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This special section focuses on new developments in curriculum, a topic of current interest in view of the introduction of the new New Zealand curriculum in 2007. The new curriculum calls for creative responses from teachers, teacher educators and others interested in the material and content of teaching. For the first time in New Zealand, pedagogy has been included in an account of the school curriculum, so the editors welcome any papers which reflect interaction between curriculum and pedagogy as well as subject-oriented or content-focused papers.

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REFLECTIONS THROUGH INVISIBLE GLASS WALLS: SELF-STUDY OF TEACHER AND ARTIST

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ABSTRACT
“Things that are so much a part of us that they remain unnoticed are like ‘invisible glass walls’. They are noticed only when we walk into them” (Connelly & Clandinin, 1988, p. 10). Reflective practice has long been advocated in teacher education as a means to improve one’s awareness and effectiveness as a teacher. Self-study, which incorporates reflective practice, promotes opportunities for forming new insights and meaning-making about self-as-teacher. As a teacher who is also an artist, I provide, in this paper, a glimpse into my personal walk through Connelly and Clandinin’s invisible glass walls as I attempt to understand how being a teacher and being an artist may inform and challenge each other.

Indeed, Stenhouse suggests that “through self-monitoring the teacher becomes a conscious artist. Through conscious art he [sic] is able to use himself as an instrument of his research” (cited in Ruddick & Hopkins, 1985, pp. 15-16).

KEYWORDS
Art, Teacher, Teacher as artist, Self-study, Reflection

INTRODUCTION
As I considered writing this paper, I was immediately confronted with two reservations. In spite of encouraging student teachers to engage in self-study as a normal activity in their professional life, I was hesitant as to whether I was willing to subject myself to self-study. My second reservation concerned the inevitable and understandable tension between the private and public. I was aware that Cole and Knowles (1995) suggest that the prime benefit of self-study is private. Yet, we are increasingly appreciating that much of what happens in teaching relates to the unseen – the internal world of beliefs, thoughts, and feelings of teachers. And often these remain private to the teacher. It seems to me that understanding more about these unseen aspects of the teacher may provide new windows to view and understand teaching and what it means to be a teacher. This paper, then, draws on the self-study of the duality of being both a teacher and an artist. I suggest that such self-enquiry may be useful in teacher education for several reasons.

First, it provided me with a window on my sense of teaching out of the authentic self (Gibbs, 2004). The teacher as artist invites us to consider what writers such as Parker Palmer (1998) and others frequently refer to as teaching out of the person we are. Being a teacher who is also an artist exemplifies the positioning of a person within multiple roles which inform, monitor, inspire and critique each other. This, if Palmer’s and others’ claims are true, shapes what happens in teaching as well as who the teacher ‘is’. The dimensions of ‘being a teacher’ encompass not only their skills, knowledge and competence, but also their personal self. Teachers who hold an authentic self as teachers have a sense of personal assuredness or confidence in their self-beliefs as teachers. And such teacher self-efficacy is now well established as being associated with teacher effectiveness (e.g., Pigge & Marso, 1993; Trentham, Silvern, & Brogdon, 1985).

Secondly, it provided me with a window on my sense of teaching through the creative self. By examining the self-duality implicit in being a teacher and an artist, it is possible to position the notion of creativity as a comparative dimension in both teaching and in the arts. Creativity is obviously essential within the arts. But also it is valued within teaching as it is said to lead to inspiring and inspired teaching which, in turn, may motivate students to learn.

Thirdly, it provided me with a window on my sense of teaching out of the relationally-connected self. These two dimensions of self – the teacher and the artist – may also be considered within the notion of integration of self and actions. To what extent do both articulate similar aspirations, behaviours, thinking, feelings and processes, and to what extent do the similarities and dissonances influence teaching and painting? There is an intimate relational connectedness between the personal-self and the professional-self that permeates the presence and actions of being a teacher (Gibbs, 2004). When this relational connectedness is strong, there is often a presence that conveys a sense of authenticity; conversely, when there is relational disconnectedness between the personal self and the professional self, the teachers’ teaching may be characterised by technical and functional actions perhaps reflecting an inauthentic self that is revealed through their actions.

The purpose of this paper, then, is not to publicly reveal the private as some sort of excursion into self-disclosure, but to unveil some of the reflections that have resulted from engagement in the self-study process – the provocations, the challenges and some illuminations from a personal perspective. Bullough and Pinnegar (2001), for instance, help explain this by suggesting that “the aim of self-study research is to provoke, challenge, and illuminate rather than confirm or settle” (p. 20). However, as Eisner (1995) points out, the arts and aesthetic education may provide ways of revealing aspects of individuals’ experience and knowing but often these are not necessarily easy to express in words.

**SELF-STUDY AND REFLECTIVE PRACTICE**

LaBoskey (2004) sees self-study as research which is “improvement-aimed, [where] we wish to transform ourselves first so that we might be better situated to help transform our students, their students, and the institutional and social contexts that surround and constrain us” (pp. 820-821). The parallel with the artist is
uncanny. For example, after completing and exhibiting a collection of his works, New Zealand’s pre-eminent contemporary artist Colin McCahon is reported as saying:

I must say, I do feel pleased about the last paintings … they were good …. Now, I just can’t paint. This last summer’s series just wore me out. The next lot has to be better and I just don’t feel capable of being better yet. I have the awful problem now of being a better person before I can paint better. (cited in Simpson, 2001, p. 105)

For McCahon, the need for personal self-study, reflection and self-improvement was paramount for the inspiration and creation of new work. Likewise, in her New Zealand talks on drama in education, Dorothy Heathcote (1980) makes the point that
to keep my teaching trim, I must first be able to look straight at myself, and take my own measure ... Teaching demands that we give ourselves fully to the task in hand. To do this means that we must be complete and completely self-knowing. (pp. 15-16)

Part of the process of revelation through self-study for teachers is to legitimise the scholarship embedded in the act of teaching as a creative production in order that knowledge can be both revealed and extended. Shulman (1998) suggests that “for an activity to be designated as scholarship, it should manifest at least three key characteristics: It should be public, susceptible to critical review and evaluation, and accessible for exchange and use by other members of one’s scholarly community” (p. 5). In part, the veracity of self-study depends on its collaborative nature – an aspect that perhaps distinguishes it from reflective practice (LaBoskey, 2004). Thus, while the present research is fundamentally reflective practice, nevertheless, by being shared in the public professional domain it becomes open to collaborative inquiry, thereby enabling it to become more akin to self-study. My commitment to engaging in self-study was strengthened when I considered Hamilton’s (1995) suggestion that all teachers and teacher educators are positioned to reveal knowledge and theory through the embedded-ness of historical and cultural features in their individuality and circumstances. Hence, it is suggested that the processes of self-study and reflective enquiry may elicit revelations about both what it means to be a teacher and to teach in ways that create inspirational moments for learning and insights.

IN SEARCH OF METHODOLOGY, INTRUSIVENESS AND THE GAINING OF INSIGHT

Stenhouse suggests that

a teacher lays the foundation of his [sic] capacity for research by developing self-monitoring strategies. The effect is not unlike that of making the transition from amateur to professional actor. Through self-monitoring the teacher becomes a conscious artist. Through
conscious art he is able to use himself as an instrument of his research. (cited in Ruddock & Hopkins, 1985, pp. 15-16)

The question of selecting an appropriate methodology presented an early challenge as I considered the dual self-study perspectives and task requirements of the teacher and the artist.

Perselli (2005) makes the point that “traditionally speaking, the auto/biographer seeks both an interiority (self-knowledge) and an exteriority (recognition), achieved within a more or less chronological account of real-time events” (pp. 29-30). This present self-study seeks both an interiority and exteriority and is concerned with, but less so, the chronological account. Part of this resides in the often-chronological un-sequenced recollection, revelation, reconstruction and revalidation activities demanded in self-study.

The process that transpired was essentially both reflective and reflexive. It was reflective in that I recalled and critically evaluated circumstances, incidents, trends and themes that occurred in my work as a teacher or an artist. It was reflexive inasmuch as ideas and propositions that emerged spontaneously, or maybe as a result of reflective practice, were considered in the context of subsequent teaching or painting.

In arriving at these decisions, I considered the process of active documentation as proposed by de Freitas (2002) – that is, spontaneous recording during the process of painting or teaching. However, I rejected the process of active documentation essentially because it seemed inappropriate for self-study while engaged in such activities as teaching and painting. The main reason for this was that it was essentially interruptive and potentially disruptive. For the artist, active documentation interrupts and disrupts both the spontaneity and the intuitiveness of creativity. When encouraged as an artist to discuss a painting which was in-progress, more often than not I found that progress on this painting ground to a halt. My attempts to complete such paintings became stifled, stilted and functional. Somehow the necessary sense of expectation and excitement had been leached from both the person and the process as a result of discussing the painting while it was still in progress. As such, it interrupted what Czikszentmihalyi (1990, 1996) describes as flow, or the state of deep absorption in an activity which is intrinsically enjoyable.

There is a similar sense that active documentation through self-study as a teacher may likewise interrupt the flow of intuition and spontaneity that characterises teaching ‘on the move’. To test this, I selected an episode of teaching which appeared to me to be developing spontaneously and purposefully. The student teachers in the class seemed enthusiastic about the teaching-learning situation as evidenced by their commitment and contributions. At this point, I deliberately intervened in the process and recorded my thoughts into an imaginary tape recorder. The effect was immediate, and surprisingly similar to that which confronted me as the artist. The degree of spontaneity in teaching reduced significantly, and while there was an increased clarity in visualising a possible teaching outcome, the subsequent efforts to achieve this were not matched with the preceding enthusiasm in either the teacher or the students. While I acknowledge
that this may not be the response of other teachers and artists, such an experience in active documentation prompted in my mind some questions about methodology in teacher education research.

In terms of methodological process and its veracity, therefore, this research became challenging. I was aware that evidence gleaned would likely be filtered through a subjective lens. This, in itself, is valuable and potentially insightful. As humans, we also have the capacity to discern objectivity and this seemingly subjective evidence may be re-filtered (through our inner person) as part of a process of seeking objectivity. The evidence I therefore gathered, emerged both during the activities of teaching or painting and during deliberate and casual reflection after these activities. Sometimes this evidence was in the form of impressions, at other times fleeting thoughts or observations. Interestingly, the reflective process involved little recording—it seemed early on that premature formal recording would itself interrupt the process. Rather the reflective process involved much inner searching as I tried to appreciate and make sense of these impressions, thoughts and observations. It was, as it were, ‘contemplation-in-waiting’ for a breakthrough. Themes began to emerge, especially as I asked myself questions about the place of initiation of ideas, planning, forethought, engaging with the activity, appreciating the sensitivity of timing, dealing with the unpredictable, knowing when the activity was complete, valuing and evaluating and so on. As any such theme emerged in my thinking, or in my inner being during either painting or teaching, I challenged myself to understand how it might contribute to or interfere with the current activity of teaching or painting, and how it would then be interpreted within the context of the other. This present paper addresses some of these themes.

**THE ART OF SEEKING RESONANCES AND THE TYRANNY OF LEARNING OUTCOMES**

The art of teaching and painting seems to lie in achieving the place of personal resonance of satisfactions between the inner yearnings and the outer workings. There is a paradoxical complication confronting the teacher, as it is for the painter. It is a question of ‘what matters’, and to teach or to paint in accordance with that. The prevailing dominance of the outcomes movement in education calls teachers to accept that what matters most is that which students can demonstrate. The purpose of teaching, then, is to lead students to these demonstrations. Put in the context of the painter, the analogy would see that which matters for the artist as being driven by the need to create a painting which satisfies others’ expectations. As others are satisfied, so has the artist been considered to have performed successfully. Yet, in both instances, this emphasis on end-product outcome drives the process of the artist and the teacher in ways that externalise and undervalue their inward yearnings.

It is perhaps too simplistic to suggest that deep teaching begins from the inner person. But is it? Certainly, my experience as an artist suggests that the deep inner reachings of the painter seem to lead to more interesting and powerful statements. Learning outcomes drive incessantly towards the predetermined; inspiration leads
to confronting and revealing the unknown or the unexpected. When the tyranny of outcomes dominates the artist, the work becomes flat and loses its meaning as the resonance between the inner yearnings and the outer workings become weakened. When the tyranny of outcomes dominates the teacher, the teaching becomes flat and loses its inspiration and the resonances between the inner yearnings of the teacher and outer workings become increasingly disengaged. In this regard I am reminded of Schjeldahl (1998), an art teacher, who says of himself, “a lot of education is like teaching marching; I try to make it more like dancing” (p. 12).

**ON THE NEED ‘TO LEARN AND TO LEARN TO FORGET’**

Some say knowledge, skills and strategies are at the heart of effective teaching and painting. As I study myself during teaching and painting, I am not so sure. I recall the wisdom of my art tutor, Frank Davis. He suggested that it was necessary to learn the skills, knowledge and strategies for painting but then ‘to forget them’. To do otherwise would allow them to dominate and hinder the creative process. Wuthnow (2001) comments that artists reveal clearly that any practice, whether spiritual or artistic, requires a balance of dedication and creativity. The secret is internalizing the rules so well that it becomes possible to move beyond them ... They improvise, believing themselves to be capable – indeed, regarding themselves as having a mandate – to create. They are dedicated to challenging the rules, not in the interest of self-expression alone, but for the purpose of pushing out the frontiers of human possibility. (p. 11)

On reflection, it seems to me that the same applies to the purposes and processes of teaching. Teachers require both dedication and creativity. Those special moments of engagement when effective teaching is happening are characterised not by the focusing on rules, skills and techniques. To do so would stifle the flow of creativity and interrupt the energies and spontaneity of the teaching process. The pursuit for teachers is not to be confounded by the skills and strategies of teaching, but to work in ways that challenge these “rules” for the purposes “of pushing out the frontiers of human possibility” (Wuthnow, 2001, p. 11).

**ENTERING IN: KNOWING THE PLACE AND MOMENT IN TIME TO START**

Hsu (1981) describes the act of creating as “I take up my brush and paint, I paint and paint, and a painting is born” (p. 22). Yet experience shows me that knowing the place and moment in time to pick up the brush is critical in determining the success or otherwise of that which follows. For me, teaching, like painting, just does not simply happen. As an artist, more often than not the basic shape of the canvas is visualised first, though the image of the possible painting is rarely seen. When constructed, this canvas is primed not just to give it tooth so that the oil paint might adhere but to also build texture. Importantly, however, the priming process is
a period of accustomisation, of becoming both familiar and intimate with the canvas. Each canvas has its own individuality. Knowing when to cease priming and when to commence painting may be best described as the inner knowing which resonates with ‘begin now’.

This sensitivity to place and moment in time characterises what precedes an episode of what I might consider to be ‘inspirational teaching’. There is a sense of ‘presencing’ in the place which precedes the teaching actions, an accustomisation, of becoming both familiar and ‘at peace’ in that place in which teaching is to occur. There is also a sense of becoming relationally-connected with the students, their individuality and their ‘heartbeats.’ Importantly, these occur before the actual teaching commences and no doubt continue during the process of teaching.

These observations and revelations through self-study have highlighted to me the significance of both the place and moment of timing that precede both the creative acts of painting and teaching. Equally, it prompts the desire to understand how these can be attuned to effective teaching and painting for both the neophyte teacher and artist.

ON PLANNING: BOTTOM-UP OR INSIDE OUT?

Bakhtin (1994) makes this interesting comment:

It would be naïve to assume that the painter sees everything first and then shapes what he [sic] saw and puts it onto the surface of his painting according to a certain technique. In real fact, seeing and representation merge. New means of representation force us to see new aspects of visible reality, but these new aspects cannot clarify or significantly enter our horizon if the new means necessary to consolidate them are lacking. One is inseparable from the other. (p. 179)

Planning is an enigma for the artist. Clearly there is a need for contemplation, incubation and visualisation. But a sense of any perceived prescriptive, completed and detailed visualisation of a final outcome is rare, as is the process or techniques that might be used to achieve this. Rather, planning might best be described as beginning at the place where intuition asserts itself. This leads to the selection of paint, colour and brush or implement, and indeed where to begin on the canvas. There is an embedded risk not so much in ‘making a mistake’, but rather in the tension between certainty and uncertainty about what is being done and what is happening. At the same time, the artist is aware of the prevailing personal inner yearnings which, in my case, often relate to the commitment to principles such as producing work which is uplifting, liberating, life-giving and embodying qualities of longevity.

On reflection, this approach to planning for painting appeared at first to be at odds with what happens in planning for teaching. Yet, as I contemplated episodes of what I considered to be ‘inspired teaching’, I became increasingly aware that the planning did not follow the traditional model. It did involve contemplation, incubation and visualisation. But there was not a sense of predetermined process or outcome, but rather a confirmation through intuition and visualisation of what ought
and might happen. As the teaching began, each step became clearer, and because the final outcome was not always clear to begin with, the sense of risk and urgency remained as a positive motivating tension. At the same time, I was aware of a prevailing sense of the inner yearnings which, in my case as a teacher, related to the commitment to principles such as enhancing learners’ individuality, respecting and appreciating each student, and nurturing students’ sense of wonderment and awe about their world.

**CREATING MOMENTS OF SILENCE**

The creative act – whether that be through painting or teaching – seems to involve the need for moments of silence. Moments of silence are the spaces between inspiration, expectation and appreciation. They are the stalling for contemplation before action, which fuels the emotions, passion and the creative energies. While both the artist and the teacher acknowledge the significance of moments of silence, it may be that they demand no particular timing in the process of teaching or painting. Yet moments of silence seem to be necessary before the onset of the activity – a time for cognitive, aesthetic and spiritual preparation and alerting – but not always. The need for moments of silence appears either unpredictable or yet to be unraveled through further self-study. What is clear is that in both painting and teaching they are indispensable. Likewise, the timing, content and purposes of these moments of silence deserve closer attention in the research literature. Are they spaces in time and process that enable the individual to contemplate, refresh, relinquish, replenish, to re-visualise what might be in the next stages of painting or teaching? Or do they serve other purposes? If the same is true for other teachers, then creating space for moments of silence within the busy schedules of teaching must be seen as a critical component of what it means to ‘be’ a teacher.

**DRIVEN BY REASON OR LED BY INTUITION?**

The curriculum I experienced in preparing to be a teacher involved considerable appeal to reason and the putting aside (as unscientific) the notion of intuition. Contrary to this, my early experiences in learning to be an artist respected and relied heavily on intuition. The influence of reason certainly pervades the workings of the Western teacher. This is quite unlike the teachings of Hinduism, Buddhism, and Taoism, for instance, which place emphasis on intuitive knowledge rather than on reason. The extent of intuition in my personal teaching, as has been highlighted throughout this paper, has certainly been a revelation through this self-study. I am reminded of a personal communication with Rae Munro, a significant New Zealand teacher educator, who, on reflection, observed that he believed most of what teachers do is based in intuition. This begs the question of research into the place of intuition in the teaching of other teachers, and its role (if any) within teacher preparation programmes.
ON KNOWING WHEN IT IS DONE

There is a point of knowing at which time it is clear that a painting is finished. Interestingly, to continue working beyond this point inevitably leads to destroying the previous work rather than improving it. Simplistic though it seems, there is a point at which there is an inner voice saying ‘yes, it is finished’. When I considered this as an analogy for teaching, my initial thoughts were that it was incongruent. However, I then reflected on episodes of past teaching. My self-study revealed that a similar inner ‘yes’ occurred when significant teaching events happened. Interestingly, as I considered these, to have proceeded beyond this point with more teaching would have produced several consequences. First, the danger was that I would fall victim to ‘over teaching’ and thereby lose the students’ interest. Secondly, by teaching beyond that point I would deny students the chance to contemplate on that which had happened, and thereby hinder their construction of meaning. This teachers’ inner ‘yes’ – though an enigma to the standards-based regime of assessable and demonstrable learning outcomes – provides an important personal barometer on the teaching-learning process. While I am unsure whether other teachers experience the same, certainly it prompts thinking about the preparation neophyte teachers are given in being aware of their inner voice during teaching.

CONCLUDING COMMENT

This self-study was prompted, in part, by Connelly and Clandinin’s (1988) assertion that “things that are so much a part of us that they remain unnoticed are like ‘invisible glass walls’. They are noticed only when we walk into them” (p. 10). This self-study has challenged and continues to challenge me. Self-study has its own embedded discomforts, among which can be the process itself, possible public disclosure and censure, and the resulting personal insights. More importantly, however, the exercise has caused me to reflect on the extent to which I am teaching out of my authentic self, teaching through the creative self, and teaching out of a relationally-connected self. The process revealed the importance to me as a teacher and artist of such things as the place of incubation, moments of silence, resonances between the inner reachings and the outer workings, self-belief, reason and intuition, and inside-out planning.

As teachers and artists contemplate their artistry as professionals, they may perhaps discover that both practices require them to be “unusually adept at handling situations of uncertainty, uniqueness and conflict” (Schön, 1987, p. 16). To develop such professional artistry, Schön advocates that practitioners engage in reflection. Fish (1998) agrees, and suggests that practitioners need to become active critical appreciators of the practice of their art in similar ways to how paintings and music are critiqued by art critics. But, as Gibbs (2007) points out, this requires an in-dwelling contemplation of self as much as being about critically appreciating one’s practice. The power of self-study is in its individual applicability while its limitation is perhaps its lack of generalisability. In saying this, however, when more teachers (who are also artists, or scientists, or mathematicians, or whatever may be
their passion) commit themselves to the self-study of how they come to teach, new windows on our present understandings about teachers, teaching, and teacher education may well open. They will become, as Stenhouse (cited in Ruddick & Hopkins, 1985) explains, instruments of their own research.

REFERENCES


