

AN “EPISTEMOLOGY” OF TEACHING<sup>1</sup>

DOUG BLOMBERG

When parents see their children’s problems as opportunities to build the relationship instead of as a negative, burdensome irritation, it totally changes the nature of parent-child interaction.... When a child comes to them with a problem ... their paradigm is, “Here is a great opportunity for me to really help my child and to invest in our relationship.”... [S]trong bonds of love and trust are created as children sense the value parents give to their problems and to them as individuals (Covey 1989: 203).

Many of us will know the scenario: sitting peacefully in a chair after a hard day’s work, reading a novel and listening to some music, when in comes a teenager with a tale to tell, perhaps a burden to share. Our relaxed restfulness is interrupted, a problem is presented: how do we respond? Parents such as Covey describes focus on building the bonds of trust: they choose to know the situation as ethically-qualified; they are responsive to the “pedagogical moment” (Van Manen 1991). While entering empathically into their child’s concerns, they continue to attend to the norms of faithfulness that obtain in such a situation with a special force.

A family is an ethically-qualified relationship, and it is fitting that ethical norms give the lead to all the interactions of family life. When no problems are confronted, life flows smoothly and with ease, in the security of truth-relations. But when something halts the flow—when a problem is posed—the demands of truth hang in the balance, and the opportunity to deepen the relationship a little more is presented.

But what of teaching and the teacher-student relationship? Is there a particular way of being present as a teacher? Indeed, what is it that constitutes the expertise of the teacher? Is there knowledge that “teachers possess that the laity, including the academics, do not?” (Fawns & Nance 1993: 252). If so, how can teacher education help the novice come to know these things? And, in a question that anticipates one theme of this paper, Fawns and Nance ask, “What are the processes of practical cultural reasoning that are associated with this knowledge and its development?”

*Theory and practice?*

It was in addressing the question of expertise that Plato’s Socrates proffered the theory/practice schema. He sought to identify the characteristics of disciplines such as physics, astronomy, geometry and medicine that gave them their power and reliability in comparison with everyday calculations. He thought

---

<sup>1</sup> Versions of this paper were presented at the Fifth International Symposium of the Association for Calvinist Philosophy, August 1994 and the Institute for Christian Studies, Toronto, April 1997.

that the answer was that they were based on theory, possessing three characteristics: *explicitness* (enabling understanding by any rational person); *universality* (obtaining at all times in all places); and *abstractness* (requiring no reference to particular examples) (Dreyfus 1990).

It is ironic that those who set out to be lovers of wisdom should become seduced by theory, for wisdom is nurtured not in distance but in closeness, openness and sensitivity to particular situations. But what Plato and his heirs were seeking were certainty and control, an ability to know *a priori* how an individual should react or a situation would unfold. So, even the exemplary practices of everyday life could not be taken for granted but had to be grounded in something beyond themselves. They needed a foundation in “principles of action and reason” (*Gorgias*, 501A).

Socrates was bound to be disappointed in his quest, because the structure of experience is not determined by principles of reason, and the best or only way of evaluating and refining that experience is not via the route of theory. Interrogating the prophet on piety (*Euthyphro*) and the hero on courage (*Laches*), he finds that neither could give the requisite rules, but only examples of pious and courageous behaviour, respectively. In fact, this was the case wherever he turned to examine practice, and he was led to the dismal conclusion “that no one knew anything at all” (Dreyfus 1990: 3).

Plato could rather have inferred that all these people just knew more than they could tell, and this indeed was one response, though his doctrine of reminiscence was employed more to assert the immortality of the soul than for epistemological purposes. It did address the dilemma of the *Meno*—that one can neither try to discover what one knows nor what one does not know, because in the former case there is no need of the inquiry and in the latter one does not even know what to look for—but the dilemma persists because of the assumption that knowledge is always theoretical in character, and thus, *inter alia*, explicable and abstract. As in the Allegory of the Cave, it is only as we move away from appearances to the realm of ideas that we grasp the nature of reality. It is in the dialectic of disciplined thinking that Socrates exemplifies that we attain purity of thought and thus, knowledge.

#### *A new critique of theory*

One of Dooyeweerd’s (1953-58) most significant contributions was to rehabilitate the knowledge gained in everyday experience, inviting it back into the philosophical parlour after millennia spent outdoors. Once we recognise that knowledge can be acquired in non-theoretical ways, the dilemma of the *Meno* is resolved. One can have knowledge of patterns and regularities in experience without formulating concepts in abstraction from experience: concepts can be concrete and pre-theoretical as well as theoretical.

But there are problems in Dooyeweerd’s conception of knowledge. Theory was allowed the run of too many rooms. Though giving us a means to acknowledge the multi-dimensionality of our experience, his epistemological framework allows for either the indeterminately multi-aspectual (systatic) knowledge of naive experience or the modally-focused, abstractive knowledge

of theoretical thought. There is "no third possibility between theoretical synthesis and pre-theoretical naive experience, as far as human knowledge is concerned" (Dooyeweerd 1953-58, II:482).

*Ways of knowing*

Dooyeweerd's schema allows for the differentiation of forms of knowledge in theoretical thought alone, which suggests that any *specialised* knowledge (and hence, the knowledge of "experts") must have a theoretical foundation. In my formulation (Blomberg 1978, 1980), the ways of knowing thesis seeks to honour the achievements of Dooyeweerd's conception while redressing his continued privileging of theory (despite the effective challenge to its autonomy) as the only alternative to the knowledge of naive experience.

The limitations of Dooyeweerd's epistemology are illustrated by Seerveld's (1968: 70) difficulty in finding a place for imagination in its bi-partite schema. Seerveld suggests that imaginative knowing involves instead a shift into "the *Hineinlebungshaltung*", when an individual attends to something "and works at apprehending it in a certain facet which eclipses yet collocates all the other modal complexities of the object."

Elaborating on Seerveld's conception, theoretical knowing and aesthetic knowing may be recognised as two distinct ways among an array of ways of knowing, each characterised by a taking of distance from objects as they are normally experienced so that a particular normative mode of consciousness provides the focus of orientation to the experiential horizon. Knowing is indeed of broadly two kinds: the first is the integral subject-object-relation of naive experience, the second is characterised by an intentional distantly focused relation between subject and object, qualified by a normative dimension of experience.

This conception is construed within the context of an integral epistemology: knowing is a rhythm of immersion, withdrawal and return (Stronks & Blomberg 1993). Knowledge is *broadened* through our immersion in concrete experience but *deepened* through distantly (ways of) knowing, "enriched" in the former and "developed" in the latter (Biggs 1994). Withdrawal is occasioned by a problem we *make* or *take*, a problem posed *by* us or *to* us. Through immersion, we "learn by degrees", assimilating more and more experience into our established networks, while in distanciation there is a qualitative shift, in which we adapt or accommodate our cognitive structure to experience that is perceived as somehow novel, and thus requiring a "differentiation of response" (Piaget 1974: 82). The moment of return is a purposeful response to the problem, in which a person acts to shape unfolding experience according to a chosen goal; knowing is thus *praxis*, in which reflection and action are conjoined in transforming the world through word-deed (Freire 1990).

It is important to underscore that these moments are indeed "beats" in a rhythm and that knowing emerges in the rhythm and not in reified aspects of it. There is no rhythm in moments in isolation, only in moments in relation. Ways of knowing are thus still modes of experience. Otherwise, distance might be misconstrued as ontic objectification, a real standing-over-against rather

than a relative and purposive (intentional) stance within a creational-relational coherence. Such a misconception would bolster the very dualism that an integral epistemology seeks to circumvent. Rather than emerging from a substantial dualism, knowledge is achieved when a person transcends both the subjective and the objective, when the connectedness of the two is realised. This “realisation” (Maxwell 1984) is both an awareness (“word”) and an actualisation (“deed”).

The ways of knowing thesis enables us to recognise order without rationalism, and diversity without relativism:<sup>2</sup> one way of reflecting is via abstract conceptualisation, but one may also reflect under the lead of ethical or social norms, or aesthetic or economic values, *inter alia*. These acts of reflection involve constitutive (retro-cipatory) moments of analysis but they are not qualified by analytical distinguishing. Depending on the normative context, the colour red will be variously identified as a call to revolution, an expensive glass (in leadlighting) or die (as was cochineal in the 19th century), an inappropriate means of drawing attention to oneself or as evidence of murder.<sup>3</sup>

It is in the act of responding in concrete (rather than theoretical) contexts that normative demands of varying kinds meet us most fully, and that we know most fully.<sup>4</sup> The artist engaged with a canvas reflects aesthetically on what is in order to envisage what ought to be, confronting a problem in starting out with a goal to be achieved. Good practice is directed by norms (as given) and values (as subjective responses to the given) that are appropriate to the kind of task in which one is engaged.<sup>5</sup>

---

<sup>2</sup> Rationalist (including empiricist) accounts of knowledge have grasped the reality of the orderedness of the world but mistakenly assumed that this order is singularly rational in kind. Romantic reactions have affirmed the affective over against the cognitive dimension of life, often subsuming matters of value as well as those of feeling in the former. This conflation of the normative and the sensitive is no mere oversight. It results from a recognition of the importance of normativity in human life, but then locating the source of this in the individual or communal spirit.

<sup>3</sup> As Popma says, “the analytical component is never missing... Rarely however is [human life] typified by the logical (analytical) modality: this we find mainly in scientific ‘learning to know’.... Other kinds of knowledge are, for example, faith-knowledge which is activated first of all by the performing of religious deeds and the acquiring of religious knowledge; it has an element of distinction, but is typically qualified by trust and certitude. Similarly, ethical knowledge is a knowing in the way of ethical life.... Jural knowledge comes as the realisation of right...” (1956: 111-112, my translation).

<sup>4</sup> Mekkes (1971: 317) writes: “I do not experience explicitly the analytical function of my loving, with an “object” included in it to boot.... This entire act is a conscious *unity*...in which nevertheless pre-eminently knowing must reach its high point. To this *knowing* our function of distinguishing (“thought”) makes an implicit contribution by way of founding it; yet, in this connection can the term “concept” bring any clarification...into the situation for me? I become acquainted with loving by the way of *loving* the one who is loved, just as I become acquainted with right by doing right (or being subjected to it) in situations where justice is at stake.... This holds for all of our life, for all of our knowing of...creation.”

<sup>5</sup> In this sense, all human action is normative and responsible: the distinction between right and wrong is primary (Macmurray 1969), because all action involves choosing what one believes to be the better path and committing oneself to it. Truth is founded in *truth*, faithfulness in relating (Palmer 1983).

*The example of ethical knowing*

The example with which we began illustrates that ethical knowing is not a matter of theorising about ethical principles. It is to respond appropriately to the demands of faithfulness in a situation, and might be displayed at its most obvious in moments of great crisis, when unusual courage is called for—"Here I stand, I can do no other"—but it is none the less present in the unspectacular doggedness of a life lived with integrity or "moral fibre". Such ethical conviction and insight is gained by immersing oneself in situations that call one to faithful response, by making oneself vulnerable and allowing people to make a claim.<sup>6</sup>

Lewis (1946: 20) argues that virtuous behaviour does not issue from intellectual justification. Consequently, he would rather play cards with someone who was "quite sceptical about ethics, but bred to believe that 'a gentleman does not cheat', than against an irreproachable moral philosopher who had been brought up among sharpers." What sustains a person in a time of moral threat is not syllogisms but ethical integrity: listening and responding aright to ethical norms.

Kleinig (1982) suggests that by understanding morality—moral knowing—as a concern for what we are in our relationships with each other, one of the most serious problems facing traditional ethical theories—that of moral motivation—can be addressed. Utilitarian, egoist, intuitionist and Kantian theories alike provide rationales for conduct which undermine the moral worth of the conduct they motivate.

If Jack visits Jill in hospital, his apparently charitable conduct is shown to be something else if he offers as his motivation the kinds of reasons associated with traditional moral theories.... It is only if his conduct is motivated by love and concern for *Jill*, by his desire to stand in and express a certain kind of relationship with and for her, that its moral integrity can be preserved. Otherwise, as occurs when reasons derived from the traditional moral theories are invoked, Jill figures simply as *an occasion for* their being acted upon (Kleinig 1982: 247).

The force of this is not that there are no norms to which Jack is subject, for it is these norms that enable acts of love to be distinguished from what is not loving. But if one attempts to formulate these norms in theoretical terms—as universally applicable abstract principles concerning maximising happiness or doing one's duty—and acts out of *fidelity* to these principles, then one may be acting rationally but immorally.

*Epistemologies of teaching*

My present concern is to relate this conception to teaching as a typically techno-cultural way of knowing. Teaching is most often described by practitioners as a craft (Tom & Valli 1990), immediately suggesting a techno-cultural

---

<sup>6</sup> "As much as anything, the development of virtue is a function of the relationships within which people move, and which provide a context for whatever moral reflection they engage in. Moral sensitivity arises through immersion in and reflection upon relationships of an intimate kind..." (Kleinig 1982: 253).

qualification. The favoured epistemologies, however, remain trapped within the theory-practice problematic, even though theory is variously understood. These perspectives may be viewed as focusing on significant features of knowing to the exclusion of others; an integral epistemology might therefore be able to locate them, *mutatis mutandis*, within a more inclusive context. Thus we may retrieve their partial insights, not by an eclectic synthesis but by reformulating them within a biblically directed framework.

### Positivism

Positivism is the most direct heir to the classical understanding of theory already described. It assumes that only the (putative) methods of the physical sciences will yield knowledge about educational problems. Accordingly, facts and values must be rigorously separated, because understanding advances by careful and objective attention to the relationships between variables. Individuals are of interest only as instances of laws, and these laws are presumed to be causal in nature (or explanation and prediction have no meaning).

Positivist research into teaching is concerned to identify the most effective techniques. Efficient teaching is then a matter of faithfully applying this “knowledge base” (Hunter 1982; Gage 1978). Scientific generalisations are foundational to improving teaching effectiveness: theory thus determines good practice.

If scientific theory has no concern with questions of value, the problem of knowing *when* to apply generalisations is not only a question of sensitivity to context, which immediately requires specification, but it is also because decisions about contexts—and these contexts themselves—are value-laden. How are prescriptions for action to follow legitimately from value-free premises, from mere descriptions or even explanations of how humans behave?

The positivist view of theory may be located within an integral epistemology as an analytically-qualified mode of withdrawal. As such, theory may provide insight into regularities in human functioning, and thus be one ingredient in educational decision-making, whilst remaining powerless in itself to mandate educational interventions. There is no intrinsic orientation to return, because of a conscious abstraction from the concrete horizon of experience and a repudiation of the normative context which alone makes action possible.

### Interpretivism

The “pedagogical content knowledge” approach (Shulman 1987), along with the growing emphasis on curriculum as narrative (Connelly & Clandinin 1988), is most comfortable with an interpretivist perspective, in which facts and values are conflated. Because personal choice (which has individual and social dimensions) is central to human action, meaning of whatever kind is personally constructed and thus totally relative. General causal factors are insignificant in comparison with the role of free judgment in human affairs. Interpretivists honour idiosyncrasy: they are interested in individual cases, which are closer to the actual practice of teachers and therefore more useful to them than contextless generalisations (Shulman 1992).

Thus, as the term itself suggests, interpretivism places the interpretation of values and meaning at the heart of any possibility of understanding the social world. Such meaning is necessarily dependent on the contexts in which it is embedded: practice rather than abstract theory is central, but theories construed as individual and social beliefs remain crucial.<sup>7</sup> The focus on meaning in context requires an intimate engagement with the "phenomena" being investigated, for the meanings of others can only be properly understood by comparison with the meanings that investigators themselves have adopted. This commitment to empathic understanding generates value relativism. Whereas teachers must make decisions about values whenever they act, interpretivism has difficulty in providing any grounds for choice between values and consequently in giving direction to teacher action or providing a basis for change.

Interpretivism is oriented to immersion in experience. It seeks to portray everyday experience in its taken-for-grantedness, preferring "understanding" to "calling into question". It accepts that values and meaning are central to human life (that normativity is intrinsic to any problem resolution) and thus to any valid account of education and teaching, but it lacks an orientation to withdrawal, whereby values might be held over against concrete experience in critical mutuality. In consequence, the notion of return evaporates.<sup>8</sup>

#### Critical theory

A third perspective is rooted in critical theory, the defining features of which are the criticism of social structures and an emphasis on the social construction of truth and action. Rather than seeking value-neutrality or embracing value-relativity, "emancipatory" approaches to education assume that the goal of education is the promotion of a *particular* set of values.<sup>9</sup>

The conviction that schooling, and the society it reflects, is in various ways unjust, evokes a commitment to reformation. It is not sufficient merely to understand educational practice: it has to be transformed, by recognising and taking control of the historical process. The objective constraints accepted by positivism and the subjective constraints approved by interpretivism are to be transcended by a dialectical rationality, in an effort to "explore how both kinds of conditions can be changed" (Carr & Kemmis 1986: 183).

Thus, while critical theorists tend to assert the interrelatedness of theory and practice—that they are mutually constitutive, two poles in dynamic tension

---

<sup>7</sup> So, while interpretivists seek to free themselves from the rationalism of the empirical-analytical orientation, they can still be charged with remaining captive to "a rationalist theory of action" because they "are inclined to construe educational practices and situations solely as expressions of practitioners' intentions, perspectives, values and understandings" (Carr and Kemmis 1986: 180-1).

<sup>8</sup> Hence the cry that "we don't need any more anthropological studies telling us what is wrong with education", because merely describing a problem does not help us to know how to address it—though the same charge could be laid against positivism.

<sup>9</sup> This leads Van Brummelen (1993: 47) to comment that "only evangelical Christians...and critical theorists...hold fast to the notion that values are central to educational thought and practice."

with each other (Winter 1987)—it is the orientation to action realising particular values that prevails. Critical theory adopts a politico-ethical stance towards everyday experience in its mode of withdrawal,<sup>10</sup> thus implying an orientation to the phase of return or purposeful response.

### *Immersion*

Dooyeweerd has reminded us that knowledge comes in the first place not from standing *apart* from naive experience but by immersion in it. This is echoed in the contemporary neo-connectionist endeavour to overturn the notion that knowing is a rule-governed activity (Dreyfus 1988) or that theory undergirds good practice. Research into neural networks (Churchland 1988) and connectionist models of Artificial Intelligence (Dreyfus & Dreyfus 1988) support a holistic, distributed view of knowing.<sup>11</sup>

Knowing involves understanding the connections between things, not as a matter of rational principles abstracted from concrete contexts, but in all the diversity and complexity that characterises creaturely existence: there is an order to experience, in its mutability and individuality, to which we need to be sensitive. Where thinking is the process of relating one thing to another—again, not necessarily propositionally, as when a golfer imagines the look and feel of the perfect stroke before playing the ball—in a moment when action is envisaged but temporarily suspended, acting is choosing and moving to adopt a particular actual relation to something—often more difficult, as any golfer will tell you! The greater the number of appropriate mental connections and actual relations (appropriateness implying a faithful response to the order of creation), the greater is understanding.

It follows that a curriculum that promotes the making of these connections promotes greater knowledge. As Rumelhart (1989: 135) has put it, “all the knowledge is *in the connections*,” rather than in individual elements.<sup>12</sup> From this perspective, knowledge may be regarded as *situated in* and *distributed across* the environment, some of its parts being “in the mind and some in the world much as the final picture on a jig-saw is spread across its component pieces” (Brown *et al.*, 1989: 36-7).<sup>13</sup>

The ontic basis for this is in the referring-character of reality: creation does not have meaning, it *is* meaning (Dooyeweerd 1953-8, I:4ff.). In the integral subject-object-relation, the meaning is in the *relation* between subject and

<sup>10</sup> “It is on this highest level of deliberative rationality that the practical assumes its classical politico-ethical meaning of social wisdom” (Van Manen 1977: 227).

<sup>11</sup> Evers (1990: 78) goes so far as to conclude that “From a network point of view, there is no physical difference in the representation of ‘knowing that’ and ‘knowing how’.” Theory is but one kind of practice.

<sup>12</sup> Research into brain functioning invites the conclusion “that multiple and complex concrete experiences are essential for meaningful learning and teaching” and further, that “optimizing the use of the human brain means using the brain’s infinite capacity to make connections—and understanding what conditions maximize this process...” (Caine and Caine 1991: 5). Interestingly, these authors suggest that the best word to describe these conditions is “immersion”, in which educators focus “on expanding the quantity and quality of ways in which a learner is exposed to content and context” (5).

<sup>13</sup> A related phenomenon is the *indexicality* of language: much text assumes context.

object function, neither one nor the other in isolation being capable of the opening of meaning.

Knowledge, then, is experiential, situated and immersed. Bereiter (1991) argues that, rather than following the dictates of laws of logic, people use mental models and easily remembered cases, form concepts on the basis of family resemblances and prototypes rather than classificatory schema and that even scientists use informal, qualitative models rather than formal laws. In other words, people rely on experientially-derived imagery rather than theory in decision-making.

#### *Withdrawal and return*

The knowledge that one gains through immersion—without intentionally seeking it—is the essential condition for all knowledge. Yet, as Plato recognised, immersion in experience alone is inadequate to ensure the acquisition of expertise—witness the “same year repeated twenty times” syndrome often attributed to teachers. Expertise requires not only learning *through* experience, but learning *from* it. Sometimes we do not learn from experience but merely reinforce our own misconceptions, when it is these that need to be called into question. If we do not recognise a novel experience as being such, we assimilate it mechanically to our existing repertoire; the extent of the mismatch will determine the degree to which we have violated the integrity of the area of creation we confront. This mismatch is at its most extreme in cases that we regard as psychological dysfunction, where earlier experiences have led to rigidified responses, so that situations are dealt with stereotypically; it is as if timeless theoretical principles preclude timely responses.

In everyday experience, one knows in doing. But in confronting an arrest in experience, one needs to know what to do. There is a pause between “stimulus” and “response”, a gap within which we work (Covey 1989). We are always reflecting-in-action, but sometimes we focus in a particular way, to reflect on action. Moments of withdrawal are occasioned by problems that are posed *to* us by the context or *by* us to the context. Unless we notice and attend to these problems, we *broaden* our experience without *deepening* it, without responding in such a way that later problems are dealt with more adequately.

Problems are characterised by a discrepancy between what is and what one considers ought to be, “between an existing and a desired state of affairs” (Robinson 1993: 25). This discrepancy is rooted simultaneously in the dynamic of creation and in its brokenness, which call us to a healing cultural response. Problems are thus intrinsically value-determined: ways of knowing are normative modes of withdrawal that enable us to constitute or identify problems and also orientations to action, as they impel us towards problem resolution.

This second kind of experiential learning is a necessary complement to that which occurs in concrete experience. Immersion, whereby we stock our storehouse of experiences, is punctuated by moments of withdrawal, in which we re-arrange the shelving, standing *back*, as it were, from the centre of experience, without of course leaving its confines, so that problems posed may be addressed.

We decide to take, for example, an ethical stand, to view the situation *as if* it were pervasively ethical; we relate as ethical subjects toward the objects of our experience. Thus, in deciding whether to spend money on a special event with a family member or friend, we check our initial parsimonious reaction and choose to appraise the decision not as centrally an economic one, in which terms it would constitute an unnecessary extravagance, but as a welcome gift of loyalty and devotion.

In the greater number of cases—whenever we have non-theoretical purposes in view—the orientation is to a decision for action. It is these moments of forming purposes that constitute human *action* rather than animal *behaviour*, that mark us as image-bearers pursuing meaning and choosing between ends. Our intent is not to contemplate a difficulty but to confront a challenge or resolve a problem, to respond purposefully to it.<sup>14</sup>

#### *A role for theory*

The theory-into-practice paradigm that has characterised much teacher education suggests that students should first be given theory and that they will then go out and apply it. Theory is thus taken as providing rules for behaviour. But learning is not a matter of following explicit rules (Bereiter 1991). When we construct a sentence, we do not do so by consciously following rules (though we are indeed responding to norms). Forming a sentence is a paradigm case of coming to know, where we address a particular communicative goal not by regurgitating a sentence we have previously prepared, but by drawing on our vast acquaintance with language to form an utterance that is apt and, to all intents and purposes—because it is situated—unique. Frequently, constructing a sentence requires the resolution of a lingual problem and is an outcome of the lingual way of knowing; at other times, where our communicative needs are routine and embedded in familiar contexts, we draw semi-unconsciously on our fund of lingual experience.

But rules (whether deriving from theory, etiquette, a moral code, organisational policy or elsewhere) can function as *goals* for action, thus establishing a problem space; as such, they can be useful to novices (Dreyfus 1990), pointing to a situation that is deemed worthy of achievement. Theoretical principles thus become values we seek to realise, by meeting and overcoming the constraints of the problem space.

It remains that rules as principles for behaviour can only be superficially understood without a sufficient breadth of experience. As useful as they might be as symbolic referents to experience, the text is meaningless without a context. At the same time, rules recede in significance as expertise develops, and goals are more often than not quite specific desired states rather than rules.

#### *Teaching as techno-cultural knowing*

Ways of knowing are also ways of loving or caring: knowing requires us to

<sup>14</sup> The term “resolve” is used advisedly: it is not necessary (or even possible) to *solve* every problem we meet, in order to grow in understanding or improve in practice.

empathise rather than to objectify, to embrace and engage with a partner that we invite to reveal its "self" to us. If we do not listen to it speaking, and instead impose our own categories of control, then all that we know are these categories. To know something is to treat it with integrity, and this means in a manner appropriate to the norms that obtain for our relations with it.

Teaching is first of all a particular kind of relationship with students; second, it is a relation to the something that the teaching is about. It is typified by the *techno-cultural* way of knowing, requiring the exercise of formative power in loving service, as the teacher *leads and guides* students (the cultural dimension) and *shapes* the material environment (the technical dimension) so that an invitation to learn is issued. The environment includes all the materials of teaching—the "texts" (broadly conceived) which the teaching is about and the contexts (the available resources, within and without the classroom) within which these texts are addressed; to treat this environment with integrity is to respect the limits or "discipline" of the subject-matter, for example. To treat students with integrity is to invite—not coerce—they to disciple themselves to growth in love and truth.

Teachers' knowing is then neither naive nor theoretical. It is not naive because it has a sustained determinate focus that is lacking in ordinary knowing. It is not theoretical because it is not motivated foremost by explicit abstract principles, such as educational psychologists enunciate.

#### *Forming and self-forming*

Related to this view of teaching is the contention that a school is similarly techno-culturally qualified, as would be expected of an institution in which teachers hold the office of leadership. There is thus a self-forming function for those in the office of student as well. Their office is learning, and this implies that they are responsible for their learning—co-responsible with their teachers, who are called not only to guide but to enable them (Van Dyk 1990). Similarly, citizens are responsible for the promotion of justice and should not abrogate this responsibility to the government; indeed, the viability of the state depends on this commitment throughout the greater part of the citizenry, as the viability of the school depends on the commitment of students to learning.

Teachers cannot make students learn; as Tyler has said, it is not what teachers do, but what students do, that they learn. Teachers are responsible to shape the optimal conditions for learning, to invite students to learn and to aid them in their learning, but they cannot do their learning for them. Recognising the formative tasks of both teachers and students helps us avoid the extremes of both the transmission and the spontaneistic models of schooling.

The forming that characterises teaching is also in many respects a self-forming. A teacher understands something that others do not, but then "can transform understanding, performance skills, or desired attitudes or values into pedagogical representations and actions" (Shulman 1987: 7). Many people know things that others want or need to know; though this *may* be necessary for teaching, it is not sufficient. What distinguishes teachers from those who merely know, is their ability to *transform* their knowledge so that those who do

not know can come to know. Such transformations are stored by teachers as “pedagogical content knowledge, that special amalgam of content and pedagogy that is uniquely the province of teachers” (Shulman 1987: 8).

To teach well is not just to have knowledge of subject-matter on the one hand and techniques on the other; it is to have developed an explicit subject-*manner*, a way of shaping the material environment, of giving it form. “Pedagogy is not something *appended* to subject matters... They become one in the teaching of, for example, mathematics” (Goodlad 1990: 280). A teacher’s effectiveness bears less relationship to subject-matter expertise than to pedagogical competence. Thus, in teacher education as in schooling, it will be a mistake to attempt to sever content from process, for the way in which something is learnt will also determine what is learnt; matter and method are inseparable.

#### *A time to form....*

Teaching differs significantly from other crafts because of the nature of the “material” with which it works: though textual resources are important, it is the relation between knowing human subjects that is central. It is thus that teaching is a techno-*cultural* and not merely a *technical* activity. As Tom’s (1984) designation “moral craft” suggests, there are other normative demands that supervene, not only in relation to the ends but also the means. And where the sculptor’s materials are inertly resistant, the teacher’s human charges are fluid and active in time. Teachers have to listen to the voices of their students and respond appropriately. Whilst one can leave a block of marble for an hour, a day or a year before returning to complete a statue, even moments matter in teaching. Interventions must be made at the right time for each student, and teachers must know not only *that* a particular intervention is necessary and *how* to intervene, they must know *when* this time is—a discernment that is peculiarly the province of wisdom (Blomberg 1998). If teaching does involve breaking “material” into small steps (Weeks 1988), then also crucial is knowing *when* to invite the student to take the next step on the journey—and when to refrain from issuing the invitation. White (1988) suggests that knowing *when* to say *what* is at the heart of good teaching. Pace of presentation will affect the amount of learning that occurs, independent of other factors about the teacher; White calls this “the principle of maximum opportunity” (193).

#### *The teacher’s task*

Teachers’ planning focuses on the *task* or activity in which students are to engage (Shavelson & Stern 1981), and thus on the design of curriculum. Devising and implementing curriculum involves selecting and organising strategies for particular teaching episodes. Curriculum is dynamic and *problematic* (“constructed, provisional, tentative, subject to political, cultural and social influences”) rather than *given* (Berlak & Berlak 1981: 147). As a timed reality, it concerns the sequencing and duration of activities, adjusted responsively to the situation.

Doyle (1983) concurs that the central construct of classroom knowledge is *task*. This is comprised of a goal and a set of constraints, being the circum-

stances under which the goal is to be achieved (a problem space), and the resources that can be used to reach it. Schools are places where teachers seek specifically to deepen students' experience by designing a systematic program of problem-posing. Tasks are accomplished by interpreting the problem space and organising resources in ways that account for its features.

It is in accomplishing tasks—responding purposefully to problems posed—that one learns more deeply about the world. It is in accomplishing the task of curriculum enactment (Doyle 1988)—shaping the interactions between (student-)subjects and subject(-matter)—that teachers learn to teach, not once and for all, but in the ongoing refinement of their craft.

### *Bibliography*

- Bereiter, C. 1991. Implications of connectionism for thinking about rules. *Educational Researcher*, 20(3), April, 10-16.
- Berlak, A. & Berlak, H. 1981. *Dilemmas of schooling: teaching and social change*. New York: Methuen.
- Biggs, J. 1994. What are effective schools? Lessons from East and West. *Australian Educational Researcher*, 21(1), April, 19-39.
- Blomberg, D.G. 1978. The development of curriculum with relation to the philosophy of the cosmomic idea. Unpublished PhD thesis, University of Sydney.
- . 1980. Toward a Christian theory of knowledge. In J. Mechielsen (Ed.), *No icing on the cake: Christian foundations for education in Australia*. Melbourne: Brookes-Hall.
- . 1998. The practice of wisdom: knowing when. *Journal of Education and Christian Belief*, 2(1), 7-26.
- Brown, J.S., Collins, A. & Duguid, P. 1989. Situated cognition and the culture of learning. *Educational researcher*, 18(1), 32-42.
- Caine, R.N. & Caine, G. 1991. *Making connections: teaching and the human brain*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Carr, W. & Kemmis, S. 1986. *Becoming critical: knowing through action research*. Waurm Ponds, Vic: Deakin University.
- Churchland, P.M. 1988. *Matter and consciousness*. Rev. ed. Cambridge, MA: MIT Press.
- Connelly, F.M. & Clandinin, D.J. 1988. *Teachers as curriculum planners: narratives of experience*. New York: Teachers College Press.
- Covey, S.R. 1990. *The seven habits of highly effective people: restoring the character ethic*. Melbourne, Vic: The Business Library.
- Dooyeweerd, H. 1953-58. *A new critique of theoretical thought*. I-IV. Philadelphia: Presbyterian and Reformed Publishing Co.
- Doyle, W. 1983. Academic work. *Review of educational research*, 53, 159-199.
- . 1988. Curriculum in teacher education. Paper presented at the annual meeting of the American Educational Research Association, New Orleans.
- Dreyfus, H.L. 1988. The Socratic and Platonic basis of cognitivism. *AI and Society*, 2, 99-112.
- . 1990. Practice in a theoretical discipline: the uniqueness of nursing. Unpublished paper: University of California at Berkeley.
- Dreyfus, H.L. & Dreyfus, S.E. 1988. Making a mind versus modelling the brain: artificial intelligence back at a branch point. *Artificial Intelligence*, 117(1).
- Evers, C.W. 1990. Educating the brain. *Educational Philosophy and Theory*, 22(2), 65-80.
- Fawns, R. & Nance, D. 1993. Teacher knowledge, studies and advanced skills. *Australian Journal of Education*, 37(3), 248-258.

- Freire, P. 1990. *Pedagogy of the oppressed*. Trans. M.B. Ramos. New York: Continuum.
- Gage, N.L. 1978. *The scientific basis of the art of teaching*. New York: Teachers College Press.
- Goodlad, J. 1990. *Teachers for our nation's schools*. San Francisco: Jossey-Bass.
- Hunter, M. 1982. *Mastery teaching*. El Segundo, CA: TIP Publications.
- Kleinig, J. 1982. *Philosophical issues in education*. London & Canberra: Croom Helm.
- Lewis, C.S. 1946. *The abolition of man: reflections on education with special reference to the teaching of English in the upper forms of schools*. London: Geoffrey Bles.
- Macmurray, J. 1969. *The self as agent*. London: Faber and Faber.
- Maxwell, N. 1984. *From knowledge to wisdom: a revolution in the aims and methods of science*. Oxford: Basil Blackwell.
- Mekkes, J.P.A. 1971. Knowing. In E.R. Geehan (Ed.), *Jerusalem and Athens: Critical discussions on the theology and apologetics of Cornelius Van Til*, 306-319. Philadelphia: Presbyterian and Reformed Publishing Co.
- Palmer, P.J. 1983. *To know as we are known: A spirituality of education*. San Francisco: Harper & Row.
- Piaget, J. 1974. *The child and reality: problems of genetic psychology*. Trans. A. Rosin. New York: Viking Press.
- Plato. 1956. *Protagoras and Meno*. Trans. W.K.C. Guthrie. Harmondsworth: Penguin.
- . 1959. Euthyphro. In *The last days of Socrates*. Trans. H. Tredennick. Harmondsworth: Penguin.
- . 1961. *Collected dialogues*. E. Hamilton & H.H. Cairns (Eds.) Princeton, NJ: Princeton University Press.
- Popma, K.J. 1956. *Inleiding in de wijsbegeerte*. Kampen: J.H. Kok N.V.
- Robinson, V. 1993. *Problem-based methodology: research for the improvement of practice*. Oxford: Pergamon Press.
- Rumelhart, D.E. 1989. The architecture of mind: a connectionist approach. In M.I. Posner (Ed.), *Foundations of cognitive science*. Cambridge, MA: MIT Press, 133-159.
- Seerveld, C. 1968. *A Christian critique of art and literature*. Toronto: Association for Reformed Scientific Studies.
- Shavelson, R.J. & Stern, P. 1981. Research on teachers' pedagogical thoughts, judgments, decisions and behavior. *Review of educational research*, 51, 455-498.
- Shulman, L. 1987. Knowledge and teaching: foundations of the new reform. *Harvard Educational Review*, 57(1), 1-22.
- . 1992. Toward a pedagogy of cases. In J.H. Shulman (Ed.), *Case methods in teacher education*. New York: Teachers College Press, 1-30.
- Stronks, G.G. & Blomberg, D. (Eds.) 1993. *A vision with a task: Christian schooling for responsive discipleship*. Grand Rapids, MI: Baker Book House.
- Tom, A.R. 1984. *Teaching as a moral craft*. New York: Longman.
- Tom, A.R. & Valli, L. 1990. Professional knowledge for teachers. In W.R. Houston (Ed.), *Handbook of research on teacher education*. New York: Macmillan, 373-392.
- Van Brummelen, H.W. 1993. Teacher education for responsive discipleship. In P. DeBoer (Ed.), *Educating Christian teachers for responsive discipleship*. Lanham, MD: University Press of America.
- Van Dyk, J. 1990. The practice of teaching Christianly. In S. Fowler (Ed.), *Christian schooling: education for freedom*. Potchefstroom, RSA: Potchefstroom University for Christian Higher Education.
- Van Manen, M. 1977. Linking ways of knowing with ways of being practical. *Curriculum inquiry*, 6(3), 205-228.
- . 1991. *The tact of teaching: the meaning of pedagogical thoughtfulness*. London, ON: The Althouse Press.
- Weeks, N. 1988 *The Christian school: an introduction*. Edinburgh: Banner of Truth.
- White, R. 1988. *Learning science*. Oxford, UK/Cambridge, MA: Blackwell.
- Winter, R. 1987. *Action-research and the nature of social inquiry: professional innovation and educational work*. Aldershot, Hants: Avebury, Gower Publishing Company.