in a system where individual performance is judged by 'added value' in terms of grades attained, it may appear to be easier to adopt an approach of acceptance and compliance where teaching to the test may prove to be a mode of survival. LaBoskey (1993) also found that some teachers chose not to engage in critiquing due to a lack of personal confidence and because they felt overwhelmed and distressed by the multiple requirements and demands on their professional and personal time. Teachers can feel insecure or threatened about critiquing their teaching, and that of others, for fear of not getting 'the right answers' or 'not doing it right'. Critique serves as professional learning and demands scrutiny of theories and experiences through a range of lenses, to reveal

hitherto unrecognised possibilities which serve to inform future practices. This is deliberately provocative and understandably unsettling for some.

3.2 Critique and Inquiry-as-Stance

Much as critique in the context of designing, which aims to develop further design inquiry for deeper understanding to arrive at alternative design ideas or to make more secure design decisions, critique in the context of teaching has the potential to inspire new lines of inquiry and generate excitement in terms of meaningful and personalised practitioner research. Critique of D&T teaching drives the search for something different, the inquiry into practice, knowledge and understanding; the quest for something richer. 'Inquiry-as-stance' is a term used by Cochran-Smith and Lytle (2009) to describe the ways in which practitioners see and act, and relates to the lenses through which they look. It is a 'way of being' a teacher which partners critique well. Inquiry-as-stance is not time-bound, as a project, or initiative or strategy, but serves more as a construct to frame personal and professional learning and posit a teacher's orientation towards knowledge, intellectual ideas, their relationship to the practices, purposes and systems of schools and schooling. For Cochran-Smith and Lytle (2009), a teacher who adopts inquiry-as-stance is one who acts in ways that are considered beyond the well-rehearsed, reflective routines and one who more readily adopts a questioning approach to what they do in their own practice and critiques the socio-political context in which they, as professional D&T teachers, are teaching. Through rigorous interrogation of planning, teaching and assessment, concerns, issues and questions are raised. This process of examining and 'problematising' practice is central to inquiry-as-stance (Arnold et al. 2012). This inquiry goes wider than a teacher's own practice and wider than the immediate experiences of teaching. It also deliberately makes current educational policies and systems problematic by examining the underlying assumptions and unpicking the ideology that is embedded in the institutions, doctrines and documents that guide curriculum design and assessment. It contributes to a dialectic cycle of questioning, observing, acting and learning in collaboration and dialogue with other members of the school community, seeking alternative perspectives and making visible the personal, professional and political thinking and decision-making. It acknowledges the struggles that individual practitioners face in their attempts to tease out knowing why, how and what. Inquiry-as-stance has the potential to explore consequences, evidence impact and expose beliefs, assumptions, values and practices. Critique concerns construction (and deconstruction) of knowledge and ways of knowing, through conversation, discourse, collaboration, analysis and interpretation, thus making the tacit visible and the complexity of teaching more explicit. The culture of critique, through such inquiry, is rich and disruptive.

A D&T teacher who develops inquiry-as-stance does not feel obliged to accept the status quo and is willing to challenge assumptions, identify potential consequences and conflicts and appraise alternatives. There is curiosity and purpose in

mind. Inquiry-as-stance can be considered much like a creative process through which there is the development of a critical habit of mind and higher-order thinking towards seeking patterns and relationships. As with design thinking, such inquiry deals in the currencies of uncertainty, hypothesis, controversy and dilemma. Craig (2010: 206) suggests that when teachers pose questions, create and undertake enquiry, shaped by the contexts of their own teaching, they have the ability to 'unpack the unintended consequences of public policy'. Fichtman Dana & Yendol-Hoppey (2014: 6) use the term 'wonderings' to describe the initiation of the processes of critical inquiry from which teachers embark as knowledge creators and co-constructors of understandings. Teachers, as Hargreaves (1998) notes, are more likely to be motivated towards the change when the change is driven by teachers themselves, and not by 'outsiders' such as politicians, educational administrators or university researchers. The transformation of D&T teaching is made possible through teachers reconstructing, reforming, renewing, refining and reformulating knowledge in, knowledge of and knowledge for practice, as a natural part of their professional learning (Cochran-Smith and Lytle 1999).

4 Towards Critiquing: Models and Methods of Critical Reflection

The previous sections have discussed what is required for reflection to be transformed more usefully into critical reflection and ultimately serve as critique. The argument for engaging in the processes of critique has been presented in terms of creative growth and value for professional learning. This section illustrates some models to develop approaches to critiquing teaching. Although each is underpinned with similar concepts, there are subtle and, at times, distinct differences between some of them. The different models all involve uncertainty and will provide no definitive answers. Critique is not about problem-solving, and the various models discussed here should not be considered as problem-solving tools seeking a fast 'technical fix'. It is also important to note the distinction between the processes of reflection, critical reflection and critique. Critical reflection takes reflection beyond the analysis of personal experience with a view to solving problems encountered in personal practice, by considering the wider socio-political dimensions in which the experience is located. Critique then develops this further and proactively challenges and questions these dimensions. As such, it is messy and complex and requires acknowledgement of the many shifting variables.

Common to all models is the dialogical process which reveals alternative perspectives. This is considered central for any reflective practice as it creates a dynamic process, motivates professional learning through enquiry and deepens critique. The processes of critique will question assumptions about our own actions, intentions and values and those of others. The models encourage practitioners to examine their personal experience as located in, defined and bounded by political

and social structures. They all take cognisance of multiple perspectives. Critique requires comparison and examination with what is already known about the issue and will draw on existing literature, discourse and research. So too then, when engaging with critique, a D&T teacher recognises the limitation of their personal experience, as felt and understood from the subjective and the emotional states, through the lens of a very personal frame of reference. Personal values and beliefs can serve as *part of* the process of critical reflection but not serve *as* critical reflection. Critique is not a process undertaken through one static lens, and this therefore highlights the limitations of some models of reflection.

4.1 Schön's Reflective Practitioner: Contribution Towards Critiquing Teaching

One model of reflection was made explicit by Schön (1983). He explored professional 'ways of knowing', 'reflection-in-action', and 'reflection-on-action' and drew on several professional practices from the world of design education. In brief, 'reflection-in-action' is the immediate, intuitive, tacit, reactive approach of the professional teacher in the classroom, studio or workshop with the learners, or being reactive in meetings with fellow practitioners and colleagues. In D&T practice, as with all teaching, teachers will encounter messy, unplanned situations, and they will 'reflect-in-action' to decide upon alternative approaches, adopt a different 'language', try varied strategies and assess for counterresponse, *in the moment*. Eraut (1995) suggests that, for a classroom teacher, in the limited time frame available, particularly in crowded settings, the need for such rapid decisions results in scant analysis, and therefore the actions that are taken tend to follow convenient institutional protocols, emulate routinised reactions of a more experienced teacher or imitate a recently read evidence-based theory. 'Reflection-*in*-action' is sometimes (wrongly) interpreted as seeking technical fixes through an on-the-spot experiment or restructuring of strategy. The spontaneous, yet conscious, 'knowing-in-action', which accompanies 'reflection-in-action', draws on a repertoire of learned responses from previous experiences in different contexts.

In contrast to the possibly ill-informed immediacy of 'reflection-in-action', 'reflection-*on*-action' demands deeper, more deliberate thought about the unique experience as encountered from different perspectives and is undertaken with the intention of rethinking and constructing new understandings. It is only when the initial situation and the subsequent actions and reactions are discussed and reviewed with a colleague, or considered alone, through a retrospective lens does the 'reflection-*on*-action' enable further questions to critique the phenomena as experienced. This critical approach to reflection involves deliberate reliving and re-rendering: who said and did what, how, when, where, and, importantly, why (Waks 1999). The intention is this process leads to insight(s) about something hitherto not noticed or not understood. It aims to identify details or underlying

issues which, for example, were undetected in the 'heat' of the teaching episode. It is effortful and involves finding strategies to further question our own attitudes, thought processes, values, assumptions, prejudices and habitual actions, in order to understand our complex roles in relation to others and in relation to the experience as lived, and system in which the teaching is bounded. With practice, this develops the discipline of reflexivity (often a missing component). Over time, with practice, the reflective process develops from practical pragmatic/technical fixes and praxis towards reflexivity and critique (Carr & Kemmis 1986; Arnold et al. 2012).

4.2 Brookfield's Lenses: Contribution Towards Critiquing Teaching

Brookfield (1995) suggests that the aspect omitted from Schön's initial work, or at least given less focus, is that of 'reflection-*for*-action'. Brookfield argues the importance of personal and professional learning through a heightened awareness of planning, foresight and teaching. He proposes a model for embarking on critical reflection with four explicit lenses which, he suggests, offer different perspectives through their specific focus. These enable a teacher to make a deliberate shift from tacit commitments and constructs to becoming a critically reflective teacher and question their way of thinking and deeply held implicit assumptions and how things have come to be as they are. The lenses serve to reveal personal assumptions and frameworks that lead teachers to understand more about their own practice and why they 'operate' as they do. This can serve as a stepping stone to the processes of critiquing.

Lens one adopts an autobiographical exploration. This can include examination of past personal learning experiences including initial degree disciplines; previous places of work; range of experiences as a teacher; self-evaluations of teaching episodes; feedback received and feedback given; personal goal setting; previous places of work; and profiles of teachers adopted as role models.

Lens two refers to insights from student learners and student voice. This involves taking on board their feedback to the teaching and learning experiences, paying due respect to their interpretation of the teacher portrayed; analysing patterns of responses; reviewing less/ more successful engagement; less/more secure performances; analysing assessment data.

Lens three respects experiences of colleagues and includes dialogue, debates and critical conversations about, for example, planning, implementation, assumptions and subject and pedagogy constructs, conflicts, purposes of education, accountability and performance. This enriches personal frameworks through increased exposure to diverse and/or novel insights from those who experience similar contexts.

Lens four refers to continuous scholarly reading, research, and enquiry. This serves to source a wider realm of voices and theories about, for example, D&T specifically and the contribution of D&T research to the wider educational arena and vice versa, locally, nationally and internationally, providing further topics to examine and challenge.

Brookfield urges teachers to develop their critical reflective capabilities such that they can justify their professional actions and the intended consequences through the development of a critical rationale for practice which he claims is a 'psychological, professional and political necessity. Without it we are tossed about by whatever political or pedagogical winds are blowing at the time. A rationale serves as a methodological and ethical anchor' (Brookfield 2009:11). His model of 'four lenses for critical reflection' in concert with his process of 'hunting assumptions (causal, prescriptive and paradigmatic)' can help unearth the power dynamic that impacts on the purposes and practices of teaching and distorts social justice. 'Critical reflection is inherently ideological. It is also morally grounded. It springs from a concern to create the conditions under which people can learn to love one another; and it alerts them to the forces that prevent this. Being anchored in values of justice, fairness and compassion, critical reflection finds its political representation in the democratic process' (ibid 1995: 26–27).

5   Scaffolds to Support Critique of Teaching

With the priorities for a teacher being determined by the reality of a school day, reviews, reflective journal entries and/or meetings with colleagues to discuss teaching can become superficial and the quality of discourse poor. In a limited time frame, a brief outline 'story' is relayed, a cursory thought is cast towards how to address this 'next time' and a record of 'next step(s)' is noted. It is common to identify a technically orientated goal to fix the 'problem' as doing so avoids asking the bigger or deeper causal question(s) necessary to examine the assumptions and behaviours which shape the initial 'story'. As Valli (1993) suggests, such technical rationality bypasses the more important questions of critique. What is needed is analysis, explicit links and dialogic connections with professional knowledge and theories which help to discover and construct new knowledge or understandings from the experience(s). This is effortful and requires a framework to help guide the process to ensure it holds value and serves purpose beyond the mechanistic.

What follows are some practical approaches to engage with various levels of critique. Whichever model is framing the critique, some scaffolds may be required to serve as prompts and tools to aid the process, working towards greater integration, interrogation and iteration of theory and practice and heightened metacognition. Some of the 'tools' and strategies which have the potential to contribute to the process of critique include learning journals, reflective writing, significant incidents, learning rounds, lesson study, fictitious narratives, alternative views, 'a story in the round', learning dialogues/discourses/reflective dialogical exercises (with peers or mentors) and role plays. Four examples of scaffolds for guided critique are described below: learning journals, critical incidents, fictitious writing and lesson study. These are selected to illustrate approaches suitable for an individual and also for collegiate critiquing.

5.1 Learning Journals

Some teachers may feel that a learning journal is only valid when there is something traumatic and/or dramatic to reveal in their entries. There may be a sense from beginning teachers, especially, that they are writing a learning journal for their tutor or mentor, and the purposes of the journal remain unclear. Brookfield (1995) cautions against the journal becoming a ritualistic and mandated confessional, written for others to read. Teachers may think that if they do not have anything painful or exciting to 'share', or big questions to ask, they will be 'judged' less reflective than those that do (McGarr & McCormack 2014). However, Morrison (1996) suggests that a learning journal may be advantageous for several reasons, for example, to chart experiences and development over a period of time and for this record to offer an overview of the developing dialogues between academic work, professional practice and personal development, for oneself. The learning journal can provide a tool to encourage increased self-awareness through the ability to theorise about the nature of experiences and encounters and make the author more explicitly aware of the choices and decisions they themselves are empowered to make. The process of writing in a learning journal, much as the practice of keeping a design-sketch sourcebook, can generate narratives based on experiences, and these narratives, with other observations and 'headlines' from scholarly readings, can provide a device for enabling teachers to synthesise a variety of different experiences into a coherent whole. The intention is that learning journals provide scaffolding for the teacher to reflect on their own development in the context in which she/he is operating. Learning journals require guidance on how to use them, what raw data to include and prompts regarding the variety of tasks to instigate their use to avoid them being as Bolton (2010: 11) also cautions, 'becoming only confessional'. Morrison (1996: 323) suggests the focus is made explicit in terms of four key headings: personal, professional, academic and evaluative development. Within this overall framework, data could relate to progression and development in terms of:

- Increasing knowledge (including institutional, content and pedagogical content knowledge)
- Increasing ability to articulate and identify issues
- Increasing ability to make issues (their own and those of others) explicit and clearly articulated
- The expansion (in depth and breadth) of their understanding of an issue
- The expansion (in depth and breadth) of their vision and personal construct
- The replacement of one set of beliefs (or theories) with another or confirmation of beliefs
- Attitudinal changes over time
- Changing practices in the institution in which they work
- Changing relationships with colleagues

Learning journals have the capacity to expose contradictions, misconceptions and conflict. A frame to enable this could be to regularly note aspects of the specifics

of particular situations and behaviours in order to analyse what a teacher does (behaviours), why a teacher does it (values, belief, assumptions, aspirations) and how a teacher feels (emotional intelligence). Through such efforts, a critiquing process of teaching, planning, implementation, assessment and relationships can begin to identify specific strategies for change. Learning journals tend to work best in conjunction with other strategies, rather than being considered as *the* means to develop critical reflection; otherwise as McGarr and McCormack (2014) note, there is a false comfort in 'doing' reflection, and little learning ensues.

5.2 Significant Incidents

A significant incident is not necessarily a dramatic incident. A critical incident, as a significant incident, does not need to be an exciting enthralling, unusual and/or puzzling experience (Tripp 1993). It can be situation of any duration and scale. It can be unanticipated, and rare, but equally an incident that occurs frequently and be familiar, or even common. They are however incidents that have impact and contribute towards the trajectory of the learning, teaching, planning and/or implementation of an experience and as such are indeed *significant* and offer scope for critique. There will be an incident which can be described and situated in a scenario or a context. There will be an emotional, visceral or tacit response and resultant or subsequent actions which can also be described. The issues or concerns that are noted help to suggest the significance of the event. The descriptions and detail enable analysis to be possible. It is the process of drilling deeper into the incident and viewing it from a range of standpoints that creates the significance and makes the incident *critical* (Mezirow 1990). The approach may go something like this:

- Briefly describe a situation that occurred that affected you as an individual or as a team.
- Why are you describing this incident? Did you experience challenges in meeting it? Did you exhibit strengths? Did you learn something? About yourself? About others?
- Is there an overarching problem here? Are there values at stake?
- What were you feeling at the time of the incident/situation?
- What were your thoughts at the time of the incident/situation? Did you have preconceived ideas or assumptions?
- Has this experience challenged your assumptions, prejudices, biases or beliefs?
- What specific questions have you been able to raise?
- What specific (potential) 'solutions' have you been able to identify? What further questions arise from this?
- Will this experience alter your future behaviours, attitudes, understandings or aspirations? If so, in what ways?

By writing or talking, in response to prompts, the incident becomes a vehicle for critiquing an existing rationale or construct which frames the way the teacher, as a personally constructed professional, acts, views the world and assumes their role within the specific context. The writing (or discussion) should consider alternatives. This may require further reading to seek, but not necessarily accept, ideas from research-based evidence, to support, develop or contest any assumptions that have been revealed. This then frames the existing, exposed ways of understanding and sets these against any new understanding. The understanding gained, and disruption that the altered consciousness causes, is what renders the significance of an incident critical.

5.3   Fictitious Critical Writing

Critical reflection has been shown to be supported by seeing through different lenses (Brookfield 1995). This requires the practitioner to step outside oneself, be curious and unsettled, create discomfort and disrupt the familiar status quo. Bolton (1999, 2010) suggests that writing an all-imagined retrospective view of an experience, or episode, from the learners' perspective, capturing their thoughts and feelings and who said and did what, when and why, can serve as a useful strategy. It may appear that such fictitious writing is creatively a step to far for the purpose of critique, and yet it can serve a valuable contribution to the process. It provides more than a story, albeit a story nonetheless. The result is a story that incorporates the implicit theories of the author whilst also garnering the various points of view of all the actors through the story, words, thoughts and actions. Fictitious writing contributes more to critical reflection than problem-solving and target setting. It is a tool for exploring the *why* things are experienced the way they are and how they are perceived. The writing, for example, could explore the responses of various actors to the annual statistics reporting high-stake assessment results for D&T courses in the teacher's school. The actors in this instance would be the learners and their parents, the teachers in the D&T department and colleagues elsewhere, the school senior management and the government. Such writing exposes additional data, power dynamics and political ideologies which are useful for critique. It can serve as a comparison of incidents, thus revealing patterns, making meaning in the social, political economic and ethical context and system in which the experience/phenomenon is located.

5.4   Lesson Study

Guskey and Passaro (1994) note that teachers, who are high in self-efficacy and engage in critiquing their teaching, are more creative in their job. They tend to intensify their attempts to look for different strategies and methods and are less likely to become complacent and compliant. 'Lesson study' and 'learning rounds' are collaborative approaches to localised practice-based inquiry, which can develop

greater ownership of reforms and as such can be useful in terms of critiquing teaching. In brief, lesson study, as described by Yoshida (in Stigler and Hiebert 1998), is most commonly a teacher-led professional learning process and often takes the focus of curriculum development with a view to improving teaching by studying how learners learn. It tends to be worked in small groups of teachers who identify a long-term aim as a line of enquiry and make detailed plans for the study together. Preparation is complex and requires in-depth research into whatever topic is being studied. This tends to involve examination of syllabi/content frameworks, teaching resources, established teaching approaches, reports and related research literature, for example, adoption of roles for a cooperative learning approach to a robotics project; use of flow charts for differentiation in identification of commercial manufacture processes and materials; and techniques for learning creative thinking and idea generation. The teachers will then observe the learners in the classroom, as they are being taught by one of the lesson study group. They collect the data as agreed, and using the insights the observers report, including a learner perspective, the group reflects on what was learned specifically about teaching and learning of the specific topic being taught and more broadly the dynamic between teacher and learner, and learner and learner, the teaching and the content framework and the resources incorporated. It is the richness of the collaborative discussion that provides the insights for the inquiry to progress through iterative cycles. Fernandez (2002) acknowledges, however, that there are many challenges in undertaking lesson study. For example, dialogue with colleagues which focuses on personal shortfalls can undermine confidence (Bandura 1993: 125), and the teachers engaged in lesson study must have mutual trust. All those involved are required to adopt inquiry-as-stance in order to pose researchable questions, specify the type of evidence to be collected and interpret and generalise results through robust and collegiate discussion. Lesson study as an approach cannot claim critique of teaching is inevitable.

Bandura (1986, 1991) looks to developing self-efficacy and agency, and lesson study can contribute towards this. He suggests a teacher's self-efficacy impacts on their willingness to explore alternative pedagogical approaches and deal with uncertainty. Teachers with high self-efficacy are more likely to take intellectual risks rather than 'play safe' and less likely to adopt formulaic teaching, learning and assessment approaches. Critical reflection, through lesson study, can be trans-formative and stimulate the process of critique through actively encouraging doubt and uncertainty with the explicit purpose of seeking to challenge and disrupt. The key to lesson study is in the posing of questions to challenge the current context and to examine the underlying assumptions and purposes of the status quo.

In summary, this section has demonstrated that there are several approaches to scaffold the processes of critical reflection, and each practitioner, and group of teachers, will select and adapt their own strategies to suit their unique contexts and purpose. There are opportunities for teachers to reveal new, co-constructed knowledge, understanding and/or meaning, which offer new perspectives that can inform subsequent actions, challenge ways of knowing and critique ways of being (Hargreaves 1998).

6   Conclusion

This chapter has explored the value of critical reflection with a view to developing informed practice through professional learning, creative growth and critique which has the potential to transform teaching. It has alluded to the processes of teaching as designing and teacher-as-designer. It has drawn on literature from reflection, critical reflection, praxis and reflexivity to review models and strategies to support critique. As Mezirow (1990) suggests teachers become critically reflective by challenging the established definition of a problem or by revealing the underpinning cause of an issue encountered, perhaps by finding a new ethos that orientates efforts in an alternative direction. This demands that they reassess the way they have arrived at their values, beliefs, ways of knowing, feeling and acting; they examine policies and structures; they revisit values and systems and the relationship between these, particularly in terms of planning and practice and how these impact through informed forethought which results from the insights of critical reflection.

Bandura's research (2003) underlines the importance of the quality and purpose of the dialogue, and the language used, for critique in the education community. Teachers learn how to develop the skills of critical consciousness, self-regulation and self-efficacy. Larrivee (2000) argues for greater *examination* of the broader socio-political level, where practice occurs (questioning, challenging, desire for change), and explicit acknowledgement of *struggle* (inner conflict, surrender, uncertainty, chaos, power) and *perceptual shift* (reconciling, personal discovery, new practice) as essential components to arrive at *transformation* of D&T practice through critique.

Critique is not necessarily a systematic process, and yet it demands an understanding of holistic systems thinking and the interrelated, interconnected aspects therein. It is not about gaining a veneer of accomplishment (Hennessy et al. 1993). The process of critique is not an emotional confession, not a description or defence, nor a self-indulgent examination of self in one moment in time. It is not intended to be a process which carries with it negative connotations nor is it about seeking out 'cause and effect' to signal blame. Having an experience in itself does not lead to quality, meaningful learning nor is improvement always achieved by repeating or continuing the same action or experiences or rituals. Mezirow (1990) urges teachers to shift attention from procedural protocols towards a systematic review and critique of the why they do what they do and recognise the consequences of their practices. This is an iterative and continuous process, more a frame of mind, or ongoing habit, reappraised as their career progresses, as society and the needs of learners change and as understanding develops. Collaborative reflective practice offers collective strength, and when changes are determined collegially with all members of the educational community engaging rigorously in the processes of critique, there is combined strength in the commitment to take action.

This chapter outlined some of the prerequisites which enable D&T educators to be active participants in critiquing their practice and the socio-political context in which they are located. These include designerly thinking, innate curiosity and

a willingness to ask critical and deep questions which challenge assumptions. A teacher who critiques teaching requires the professional integrity and will to challenge dangerous ideas and make informed pedagogical decisions, and has the personal motivation to take purposeful, progressive action and collegiately enact constructive disruption.

Finally, critiquing teaching is complex and messy. It requires time and effort. When tackled with intent and underpinned by a well-considered philosophy and understanding, it will serve to integrate theory, practice, context and values to the advantage of all stakeholders and those involved in the design and technology education realm.

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