Representations of integrated intelligence within classical and contemporary depictions of intelligence and their educational implications

A thesis submitted for the degree of
Doctor of Philosophy
at
The University of the Sunshine Coast
June, 2006

by

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Statement of Original Authorship

The work submitted in this thesis is original, except as acknowledged in the text. The material herein has not been submitted, either in whole or in part, for a degree at this or any other university.

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June 2006

Acknowledgements

Writing this thesis has been a rather lonely experience in that it was done almost completely off-campus. Most of it was done in the often “isolation” of mainland China, with nobody to bounce ideas off. Nonetheless, in the age of the internet there are many people who helped me. Firstly I would like to thank my dear wife, Ren Yong Ping for her patience. I hope you can forgive me for all the lost time. I’ll make it up to you, I promise. A very big thanks to my main supervisor Dr Sohail Inayatullah for all his help, ideas, readings and corrections. I have learnt so much from you! Thank you also to Dr Julie Matthews, co-supervisor this thesis, who always popped up with critical comments just when I was beginning to delude myself that I was doing well. Dr Pat Kelly was of great assistance near the end, with her advice on writing style. Because of you a thousand adverbs met a timely death, and this thesis is far more readable. A huge thanks to Susan Leggett for final editing of the manuscript. You helped save my sanity, no doubt at the cost of yours. A belated note of gratitude to Professor Ron Laura for the lecture which first inspired me about the kinds of ideas contained within this thesis. Thanks too to those who embody integrated intelligence—Lesley Halverson, Leonard Jacobson and Yasmine. Without you this thesis would never have been. I would also like to express my gratitude to my fourth class teacher Jeff Vandenberg, who allowed me to believe in myself all those years ago. A final big thank you to my "support team"—you know who you are.

Marcus Anthony

28th May, 2006

List of publications and presentations

Publications by the Candidate relevant to the Thesis but not forming part of it

Peer-reviewed academic articles and book chapters

Anthony, M., 2003. Visions Without Depth: The Futures of Michio Kaku. *Journal of Futures Studies*, 8(1).

Anthony, M., 2003. Integrated Intelligence: The Future of Intelligence? *Journal of Futures Studies*, 8(2), 39-54.

These first two articles are also published in: Inayatullah, S., (ed.) 2004. *The Causal Layered Analysis Reader.* Taipei: Tamkang Uni Press, 439-451, & 453-470.

Anthony, M., forthcoming 2006. Integrated Intelligence. *In:* M. Bussey, S. Inayatullah, & I. Milojević, eds. *Neohumanist Educational Futures: Liberating the Pedagogical Intellect.* Taipei: Tamkang University Press.

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Abstract

Is the human mind and its innate intelligence confined to the brain, as mainstream contemporary mind science tends to assume? What if it is not? Where might that take intelligence theory and education in the years to come and why are such questions largely absent from mainstream discourses on consciousness, intelligence and education? This thesis addresses these questions. A poststructuralist approach employing Inayatullah's (2002a) Causal Layered Analysis has been used to unpack the development of Western epistemology and the mainstream discourses mentioned above.

An essential binary between the contrasting approaches to knowledge inherent within critical rationality (reason) and mystical spirituality (intuition) lies at the heart of this thesis. The former is dominant in the modern West. Yet this research has revealed that the latter has played a significant role in the development of Western civilisation and culture, as well as being a prime driving force in Eastern and indigenous cultures. The theory of integrated intelligence—which is the central focus of this thesis—posits that the human mind is not confined to the brain, but exists within a sea of consciousness. It is thus more compatible with mystical spirituality than critical rationality.

The study also found that systems theories of intelligence are expanding the parameters of this discourse to include such concepts as creativity, intuition and wisdom. However there is little evidence that mystical/spiritual concepts are being taken seriously. A finding is that the underpinning mechanistic paradigm is the single greatest factor in this regard. Therefore a paradigm shift is required before a theory like integrated intelligence will be permitted entry into the mainstream discourse as a serious subject of discussion.

This research supports the hypothesis that hegemonic processes are inherent within contemporary mainstream discourses on mind and intelligence in the West. Mystical and intuitive conceptions are generally downplayed, ridiculed or ignored. Causal Layered Analysis revealed that this hegemonic process is not always explicit. It exists as implicit givens in a variety of sites at the social and systemic level, the paradigmatic and worldview level, and also at a deeper civilisational and psycho-spiritual level. The study found that there are several defining tenets which characterise the respective sides of the rational/intuitive binary. The most notable features of the former include strong materialism and reductionism, while the subject-object split remains a central philosophical and methodological given. The latter tends towards idealism, holism and a merging of self and subject.

Critical rationality and mystical spirituality are not incompatible, and may form a unity in the future. Introducing integrated intelligence into contemporary state education and the knowledge economy may help offset some of the most obvious problematiques inherent within these systems. These problems include confusion, information overload and loss of meaning. In the long term integrated intelligence may assist in transforming society into a more integrated whole; one which more fully acknowledges the mystical and spiritual aspects of human existence. This will help to correct some of the imbalances which have emerged from the globalisation of education, which has tended to focus upon the economic and technological aspects of learning and development.

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Glossary

Classical intuition. This incorporates sources of intuitive knowledge that involve transcendent, extra-sensory and/or metaphysical dimensions. It contrasts with mundane intuition (tacit knowledge), which is normally constructed as having sensory sources of information. Within this thesis it is interchangeable with the term "intuition", except where the latter term is referenced to another theorist (see Chapter One, section 1.8).

Cosmos. The generally accepted Western scientific "cosmos" which has materialistic predicates and does not feature consciousness as a driving force. Differs from Wilber's (2000c) "Kosmos".

Critical rationality. The predominantly Western approach to knowledge based upon logic, reason and the scientific method. The key ways of knowing are classification, analysis, experimentation, and verbal/linguistic and mathematical/logical intelligences, as outlined in Figure 2.4

The critical/rational worldview. This is the worldview which emerges from critical rationality.

Discourse. The legitimated discussion which occurs within a given field or subject area. Includes explicit and implicit boundaries of discussion.

The ego. The human mind/self as a single, isolated and discrete entity.

Egoic consciousness. Self-referenced consciousness whereby the individual identifies closely with the contents of the conscious mind in isolation from the environment and any extrasensory or transpersonal information.

Episteme. A body of knowledge or ideas which determine the knowledge structures within a given place or time.

The extended mind. The state of personal consciousness whereby individual awareness is infused with a transpersonal awareness that transcends the confines of the individual mind and the limits of the sensory organs (see Chapter One, 1.5).

Integrated Intelligence. The deliberate and conscious employment of the extended mind, such that an individual might function successfully within a given environment (see Chapter One, 1.5).

The integrated mind. The human mind in awareness of its spiritual and transpersonal knowledge base.

The integrated society. Where education systems, societies, and the people within them are imbued with a transpersonal knowing (see Chapter 8, section 8.1).

Kosmos. This is taken from Wilber's (2000c) term, which depicts the universe as incorporating all four quadrants in his Integral Theory, including consciousness as a core component. Differs from the term "cosmos" (see above).

The mechanistic paradigm. Also known as the Newtonian or Cartesian paradigm. This is the paradigm which emerged from the "Enlightenment" and represented the universe as a great machine, and with mechanistic qualities to its contents and processes. Newtonian science describes a universe of solid matter, consisting of atoms which operate on the principles of determinism, with fixed laws governing the phenomena of a cosmos consisting of "chains of independent causes and effects" (Grof 1985 pp 18-19). (See Chapter 2, section 2.3).

Mind science. This term incorporates the various scientific discourses related to the human mind and cognition. For example, Western dominant mind science incorporates cognitive science, psychology (including intelligence theory), psychiatry, neuroscience and more.

Mystical spirituality. The approach to knowledge based upon fusion of self and other, knower and the known. Classical intuition is its key way of knowing.

The mystical/spiritual worldview. The worldview which emerges from mystical spirituality. As used in this thesis this also operates as a paradigm, especially when contrasted and compared with the mechanistic paradigm.

Paradigm. A paradigm is “a way of looking at things: a set of shared assumptions, beliefs, dogmas, conventions, theories” (Sardar 2000 p 73). Paradigms tend to operate within fields of knowledge, as opposed to an episteme’s broader civilisational nature (see Chapter 2, section 2.3)

Receptivity. The open state of mind that allows for the possibility of receiving thoughts or ideas from subtle levels of the mind and from “external” sources beyond the brain (see Chapter 4, section 4.2).

Worldview. A way of looking at the world, including a tendency to employ preferred ways of knowing. This term is interchangeable with the “paradigm” concept. However it can also be employed to refer to an individual as well as systems of knowledge.

Personal Prelude

I do not believe there is any such thing as an ‘objective’ thesis. Objectivity is not a valid term for poststructuralists, and insofar as I employ a poststructuralist approach in the thesis to follow, I remain faithful to that approach. From the outset, I would like to outline my own particular worldview, and how this theory which I have called integrated intelligence first came about. That way the reader will know enough about me to appreciate my own personal biases.

I recall when I was an undergraduate at university arguing vehemently with another young man about the subject of psychic phenomena. The other fellow, Robbie, was a rather unworldly drama student. He was the psi proponent in that debate, and I was the skeptic. I do not quite recall who won the debate, but I felt secure in the invincibility of my arguments. I recall vividly arguing that he was deluded. I was very much an empiricist in those days.

The first big shift in my worldview occurred three years later when I heard Professor Ronald Laura give a lecture to Postgraduate Dip. Ed. students at the University of Newcastle. The lecture was called "A New Epistemology of Science”. He spoke for two hours about science, mysticism, physics and philosophy in way I had never heard before—being a small town boy, and son of a baker from Taree in northern NSW. What he said deeply moved me. And I was developing enough self-awareness then at 24 years of age to know that when something moves you, you should take note. However, I remained a skeptic of the spiritual for some time.

Two years later I met a spiritual teacher in Coffs Harbour, also in northern NSW. Her name was Lesley Halverson. She was very much the New Age spiritual woman. I attended her mediation classes for a while. I need not go into details here, but it became very obvious to me after spending some time with her that she did indeed possess a type of mental ability that I had never encountered before. One night at around this time I had a very profound dream. I dreamed that a woman was using her hands to ‘heal’ me. She said to me that I was using only three per cent of my full ability. When I awoke I recalled the dream vividly. That dream, and the influence of Lesley, got me thinking about the nature of mind and intelligence. If there was indeed part of my mind that I was not using, what part was that? Another teacher I met at around this time was a man named Leonard Jacobson, and he taught me much about the importance of being in the present moment. You will see his name mentioned several times in this thesis, and as the author of two books in the bibliography.

But it was not until I had turned 30 that I was to meet a group of extraordinary people who would fully embody the idea of integrated intelligence. That was when I moved to Wellington, New Zealand. The convener of this group was an extraordinary woman named Yasmine. I had been meeting with the Wellington group for several months before I met Yasmine, who lived far way in Auckland. The morning I was to meet Yasmine (she was coming to visit the Wellington group), I had a most disturbing image come into my mind while I was meditating. I ‘imagined’ that I was looking down, and saw that my hands were covered in blood. It was a rather graphic and horrifying image. It shook me up a little. Later that day I went to meet with my group. Yasmine introduced herself to everyone in the circle, one by one, sharing her intuitive feelings about people as she spoke. When she got round to me (I was sitting opposite her) she didn't even say hello. She just said "I can see blood on your hands". I was dumbfounded, recalling the powerful meditation image from earlier that day. Later she told me what the blood represented, related to a personal ‘issue’ of mine (not literal blood, before the police are informed!). For several years after that I ‘worked’ with these extraordinary people.

I mention all these gifted people because they are the inspiration for the theory of integrated intelligence, which forms the crux of this thesis. I did not develop the theory from reading books, or discussing Eastern philosophy. I developed it from observing and working with extraordinary people. I came to believe that there are limits to intellectuality as we employ it in mainstream Western science and philosophy. What many Westerners see as the pinnacle of intelligence (empirical science and logic) is but a foreshadow of other intelligences that can expand upon, and incorporate, our current understanding of intelligence,

So that is where I am coming from. It could never be called an impartial position - such a position may well be impossible. But this thesis is not an attempt to prove the existence of integrated intelligence, as the reader is about to discover.

Marcus Anthony 29 May 2006

Chapter 1: Introduction: Context, Significance and Definitions

Part One: Introduction

1.1 Introduction and overview

> Our psyches, which contain all our knowledge, expand periodically into (transcendent) space for a very short period of time at practically infinite velocities. There the human psyches form an interference pattern with the psyches of all other consciousnesses in the universe. This interference pattern or hologram of knowledge information we can call the "universal mind." The knowledge in the universal mind is open to anyone who can extend his stay there by stretching out his subjective time while there so as to gain useful information and decipher it upon his return… Matter contains/is consciousness. Our planet is therefore a larger consciousness, and so is the sun. A higher consciousness, the human psyche, inhabits that body most of the time but is independent of it… All these consciousnesses communicate with each other and make up part of the information hologram. Communication throughout the universe is continuous and instantaneous (Itzhak Bentov 1988 pp 157-158).

> …patients who display complex partial seizures with foci within the temporal lobes, particularly the amygdala and hippocampus, report more frequent paranormal-like experiences. Distortions in subjective time, the sensed presence of another sentient being, out-of-body experiences, and even religious reveries have occurred during spontaneous seizures. Direct surgical stimulation of mesiobasal structures within the temporal lobes, particularly the right hemisphere, has been shown to evoke comparable experiences. …experiences during stimulation are not just memories, but enhancements or vivifications of the class of ongoing experiences (perceptions, thoughts, or memories) at the time of the stimulation (Michael Persinger 2001 p 516).

I begin this thesis with a binary: the mystical predilections of the mystic Bentov, and the scientific skepticism of paranormal researcher, Persinger. Bentov was a man little formal education (Bentov 1988: preface). Rather, he was an "intuitive inventor" who liked to "tinker about in his versatile basement laboratory seeking simple and practical solutions to complex technological problems" (ibid.). Instead of employing the empirical and reductionist methods of science used by Persinger, his understandings evolved after his "*intuition* led him into the regular practice of meditation" (ibid. Italics added). Bentov's 'research' was predicated upon "the design of experimental journeys into the microcosm and macrocosm of the universe" (ibid.). Meanwhile, Persinger has spent a lifetime in educational institutions, and has received a PhD. Like Bentov, he also works in a laboratory, but employs a more mainstream scientific approach, using brain-scanning apparatus and the scientific method to conduct his research (BBC 2001). Further, the perceptual foci of Bentov and Persinger are literally worlds apart: while Bentov speaks of "higher consciousness" and the intelligence of astronomical bodies, Persinger speaks of brain function and neural stimulation.

Bentov's view of consciousness and his biography might appear quaint or eccentric to many in the modern West, yet he effectively represents the conceptions of consciousness and intelligence—and a primary way of knowing—held by numerous civilisations throughout the history and across the geography of humanity (Grof 1985, 2000); a way of knowing and a consciousness that shall be referred to throughout this thesis as "integrated intelligence". Persinger on the other hand represents the worldview of the dominant contemporary brain science, and employs critical rational ways of knowing.

A notable aspect of Bentov's claim is the fact that his way of knowing involves the use of non-ordinary states of consciousness, something that is also consistent with various non-Western and non-contemporary civilisational ways of knowing, and central to the idea of integrated intelligence (Braud 1998 pp 64, 76, 2003 pp xx-xxi; Grof 2000).

Western mainstream science (and the research of brain scientists like Persinger) is founded upon one of the few epistemologies which reject the idea of the integration of consciousness and intelligence with cosmos (Dossey 2001; Grof 1985, 2000; Sheldrake 2003). The implications are enormous if we are to consider seriously the voice of researchers like White, who notes: “Human intelligence functions best when it is actively open to many possibilities not considered to exist according to Western consensus reality” (White 1998 p 134).

1.2 The research topic and key questions

The first subject of investigation of this thesis is representations of mind and intelligence. The other key issue, Western state education, will comprise a secondary but significant focus of this thesis. I will attempt to determine how and why integrated intelligence has been excluded from current Western education, and the effect that this has had upon the minds of students.

The primary research question is:

> **How has integrated intelligence become suppressed, and mainstream mechanistic depictions of mind privileged, in contemporary Western science, society and education; and what are the implications of this for modern education and society?**

Figure 1.1 depicts the conceptual framework of the thesis: the key question, the focus, the methods, the context and the objectives. The remainder of this chapter provides details to explicate this figure.

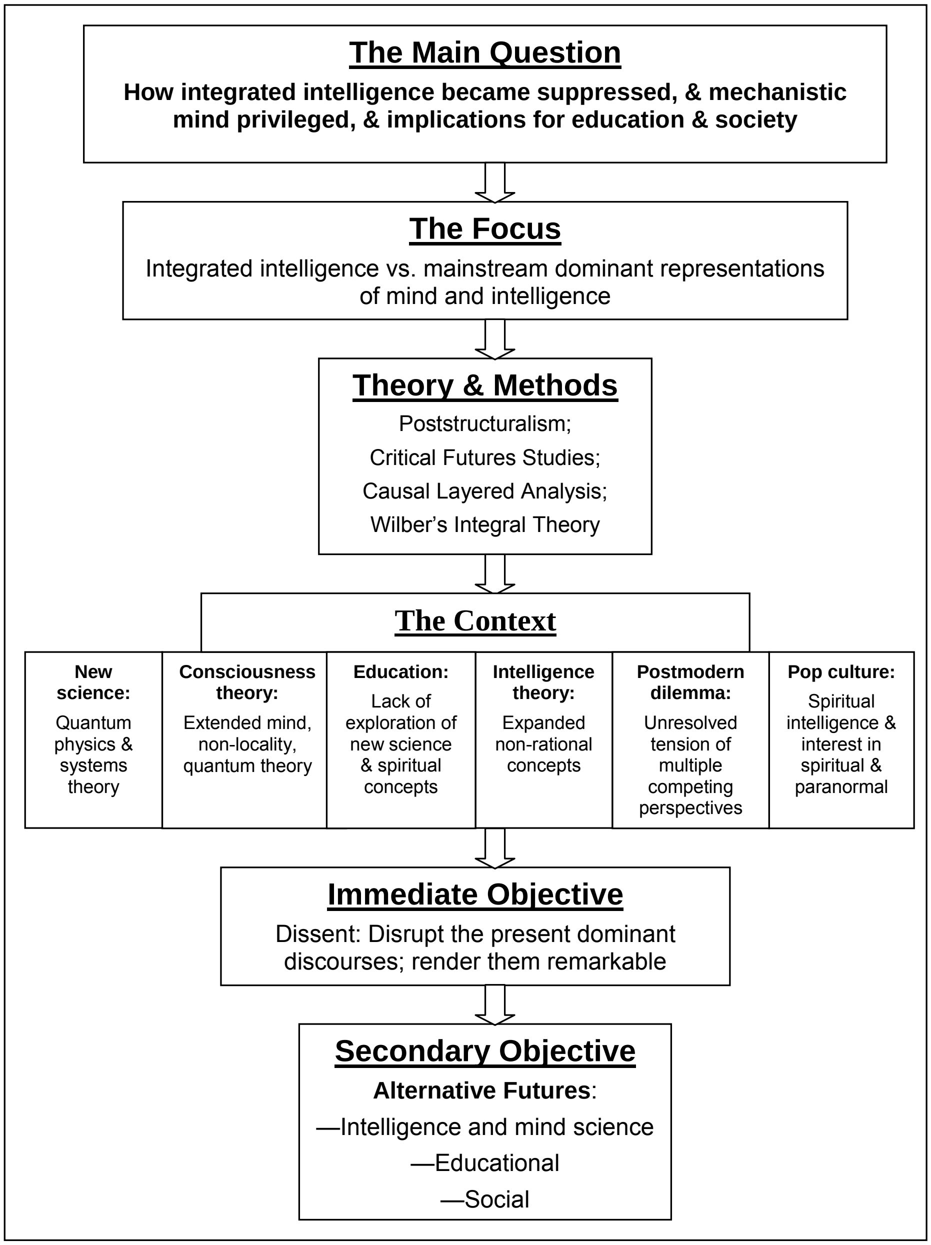

Figure 1.1: Thesis topic, context, method and objectives

This thesis therefore examines theories of intelligence and consciousness, and the way in which they represent (or exclude) integrated intelligence. The prime research question is designed to identify the way rational, linguistic and brain-based definitions of intelligence and consciousness have come to dominate contemporary consciousness and intelligence discourse and research (Gardner 1993; Gardner Kornhaber & Wake 1996; Grof 2000) at the expense of integrated and spiritual depictions.

There are several essential questions which follow from the primary question:

1. What is integrated intelligence? (Chapter 1)
2. In what ways does integrated intelligence differ from current mainstream dominant definitions and assumptions about consciousness and intelligence? (Chapters 1, 3-7)
3. How have rational/linguistic definitions of consciousness and intelligence dominated these fields; and why has integrated intelligence been largely neglected in modern scientific discourse? (Chapters 3 and 4)
4. What power plays within these discourses have resulted in the exclusion of integrated intelligence? (Chapters 3-7)
5. What have been the seminal moments in the history of the West at which integrated intelligence has been excluded? (Chapters 1 and 3)
6. How has the focus upon mechanistic representations of mind affected contemporary schooling and education? (Chapters 3 and 8)
7. What are the possible implications of incorporating integrated intelligence into modern society and educational practice? (Chapter 8 and Conclusion)

Having outlined the topic and key questions, I shall now identify some key distinctions and definitions.

1.3 The general approach

The positing of the binary at the beginning of this thesis might suggest a strict dichotomy of consciousness types or ways of knowing. Yet in the tradition of poststructuralist thought and critical futures studies (Inayatullah 2004a), the purpose of this thesis is not to posit a binary where one of the two will be found to be superior (Belsey 2002). Nor is the purpose to prove or disprove the existence of consciousness as integrated beyond, or merely localised within, individual brains. The latter is what one might expect from the modernist empirical tradition. Rather this thesis will juxtapose, compare and contrast these two seemingly opposing views of consciousness and reality. Other worldviews and other ways of knowing will be bought forward at various junctures. The goal is to glean from these juxtapositions a deeper understanding of the present dominance/ subversion of consciousness and intelligence types within contemporary society, science, and education. This will be done by elucidating the power plays that underpin the conceptualisation, representation and employment of preferred ways of knowing.

This thesis problematises the present and depicts it for the remarkable (rather than inevitable) moment that it is (Inayatullah 2004a). In this sense integrated intelligence will serve as a disruptor of a privileged dominant paradigm and its implicit epistemic foundations. That paradigm is the mechanistic paradigm, and the episteme is that of the modern West—as I outline further in Chapters Three and Four.

Having given a general introduction to the topic, I now outline the precise research topic and the key questions which I address in the chapters to follow.

1.4 Contextualising the thesis

What is the problem and why is the research needed?

Current mainstream educational practice, following the Western episteme, assumes a narrow definition of intelligence and consciousness. Rational, linguistic and mathematical depictions of intelligence predominate (Gardner 1993; Shearer 2004). Accordingly, developmental, social, and cognitive psychology prevail in modern psychology and consciousness theory (Gross 2003). Cognitive psychology has become a handmaiden to neuroscience. (Maddox 1999) Recently, genetics and genetic psychology have also gained prominence (Loye 2004a). Only the fringe discourses of transpersonal, humanistic and positive psychology and parapsychology have addressed the idea of the extended mind with any depth (Loye 2004a; Wilber 2000a, 2000b, 2000c). In recent years, information theory, artificial intelligence theory, cybergenetics, and evolutionary biology have also delved into consciousness theory (Kaku 1997), but again these fields have mostly remained grounded in standard reductionist models of consciousness.

Towards the end of the twentieth century there was a marked rekindling of research into consciousness theory (Blackmore 2001). Despite the predominance of reductionist and mechanistic approaches, there has been a peripheral and vociferous group of theorists who have used conceptions related to the extended mind and integrated intelligence, often employing analogies from systems theory and quantum physics, as I shall discuss in Chapters Four and Five.

In state-provided education, the lack of exploration of these recent shifts restricts the potential development of a truly holistic and integrated curriculum. Amongst educators, IQ theory is seen as problematic, but has been replaced in teachers' minds by the effective synonym "ability" (Nash 2005). The neglected domains are the "intrapersonal" (Gardner 1993) and spiritual components of education (Broomfield 1997; Krishnamurti 1956; Milojević 2005; Moffett 1994a). As the following chapters show, integrated intelligence implies alternative ways of knowing—through introspection, through contemplation, and through 'receptive' modes of consciousness (Fox & Sheldrake 1996; Wilber 2000a, 2000b, 2000c; Moffett 1994; Liberman 1995).

The significance of the research

Alternative educational methodologies such as the Steiner, Montessori and Krishnamurti schools all acknowledge the role of the intuitive and spiritual in child development (Bussey 2003; Krishnamurti 1956; Milojević 2005; Steiner 1970). Various non-Western spiritual education and training practices have also emphasised this, including those of the Australian Aborigines, eastern spiritual traditions, and shamanic initiations (Broomfield 1997; Lawler 1991; Milojević 2005; Moffett 1994a; Wilber 2000c;

Wildman 1996). The paradigms upon which such education is founded acknowledge the existence of ‘non-localised’ agency within the experience of intuition and inspiration. This most commonly includes concepts such as revelation, spirit guides and angels, and telepathic transfer of knowledge between people and the land or nature (Broomfield 1997; Grof 1996; Pearsall 1999; Wildman 1996).

Within discourses relevant to Western state education the debate has barely begun. Although more radical thinkers such as Beare and Slaughter (1993), Broomfield (1997), Carter and Smith (2003), Forbes (2003), Fromberg (2001), Gardner (1993), Gardner et al. (1996), Krishnamurti (1956), Hogarth (2001), Milojević (2005), Moffett (1994a), and Steiner (1970) have openly criticised educational theory and practice for its narrow constructs of consciousness and/or intelligence, few are entering the debate with any conviction. In recent decades concepts such as multiple intelligences (Gardner 1993), six thinking hats (de Bono 1999), and emotional intelligence (Goleman 1995, 1999) have become well known in educational circles. Yet these theorists have downplayed any spiritual or mystical components, and confined the debate to within respected scientific models of mind.

As Chapter Three outlines, the broader picture in the evolution of Western thought finds the twenty-first century in a state of tension, with the breakdown of certainties (Tarnas 2000). Numerous worldviews—the liberal left, the Christian right, the Islamic world, the scientific worldview and the New Age to name just a few—are competing for power and legitimacy (ibid.). This essential tension is a product of the collapse of the once almost indisputable Word of religion within an increasingly questioning society and academia, and a loss of faith in the incontestability of scientific empiricism amidst developments in quantum physics, systems theory and cosmology.

From the perspective of the dominant empirical tradition of the modern West, and the skeptical postmodernist mindset, literature regarding ways of knowing and intuitive intelligence has lacked a legitimate framework permitting incorporation of integrated intelligence into that dominant discourse (Ferrer 2002). This thesis will employ critical futures studies to provide a framework for dissent, with the goal of reopening the discourse.

Wider research will potentially deliver an expanded framework for the extended mind theory, and thus for its possible place in educational practice of the future. While the extended mind (and integrated intelligence) remains unrecognized, and its epistemology vague and ungrounded, there is little hope that educational institutions will acknowledge it.

Summary

In Part One of this Chapter I have posited the thesis topic, the major and supporting questions, and defined the context, the methods and the objectives. These were depicted in Figure 1.1. Yet I have not explained what is meant by the extended mind in general and integrated intelligence in particular. This will be the focus of Part Two.

Part Two: Integrated Intelligence

In turning to the subject of intelligence and then to integrated intelligence and the extended mind, the discussion becomes less analytical and more descriptive. This will lay the foundations for the deeper analyses in the following chapters.

1.5 Definitions

Defining intelligence and integrated intelligence

The term 'intelligence' is notoriously difficult to define, leading to one of the great controversies in modern psychology (Jensen 1998; Reber & Reber 2001 p 361; Sternberg, Lautry & Lubart 2003a). Indeed Jensen (1998), following the lineage of Spearman early in the twentieth century, prefers to dispense with the term altogether. Instead Jensen employs the phrase "mental ability"—lamenting that intelligence can be defined in almost any way to suit the theorist referring to it.

The definitions and attributes of intelligence tend to reflect the methods used to measure it. For example, the inventor of individual intelligence tests, Alfred Binet, developed tests to measure intelligence according to what he perceived it to be—reasoning, imagination, insight, judgment and adaptability (Reber & Reber 2001 p 361). The employment of factor analysis by those who favour “g” theory[1] (Eysenck 2002; Herrnstein & Murry 1994; Jensen 1998) likewise tends to elicit a self-reinforcing definition of intelligence. This is because statistical analysis focuses upon the readily quantifiable.

Yet there are more expansive ways of defining intelligence. Gardner (2003) points out that intelligence theory comprises three contrasting approaches. Thus intelligence can be discussed as a characteristic of the species (e.g., chimpanzees compared to humans); as individual differences predicated upon potentiality or ability (e.g., Jensen’s [1998] “g” theory); or as a measure of the success of a performance at a given task (e.g., Sternberg’s [2003] “successful intelligence”).

The essential point is that almost any definition of intelligence will reflect the predicates of the social environment in which the definer lives and thinks (Gardner et al. 1996). If we examine the subject from a poststructuralist point of view, we might ask who are the groups and social classes which have become privileged via our definition of intelligence. The answer is that the Western episteme in the wake of the Enlightenment has valorised critical rationality, has constructed education and schools accordingly, and has developed intelligence tests to determine who will be ‘successful’ within that environment (Gardner et al. 1996).

In light of their definition, Reber and Reber (2001) note that any valid intelligence test must be successful in predicting adaptable and successful functioning within a specified environment. As intelligence tests have been primarily designed to predict scholastic success (Gardner et al. 1996), the behaviours that have been identified as adaptive and

[1] Jensen’s “g” theory is discussed in greater detail in Chapter Seven.

successful are scholastic: reason, judgment, learning, abstraction and dealing with novelty. They are socio-culturally determined (Reber & Reber 2001 p 361).

In contrast, concepts related to the idea of an integrated intelligence are most often depicted in texts and environments associated with spirituality, mysticism or non-ordinary states of consciousness. My definition of integrated intelligence reflects the particular foci of those discourses and situations. I therefore define Integrated intelligence as:

> **The deliberate and conscious employment of the extended mind, such that an individual might function successfully within a given environment.**

In turn the extended mind is defined as:

> **The state of personal consciousness whereby individual awareness is infused with a transpersonal awareness that transcends the confines of the individual mind and the limits of the sensory organs.**

The conflict at the epistemic level with modern Western science and civilisation is readily apparent.[2] Yet this is not a strict civilisational binary, a conflict of 'mystical' East and 'rational' West. As outlined in Chapter Three, Western civilisation from the time of the ancient Greeks to the modern day has featured recurring infusions of influence from worldviews inspired by integrated intelligence. The present is—as poststructuralists state—remarkable, not inevitable (Belsey 2002). The civilisational and historical perspective will be elaborated further in Chapter Three; there I situate integrated intelligence in the civilisational and temporal space. Then, in Chapters Four to Six, further paradigmatic perspectives (the mechanistic and neo-Darwinian) will be provided via an analysis of several debates and issues in the literature.

Before this greater detail is provided in the upcoming chapters, a brief history of integrated intelligence is given below. Then, further definitions and distinctions are

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[2] The term "integrated intelligence" is my own. The term "the extended mind" has been used by Sheldrake (2003), as will be outlined in section 1.6

outlined to make the concept of integrated intelligence and related ideas clearer—including what integrated intelligence is—and what it is not.

1.6 A brief history of the extended mind and its contemporary relevance

The idea that the human mind is infinite and cannot be reduced to the brain and body, or easily situated in time, is ancient (Dossey 2001). The extended mind has most commonly been depicted in traditional, ancient, spiritual and mystical texts, such as those of the Chinese Taoists and Confucians (Bishop 1995; Jiyu 1998), Greeks (Brumbaugh 1981; Sheldrake 2005a, 2005b; Tarnas 2000), Romans and Egyptians (Dossey 2002; Grof 1985), Indians (Auribindo 1985; Inayatullah 2002b; Nisargadatta 2001; Yogananda 1979), and in shamanism, animism and indigenous cultures in general (Clarke 1989; Murinbata & Whitehead 2002; Osumi & Ritchie 1988; Walsh 1990; Wildman 1996). Most commonly the extended mind is associated with spiritual experiences, or depicted within texts related to personal and spiritual development. The connection with mystical experience is an essential one. Since the 1600s, mystical experiences have been "characterized by the feeling that… everything forms a unity" (George, in White 1998 p 132).

The issue of an integrated, non-localised intelligence has become increasingly significant in recent decades, coinciding with greater attention paid by the scientific community to the concept of consciousness (Grof 1985). Increased numbers of scientists, philosophers and thinkers are questioning strictly neurophysiological interpretations of consciousness and discussing the validity of expanded cognitive capacities which extend beyond materialistic models of consciousness (Blackmore 2001; Bohm 1973; Dossey 1999, 2001; Hawkins 2002; Penrose 1990; Radin 1997, 2006; Sheldrake 2003; Tart 1993, 2001). Prior to this shift in focus, in the words of psychologist Donald Hebb in 1949, modern psychology took "completely for granted that behaviour and neural function are perfectly correlated" (quoted in Dossey 1993 p 138).

From time to time the idea of integrated intelligence emerges from the background to invade the rationally constructed space of the contemporary Western world. On September 6, 1995 the popular media was intrigued when the CIA revealed that the American military had spent US$20 million between the 1970s and 1990s on scientific remote viewing (Buchanan 2003).[3] The CIA announced that Project STAR GATE had been abandoned due to unconvincing evidence of its usefulness. Yet Lynn Buchanan (2003), one of the "remote viewers" employed in that program, claims that it was quite successful in uncovering military information, and that scientific remote viewing could be taught to any member of the general public. Further, Buchanan claims that virtually every nation has a remote viewing program (ibid.). Such claims emerge sporadically in the modern West to seemingly act as disruptors to the ongoing hegemony of Western critical rationality.

Research in the present day regarding the extended mind is usually rendered as 'other' via the terms "parapsychology" or "paranormal". The prefix "para" literally means "outside of the normal" (Reber & Reber 2001 p 508). For example, near death experiences (NDEs) typically include numinous cognitive experiences, such as the ability to perceive the actions of others at a distance, identify objects located nearby but not within immediate sensory perception, the ability to communicate with people and spiritual entities telepathically, and visions of the past and future (Dossey 2001; Ring 2000; Sutherland 1995). Some people who experience the near-death state also report a unified mystical experience, such as a feeling of oneness or a direct perception of the connectedness of life events and life meaning (Dossey 2001; Kubler-Ross 1997; Ring 2000; Sutherland 1995). Such experiences tend to remain classed as "paranormal" in mainstream cognitive science (Braud 2003), and thus outside the epistemic and paradigmatic boundaries of the modern West. An important objective of this thesis is to

[3] This is a clairvoyant process where an individual attempts to glean information about a target at a distant location. This is sometimes called "psychic spying", after its attempted use by government agencies, such as with the STAR GATE program (Radin, 2003 pp 48-54).

employ critical futures studies to better understand why these events are ‘othered’, and to determine what light that knowledge sheds upon our understanding of the making of the present.

Nonetheless, there is evidence of an emerging shift. Parapsychologist Dean Radin writes of psi:

> No longer is it viewed as unthinkable, or as a meaningless anomaly. Instead psi is being regarded as a genuine, albeit poorly understood human facility… This paradigmatic shift is beginning to trump outdated scepticism (Radin 2006 p 79).

Thus integrated intelligence and the concept of the extended mind constitute a fringe but developing domain in contemporary science, education and society. Although predominantly mechanistic, reductionist and ‘rational’ concepts dominate mainstream intelligence and consciousness discourses, many theorists decry the limitations of these (Dossey 1999; Gardner 1993; Grof 2000; Wilber 2000b; Zohar 2000). This thesis has been written at a time when there is an emerging interest in moving beyond the limitations of purely rational representations of mind and intelligence.

The brief history of integrated intelligence given here is but a primer for the far more extensive historical analysis undertaken in Chapter Three. There, the poststructuralist tool of genealogy will be used to trace the seminal moments in Western civilisation where the epistemic boundaries of knowledge became contested and/or restricted.

In the next section, I define the parameters of integrated intelligence and outline its core operations and end states.

1.7 What it is: Integrated intelligence, the extended mind and core operations

Figure 1.2 (below) summarises the argument in sections 1.7 and 1.8. It shows the domains where integrated intelligence is generally found, and where it is not found. It also highlights what integrated intelligence is and is not.

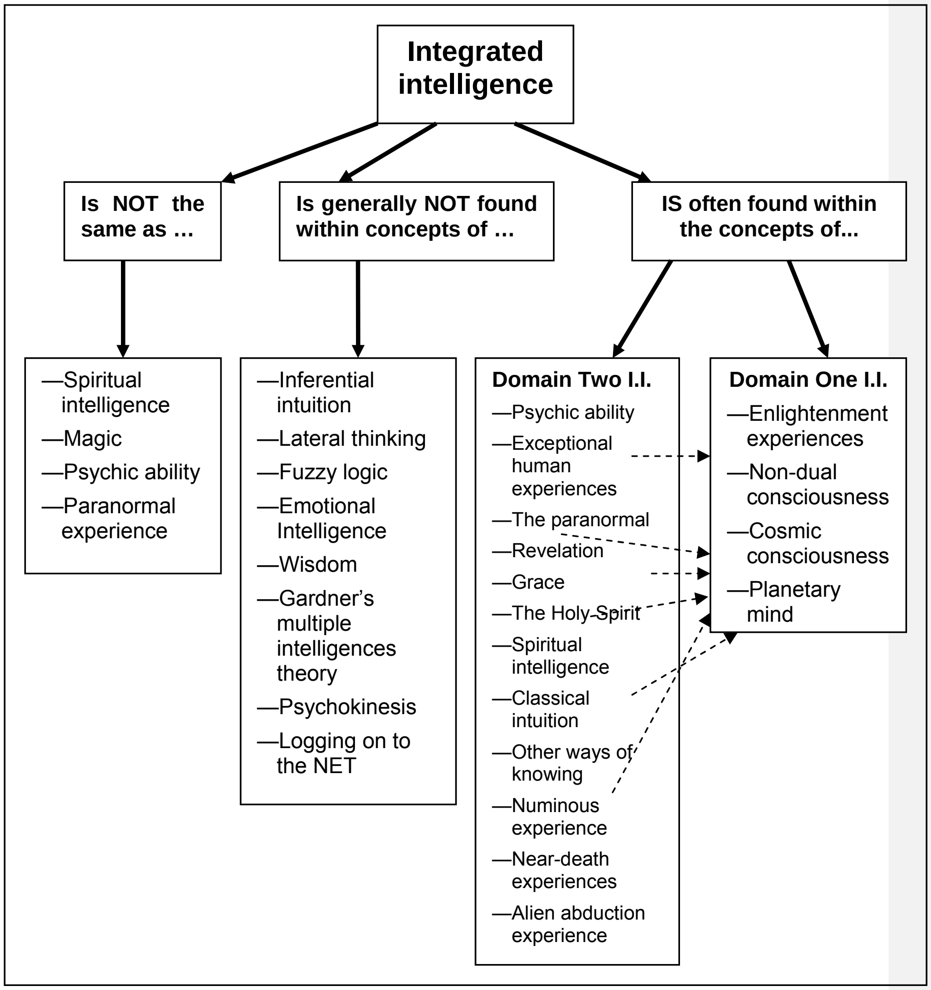

Figure 1.2: What is integrated intelligence?

The term "integrated intelligence" refers to the integration of individualised brain-based intelligence with universal or cosmic intelligence. This definition moves beyond transpersonal theory by integrating transpersonal and mystical insight with the idea of intelligence. There is an important distinction here. Throughout this thesis the conception of the mind as transcendent of the brain will be referred to as “the extended mind”, following Sheldrake’s (2004) term. The conception that the extended mind incorporates a potential to be ‘intelligent’ will be referred to as “integrated intelligence”. While the latter definition incorporates the former, the former does not necessarily entail the latter. Integrated intelligence can be seen as a subset of the extended mind, as Figure 1.3 depicts.

Although the concept of the extended mind is virtually absent from contemporary secular education and mainstream intelligence and consciousness discourses, it is a widely posited conception and experience in numerous contexts. Some of the most notable include: spiritual healing and new age texts (Dobie 2002; Myss 2001; Newton 2000; Weiss 1985; Wilde 2002; Woolger 1994); UFO phenomena (Mack 1999); tales of the supernatural (Ritchie 1992); neo-humanism (Bussey 2004; Inayatullah 2002a); Jungian psychology (Jung 1973, 1989); transpersonal and humanistic psychology (Broad 1998; Ferrer 2002; Grof 1985, 1992, 1994, 1995, 2000; Hart, Nelson & Puhakka 2000; Ross 1993; Walsh & Vaughan 1993; Wilber 2000a, 2000b, 2000c, 2001); parapsychology (Schlitz 2001; Sheldrake & Smart 2003; Targ & Katra 1999, 2001; Tart 1993, 2001, 2002); deep ecology (Couzyn 1995; Eisler 2004; Sahtouris 1999); quantum physics and systems theory (Bradley 2004; Capra 2000; Fox & Sheldrake 1996; Peat 1988; Sheldrake, McKenna & Abraham 2001; Folger 2002); consciousness theory (Marshal 1989; Penrose 1990); and cardio-psychology (Pearsall 1999; Walker 1988). It is also a common theme in popular culture: in songs, science fiction, literature, movies, fairy tales and fantasy of numerous kinds. Perhaps its most widely known popular depiction is in the *Star Wars* films, where the concept of “The Force” was taken directly from the Taoists’ idea of the Tao (Ross 1993). The recent success of television programs like *The X-Files*, various *Star Trek* series, and *The Unexplained* and movies such as the Harry Potter series, Stephen King movies, and *The Matrix* trilogy—which all feature individuals with advanced intuitive and psychic abilities—testifies to a strong public interest in such subject matters.

Depictions of the extended mind vary within these texts. Innumerable terms are employed. For example, a person using Lao Tzu's "Tao" could "Without stirring out of the house… know everything in the world" (Zhengkun 1995 p 201). Sheldrake and Smart (2003) refer to 'telepathy' as the ability to know who is calling before one picks up the phone. Wildman (1996) refers to "The Dreaming" of the Australian Aborigines, which includes telepathic potentials between individuals and the spirit of places. Futurist Slaughter (1999) writes about "subtle awareness", "causal insight", "ultimate identity with the source", "psychic intuition", "superconsciousness", and "transcendent knowledge" (Slaughter 1999 pp 332-333). Zohar (2000) defines "spiritual intelligence" as "an internal, innate ability of the human brain and psyche, drawing its deepest resources from the heart of the universe itself" (Zohar 2000 p 9). Meanwhile, physicist Peat (1988) refers to synchronicity via his book title as *The Bridge Between Mind and Matter.*

As will be discussed further in Chapter Six, the concepts of the extended mind and integrated intelligence imply that the brain is a permeable organ imbedded within a sea of consciousness. It inverts the Western myth of materialism (Davies & Gribbin 1992) which depicts consciousness as epiphenomena, an accidental bi-product of random evolutionary forces (Grof 1985, 2000). As transpersonal researcher Stan Grof (1996) states:

> It has become increasingly clear that consciousness is not a product of the physiological processes in the brain, but a primary attribute of existence. The universe is imbued with creative intelligence and consciousness is inextricably woven into its fabric. (Grof 1996 <www.primalspirit.com/Grof_PlanetarySurvival_art.htm>)

Duane Elgin mirrors Grof's point, and adds a dimension that is an essential component of this thesis: the potential of the extended mind to transform the human experience:

…consciousness appears to be present at every level of the universe, from the atomic scale (and the behavior of electrons that seem to have a mind of their own) on up through the human scale. So the universe has the properties of a living system; life exists within life. This is an amazing miracle, and as we discover this, I think that it is going to begin to shift who we think we are and what we think our life-journey is about. It's transformative. The idea and the experience of a living universe is a powerful recontextualization of who we think we are and where we think we're going. (quoted in Phipps <www.wie.org/j19/elgin.asp?page=3>)

The extended mind is most closely akin to the proto-consciousness view, the idea that consciousness is present in all things (Zohar 2000). This puts the idea of the extended mind paradigmatically at odds with the science of the modern West.

The two domains of integrated intelligence

Integrated intelligence comprises two domains. The first is higher order perceptions of wholeness and integration, what Wilber calls the subtle, causal, and non-dual aspects of consciousness (Wilber 2000a, 2000b, 2000c, 2001). This shall be referred to hereafter as "domain one integrated intelligence", and is the direct experience or perception of the integrated nature of the universe and consciousness. The second domain is that of various 'paranormal' phenomena such as ESP, clairvoyance, and visionary experience—the 'psychic' realm (Wilber 2000c; Wilde 2002; Targ & Katra 2001; Jacobson 1997). This shall be referred to as "domain two integrated intelligence". This is the numinous realm.

As Figure 1.3 (below) shows, there is an overlap between these two domains. This is further elaborated upon in Tables 1.1 and 1.2. (below). The tables indicate the core operations and applications of integrated intelligence. For example, personal and social transformation may be triggered by domain one experience, as with the examples of Bucke and Hawkins given in the table. Yet this transformation may be an ongoing process such that the cognitive processes listed in Table 1.2 (below) play a role. Thus psychiatrist Hawkins (2002) reports that his childhood experience of being protected by a warming bright light when stuck in a snow storm was followed across his adult years with clairvoyant experiences, including the ability to 'diagnose' his patients without conscious analysis. One experience may incorporate both domains, as is the case with thanatologist Elizabeth Kubler-Ross's (1997) experience of "cosmic consciousness". As well as experiencing cosmic wholeness, she accessed knowledge about the lives of her former patients, including re-experiencing the pain of each of their deaths.

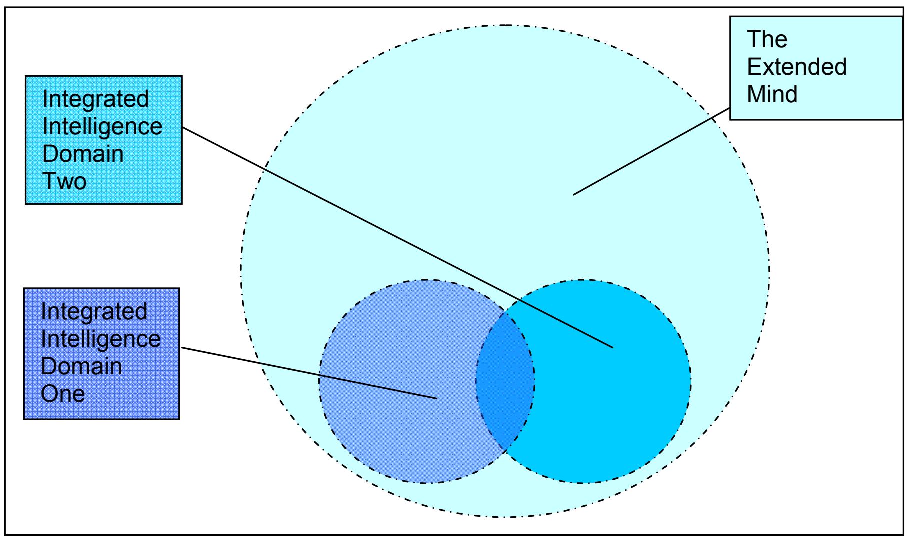

Figure 1.3: The relationship between the extended mind and integrated intelligence

Both domain one and domain two integrated intelligence are considered aspects of mystical and spiritual experience, however different approaches and philosophies valorise them to different degrees. For example, Buddhist texts tend to downplay domain two integrated intelligence, while valorising domain one integrated intelligence experience, particularly the experience of enlightenment or nondual consciousness (Jacobson 1991, 1997; Nisker 1998). Conversely, many new age texts valorise domain two integrated intelligence. Examples of these are Kubler-Ross (1997), Redfield (1997) and Wilde (2002).

Table 1.1: The core operation of domain one integrated intelligence

Cognitive process	Potential Applications	Anecdotal Exemplars	Other Evidence
Integrated Perception	Integrated perception of the underlying order & meaning of systems, & "intelligence" within those systems - including cosmos itself. Enhancing a "spiritual" worldview; life meaning, & a sense of relationship with nature & cosmos.	Bucke's (quoted in Tart 1993) immediate perception "that Cosmos is not dead matter but a living Presence, that soul of man is immortal, that universe is so built & ordered that without any peradventure all things work together for good of each & all…" Also James 1960; Kubler-Ross 1997; Wilber 2000c.	Mystical and spiritual traditions—e.g., Christian mystical, Buddhist, Hindu, Sufi, indigenous, etc. Experience from non-ordinary states of consciousness (Grof 1985, 2000; Sheldrake et al. 2001). Wilber's (2001) argument that mystical insight is empirical (see Chapter 2, section 2.5).

Table 1.2: The core operations of domain two integrated intelligence

Cognitive process	Potential Applications	Anecdotal Exemplars	Other Evidence
Evaluation/ choice	Evaluating design & construction alternatives, investment choices, research strategies, & technology alternatives". (Targ & Katra 1999 p 139) Also evaluation of life paths, career choices, & relationship choices.	Klein's (2004) rejection of job offer purely on gut feeling. Later he found he had made right decision, as boss had created a "terrible working environment". (Klein 2004 p 294-295) Individuals who employ intuition and spiritual guidance as a means to making choices. (e.g. Bach 1986 – see 'foresight', below; Wilde's sixth sense - Wilde 2001; Yogananda's immediate recognition of his master at first meeting - Yogananda 1979).	Card guessing experiments from parapsychology, e.g., the Rhine ESP experiments (Radin 2003 pp 83-89).
Location	Determining location of "archeological sites, oil, mineral deposits, & buried or hidden treasure…" (Targ & Katra 1999 p 139-141). Also location of information & data for research; finding relevant people & places.	Researcher Michael Talbot employs "deeper & more intuitive abilities" in locating research data (Talbot 1992 p 137). Talbot's ability to locate books in libraries by walking along rows of book shelves, stopping when he 'feels' he is at correct location & taking a book (ibid.) Also, a 'psychic' identifying a murderer (CNN 2005).	Remote viewing, including scientific remote viewing (Braud 2003, Radin 2006, Sheldrake 2003).

Table continued from previous page			
Diagnosis	Diagnosis of medical problems, mechanical problems, safety hazards, sources of human error, & health & environmental hazards" (Targ & Katra 1999 p 141). Spiritual & psychological introspection: e.g. personal "issues," neurosis, or personal problems, with goal of personal transformation & enhancement of knowledge and wisdom.	Accounts of intuition, dreams and spiritual guidance which facilitate diagnosis of problems. Targ & Katra (1999) recount how a friend intuited the source of mechanical failure of a ship. Hawkins' 2002 intuitively diagnosed patients' illnesses; Capra (2000) had insight of the connection of physics and mysticism.	No known empirical studies. The links between wisdom and mysticism (see Chapter 6, section 6.3; Chapter 8, section 8.6).
Foresight	Foresight of "earthquakes & volcanic activity, political conditions, technological developments, wear conditions, & interest rates & investment opportunities, as well as prices of commodities & currencies…" (Targ & Katra 1999 p 142) In terms of life-long education this capacity could potentially be employed to determine consequences of one's intended choices & actions.	Author Richard Bach (1986) tells of a seminal moment in his life where, after an argument, he had to make a choice of whether to leave his partner forever. Using an introspective visionary technique he "sees" consequences of his walking away – his own imminent death in his private plane – & adjusts his choice accordingly.	Scientific experiments into "presentiment" (Radin 2006 pp 161-180).
Creativity & Innovation	The individual draws upon transpersonal modes of consciousness to facilitate increased inspiration & creativity in work, business, research, competition or leisure	Chemist August Kekule was "seized with the notion" of molecular nature of benzene ring in dream (Kafatos & Kafatou, 1991 p 166); understanding of "the chemical transmission of neuronal impulses" (& a Nobel Prize) came to Otto Loewi while he was asleep (Broomfield 1997 p 80); & Richard Bach's claim that he did not write *Jonathan Livingston Seagull* – it "came 'through' him" (Rowan 1991 p 103).	Indigenous and mystical conceptions of creativity (as discussed in Chapter 6, section 6.3)

Table 1.3: The end-states of integrated intelligence

Cognitive process	Potential Applications	Anecdotal Exemplars	Other Evidence
Wisdom	Having intuited underlying causes, meaning & functions of various life process, the individual is able to make intelligent choices which enhance happiness, well-being & spiritual development of self & collective.	The life of Mohandas Karamchand (Mahatma) Gandhi. Gandhi combined an austere, mundane existence with political & intellectual acumen, & combined these with spiritual tools, insight & wisdom to forge a powerful & effective life. In doing so helped his people to develop a greater degree of spiritual & political freedom.	The links between spirituality, spiritual guidance and wisdom from anecdote and tradition (see esp. Chapter 8, section 8.6; Chapter 6, section 6.3)
Personal & Social Transform-ation	Optimal human & cosmological evolution. This may incorporate aspects of all five applications listed under II2 (Table 1.2), with purpose of evaluation of personal goals & choices within a greater planetary/cosmological dynamic. Potentially for increased hope & meaning.	Numerous lives have been Bucke's classic experience of cosmic consciousness (Tart 1993); Hawkins' (2002) experience of being protected by a bright, warming light while stuck in a snow storm; transformative power of near death experiences (Sutherland 1995); & worldview altering potential of synchronicity (Jung 1973, Storm 1999).	Field consciousness studies (Radin 2006).[4]

The Core operations of integrated intelligence

One of the weaknesses of populist depictions of the related concept of "spiritual intelligence" (Buzan 2001; Levin 2000; Zohar 2000) is that the specific core operations

[4] Initiated by Princeton's Roger Nelson in the mid-1990s, these experiments use random number generators (RNGs) to attempt to "detect" mind-matter interactions - changes in entropy near an identified group. This is usually a group of meditators or people engaged in a close communal activity, including alternative healing practices. By 2005 there had been more than 500 experiments using this method. Radin (2006) finds that these studies "strongly suggest that coherent group activity is associated with unusual moments of order in RNG outputs" (Radin 2006 p 183). This is possible evidence of a "collective psi" (ibid. 207).

and end states tend to be poorly delineated. Any legitimate theory of intelligence must make explicit the core operations and end-states (Gardner 1993).

Domains one and two of integrated intelligence potentially facilitate related but distinct cognitive processes. The domain one core operation is “integrated perception”. The domain two core operations are “evaluation/choice”, “location”, “diagnosis”, “foresight” and “creativity and innovation”. The end states are “wisdom” and “personal and social transformation”. Tables 1.1, 1.2 and 1.3 (above) list these, and provide exemplars from the literature.[5]

The evidence for each of these core operations and end states comes from parapsychology, mystical and spiritual traditions, and personal anecdotes within the literature- as the right-hand column of each table indicates. The issues and problems in respect to the evidence are essentially the same as those witnessed in parapsychology. These will be outlined in chapter five (5.6). One notable problem is that of positing

[5] Domain one integrated intelligence (Table 1.1) and the end-states (Table 1.3) are my own constructions. Table 1.2 has been expanded from Targ and Katra (1999) who, following the research of Jeffery Mishlove, identify four different types of application of remote viewing “in the real world”. Mishlove is the director of the Intuition Network, an organisation which devotes itself to “developing and incorporating greater use of intuitive processes in the workplace as well as in other venues of daily life” (Targ & Katra 1999 pp 139-141). However, I have added various points and extended the table to six applications (the final two core operations being my own). The term “foresight” has replaced Targ and Katra’s category of “forecasting”. This change has been made as the future is probably best viewed as a dynamic field of unfolding potentialities, rather than an ineluctable and linear teleology. These core operations are reflective of the cognitive modalities posited throughout the literature on integrated intelligence. They are being used in this thesis as a framework via which the theory of integrated intelligence might be initiated. These core operations may be viewed as flexible and open to change according to further research. Finally, Targ and Katra’s applications clearly move beyond what is generally considered to be the practical applications of psi. Psi is often seen as elusive and unreliable, even amongst proponents within parapsychology (Braud 2003; Kennedy 2003, Radin 2006). I expect the genuine applications of integrated intelligence will be closer to my additions, rather than the Targ and Katra’s original applications.

evidence of integrated intelligence as being responsible for social and personal transformation arises, since mundane factors could account for any of the cases listed in the tables. This reinforces the point that empirical investigation of integrated intelligence is highly problematic.

There are within the literature many related concepts and distinctions that may be confused with integrated intelligence or the extended mind. These are outlined in the next section.

1.8 What it is not: Related concepts and distinctions

The term “integrated intelligence” is being developed here to clearly distinguish it, and avoid confusion with certain terms used within other texts that may cover similar or related ground. The other significant process being undertaken is to situate it more deliberately within contemporary discourses on intelligence.

Other than the discussion of “spiritual intelligence” (outlined below), there are few attempts in the literature on intelligence to conceptualise transpersonal and psychic capacities in terms of their relationship with intelligence. The closest attempts involve the juxtaposition of intuitive intelligence with rational and logical intelligences, as is the case with Gardner’s (1993) multiple intelligences, de Bono’s (1999) six thinking hats, Goleman’s (1995, 1999) emotional intelligence and Klein’s (2003) “intuition”. The tendency in these texts is to define intuitive intelligence in mundane terms. In Chapter Six it will be argued that that the epistemic parameters of mainstream intelligence discourse preclude mystical considerations.

In the literature, numerous terms are employed to describe similar or related concepts, and sometimes the same term is used to describe different concepts. Clarification is therefore important.

Concepts related to integrated intelligence and the extended mind

Several relevant concepts differ in various ways, and have in turn been divided into a number of categories, beginning with the extended mind itself. A definition—either my own, or one taken from sources within the literature—is provided for each.

The extended mind.

This is the experience or conceptualisation of mind as extending beyond the self, and interacting with people, spiritual entities, 'objects' or information in an extra-sensory capacity. Examples include: "the extended mind" (Sheldrake 2003a, 2003b) "nonlocal consciousness" (Targ & Katra 1999); "distant non-local awareness" (Dossey 1993, 2000a); "the holotropic mind" (Grof 1992, 2000); the "holographic brain" (Bradley 2004; Pribram & Bradley 1998); "the universal mind" (Bentov 1988) "open thinking" (Liberman 1995); "group consciousness" (Krippner 1992); "connection with the source/Divine" (Mack 1999: 292-293); "intrasubjective experiences" and "participatory events" (Ferrer 2002: 2); the "collective unconscious" (Jung [1961] 1989; Broomfield 1997); "telesomatic connections" and "cardio-energetics" (Pearsall 1999); "the ultimate alignment of individual and cosmic good" (Bussey 2004 p 84); "being cognition" (Maslow 1971); and "boundless mind" (Schlitz 2001).

Enlightenment experiences.

Enlightenment experiences involve the "state of consciousness or enlightenment (where) people experience themselves in the utmost depths of their psyche as being one with God" (Smith 1995 p 406-407) or some cosmic essence. Examples include: "enlightenment" (Smith 1995); "cosmic consciousness" (Bucke 1991; James [1909] 1977; Kubler-Ross 1997; Moffett 1994 p 11; Smith 1995); "Oneness" and "Pure Consciousness" (Jacobson 1997, 1999 p 35); "self-realization" (Nisker 1998 pp 212-214); "subtle", "causal" and "non-dual" consciousness (Wilber 2000c); "ultimate identity with the source", and "superconsciousness" (Slaughter 1999 pp 332-333); "universal consciousness" (Kafatos & Kafatou 1991); "unity consciousness" (Friedman 2005); and "transcendent states" (Boorstein 2000).

Planetary mind.

This is the conception that the Earth itself is conscious, and that there is knowledge transference between this consciousness and individuals existing on the Earth. This includes humans and animals, individuals and collectives (such as human or animal collective minds), ecosystems and systems in general.

Examples include the concepts of: “global brain” (Bloom 2000); “Gaia” (Lovelock 1979; Couzyn 1995; Sahtouris 1999);[6] de Chardin’s (1976) “noosphere” or planetary consciousness; and “nature as alive, self-organizing, intelligent, conscious or sentient and participatory at all levels” (Sahtouris 1999: <http://www.scottlondon.com/insight/scripts/sahtouris.html>)

Extrasensory perception.

Here the focus is restricted to “psychic experiences” as defined by White (1998), namely ESP, clairvoyance, telepathy, and precognition (Tart, Puthoff & Targ 2002 p xxiv; White 1998 p 132). Examples include: “extrasensory perception” (Wallace 2003 p 185); “telepathy” and “ESP” (Sheldrake & Smart 2003); “distant intentionality” (Dossey 1999, 2001, 2002); “psi” experiences (Batcheldor 1994; Braud 2003; Kennedy 2003);[7] “ESP” (Henley 2002 p 289); “transpersonal knowing” (Ferrer 2002 p 10); and “remote viewing” (Braud 2003; Buchanan 2003; Sheldrake 2003).

Exceptional human experiences.

Exceptional human experiences are “psychic, mystical, death-related, and strange encounter experiences that raise eyebrows” (White 1998 p 129). This is a broad term

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[6] Maddox (1999) heavily criticises the misrepresentation of Lovelock’s initial hypothesis, which he points out does not suggest that the earth has “mystically, a life of its own” (Maddox 1999 p 348). A distinction is required by those researchers who conform to Lovelock’s initial hypothesis, and those who take it and add mystical components.

[7] The focus in this thesis in terms of psi phenomena is upon “extrasensory perception” rather than the other domain of psi phenomena, “psychokinesis.” However, where the term “psi” is used in relation to the literature, it will incorporate both domains, consistent with the way it is used in the literature itself.

which has come into use in the literature in recent years. It incorporates many of the mystical, psychic and spiritual experiences referred to under the other categories in this section. Examples include White (1998) and Kennedy (2003).

Revelation.

In revelation, an individual receives spiritually meaningful information from divine sources (God, deities, angels, spirit guides, etc.). Examples include: “revelation” (Dobie 2002); “a guiding spiritual presence” (Zohar 2000 p 100); and “theophany” (Fox & Sheldrake 1996 p 51).

Spiritual intelligence.

A term that has come into popular literature in recent years, spiritual intelligence is “an internal, innate ability of the human brain and psyche, drawing its deepest resources from the heart of the universe itself” (Zohar 2000 p 9). Examples include Buzan (2001), Levin (2000), and Zohar (2000).

Classical intuition.

The classical representation of intuition incorporates sources of intuitive knowledge that involve transcendent, extra-sensory and/or metaphysical dimensions. Examples include: “intuition” (Fox & Sheldrake 1996; Rowan 1986); “intuitive awareness” and “intuitive inquiry” (Braud 1998 p 75); “the sixth sense” (Wilde 2002); “the seventh sense” (Buchanan 2003); “psychic abilities” (Targ & Katra 1999); and “perfect insight” and “intense knowledge” (Cleary 1999 p x-xi).[8]

Inferential intuition.

This is ‘mundane’ intuition, where the sources of intuitive knowledge are represented as coming from the unconscious mind and sensory sources, not from extra-sensory or metaphysical realms. Examples include: “intuition” (Klein 2004; Myers 2004; Senge

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[8] When “intuition” is used within this thesis, it will be used in the classicist sense, comprising metaphysical and transcendent potentials, unless otherwise stated.

1994);[9] “intuitive intelligence” (Torff & Sternberg 2001); “primary intuitive conceptions” (Torff & Sternberg 2001; Ben-Zeev & Star 2001); “tacit learning” (Hogarth 2001); “intrapersonal intelligence” (Gardner 1993; Gardner et al. 1996); and “red hat thinking” (de Bono 1999).[10]

Other ways of knowing.

These are ways of knowing that move beyond those normally accepted in Western society and civilisation. As employed within this thesis, other ways of knowing incorporate spiritual and metaphysical components. Examples include: “other ways of knowing” (Broomfield 1997; Forbes 2003); “shamanistic, participative science” (Varvoglis 2003); and “relatio” or “relationship knowledge” (Wildman 1996).

Emotional intelligence.

Emotional intelligence entails being able to identify and master one’s own emotions, as well as manage other people’s emotions, effectively. As employed in this thesis, the definition of emotional intelligence does not incorporate the extended mind, but can be seen to include a type of inferential intuition. Examples include: “emotional intelligence” (Goleman 1995, 1999; Israel, Whitten & Shaffran 2000; Salovey, Brackett & Mayer 2004); “red hat thinking” (de Bono 1999); and “emotional knowing” (Friedman 2005).

As used in this thesis, the categories listed above will retain the meanings identified, except if otherwise stated.

Summary

In Part Two I have defined integrated intelligence and the extended mind, given a brief history of the idea, and explained what it is and what it is not. There now follows an outline of the chapters to come.

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[9] Myers primarily constructs intuition as a form of tacit learning. He acknowledges that “psychic” capacities exist, but remains skeptical and uncommitted about their potential.

[10] De Bono, Gardner, and Gardner et al. all place intuition and emotional intelligence together in their respective schemas.

Part Three: Chapter Outline

1.9 The chapters to follow

This thesis consists of eight chapters and a conclusion. Table 1.4 details the purpose of each chapter.

Table 1.4: The thesis chapters and their purpose

Chapter	Purpose
1. Introduction: Context, Significance and **Definitions.**	To outline the thesis topic, key questions, thesis context and describe the nature of integrated intelligence in detail.
2. Theory and **Methods**	To outline the primary and secondary theories and methods: Inayatullah's (2002a) CLA from poststructuralist theory; and Wilber's (2000c) Integral Theory from transpersonal theory. Secondly, the strengths and weaknesses of the respective methods will be addressed, as will the limitations of this thesis.
3. The Epistemic Perspective: A Genealogy of the Western Rationalist hegemony.	To contest the linear/teleological temporality of the Western materialist/rationalist episteme, and elucidate the remarkable nature of the present moment and its predominantly modernist and postmodernist discourses.
4. The Paradigmatic Perspective (1): The Mechanistic Paradigm, Mystical spirituality and **Ways of Knowing.**	To problematise the foundations of mainstream dominant science and mind science, opening a space for the reinsertion of alternative paradigms/worldviews. The issues and debates will be: patriarchy and the feminine; dualism and "receptivity"; materialism and the mind-body problem; ego, science and mind; and the relationship of the mechanistic paradigm with the mystical/spiritual worldview.
5. The Paradigmatic Perspective (2): Neo-Darwinism and **Debates** and **Issues Regarding Intelligence, Consciousness** and **Cosmos**	To problematise the foundations of mainstream dominant mind and consciousness discourses. The focus will be upon the neo-Darwinism, reductionism and neuroscience, the obfuscation of the intrapersonal, and the mind-as-computer metaphor. Finally, to analyse mainstream consciousness theory and its treatment of the concept of the extended mind.
6.The Specific Field Perspective: Debates and **Issues in Intelligence Theory**	To problematise dominant and mainstream intelligence discourses, and determine if there is room for mystical concepts. "IQ" theory is addressed, while four domain-general and expanded theories of intelligence which challenge IQ Theory, are analysed.
7. The Individual Text Perspective: An Analysis of Several Critical Rational and **Mystical/spiritual Theories of Mind** and **Intelligence.**	To analyse theorists from both critical/rational and mystical/spiritual representations of mind and intelligence. The former include BBC TV's *Brainstory*, Arthur Jensen's "'g' Theory", and Daniel Goleman's "emotional intelligence"; the latter include Danah Zohar's "spiritual intelligence", John Broomfield's *Other Ways of Knowing*, and Ken Wilber's Integral Theory.
8. The Futures Perspective: Education For Transformation. Integrated Intelligence in the Knowledge Economy and **Beyond**	To identify several salient features of the knowledge economy and its education system. Secondly, to suggest roles integrated intelligence might play in short and long-term alternative futures. The binary is developed as a means to problematise current dominant educational discourse, and the hegemony of the technocratic society.
Conclusion	To summarise the thesis argument, and outline possibilities for further research.

Within all these chapters the theme will centre upon integrated intelligence and its role at the relevant level of the debate. Inayatullah's (2002a) Causal Layered Analysis (CLA) will be the primary analytical tool, with Wilber's Integral Theory also playing a crucial role—as I shall explain in detail in the next chapter. Finally, in Chapter Eight the focus expands, as I posit an alternative future—that of integrated intelligence in the contemporary knowledge economy, and beyond.

No single chapter is a literature review. Instead, each of Chapters Three to Seven is a review of literature at a particular level of the problem.

1.10 Conclusion

In the opening chapter to this thesis I have described the thesis topic and the major and supporting questions, and defined the context, methods and objectives. These were depicted in Figure 1.1.

I began in Part One by positing a binary: the mysticism of Itzhak Bentov juxtaposed with the scientific orthodoxy of Michael Persinger. The purpose here has been to highlight two different epistemic approaches to knowledge, employing vastly different ways of knowing which emerge from and privilege very different worldviews. This led to a definition of the research topic, and an outline of key questions. I explained that the primary goal is to use the concept of integrated intelligence as a disruptor, to problematise the often closed dominant discourses on mind science and education. Finally it was stated that a secondary aim is to develop an alternative vision of the future which will assist in the re-opening of these dominant discourses.

In Part Two, the process became more painstakingly descriptive. Integrated intelligence and the extended mind were defined. A brief history of integrated intelligence was posited, and integrated intelligence and the extended mind were more clearly delineated with reference to similar and related concepts in the literature.

Finally, in Part Three, I outlined the chapters to come. In the next chapter the theories and methods used in this thesis will be discussed in much greater detail.

Chapter 2: Theory and Methodology

Part One: The Poststructural Perspective

2.1 Introduction and overview

> Deconstruction… pushes meaning towards undecidability… leaving no pure or absolute concepts that can be taken as foundational. Meanings… are not individual, personal, or subjective, since they emanate from language. But they are not given in nature or guaranteed by any existing authority either (Belsey 2002 p 87).

> Directly afterwards came upon him a sense of exultation, of immense joyousness, accompanied or immediately followed by an intellectual illumination quite impossible to describe. Into his brain streamed one momentary lightning-flash of the Brahmic Splendor which has ever since lightened his life; upon his heart fell one drop of Brahmic Bliss, leaving thenceforward for always an after taste of heaven. Among other things...he saw and knew that the Cosmos is not dead matter but a living Presence, that the soul of man is immortal, that the universe is so built and ordered that without any peradventure all things work together for the good of each and all… He claims that he learned more within the few seconds… than in previous months or even years of study, and that he learned much that no study could ever have taught (Edwin Bucke, quoted in Tart, 1993).

Chapter One stated that the prime function of integrated intelligence as used in this thesis will be as a vehicle of dissent to dominant discourses on mind and education. For this reason I chose a poststructuralist method as the major methodological tool—Sohail Inayatullah's (2002a) Causal Layered Analysis (CLA). In Part One of this chapter CLA will be detailed, situating the method within poststructural discourse and critical futures studies. This leads to the concept of epistemic and paradigmatic knowledge, and then on to ways of knowing—for each episteme and paradigm has its preferred ways of knowing.

In Part Two I will outline how and why this poststructuralist approach will be employed in conjunction with transpersonal theory—in particular Wilber's (2000c) Integral Theory. I also introduce my own Integrated/Fragmented Mind Model (IFM model) and situate it within transpersonal discourse. Figure 2.1 below, depicts this approach.

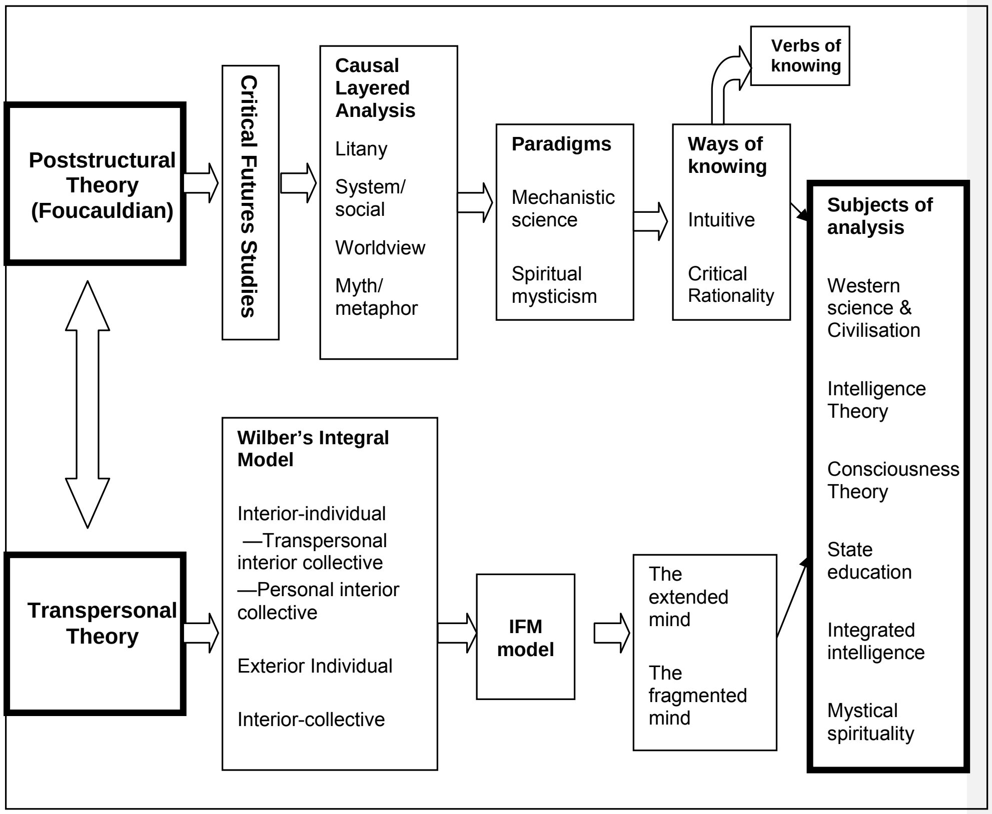

Figure 2.1: The theories and methods of this thesis

This central tension between the mystic and the poststructuralist—epitomised by the quotes from Bucke and Belsey above—is an essential dissonance maintained throughout this thesis. I will show that the mystic and the poststructuralist can both catch and enlighten each other. This process will highlight the strengths and weaknesses of the respective discourses, and make explicit the epistemic givens.

In the final part of the chapter the limitations of the method and the thesis in general will be outlined

The structure of the analyses to follow

The focus both in this chapter and in the thesis in general will centre upon epistemic and paradigmatic foundations of knowledge. The analytic approach will be layered—structured according to poststructuralist theory and Inayatullah's CLA. The following figure (Figure 2.2), is central to the analyses within all chapters.

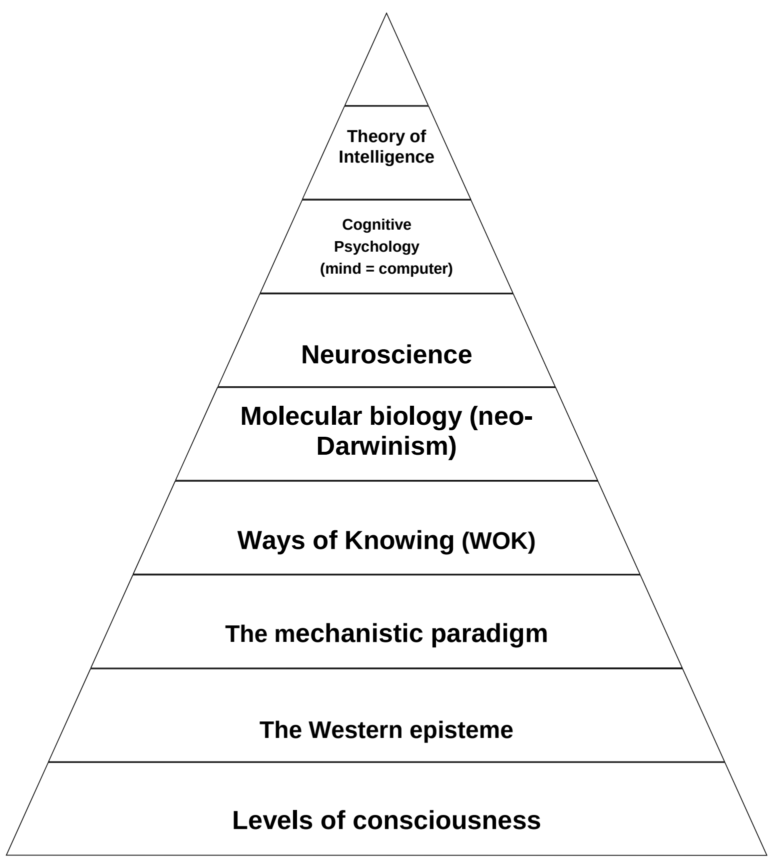

Figure 2.2: Layered schema depicting the epistemic foundations of Western mind science.

Each level is defined and mediated by the level below it. It depicts discourses on intelligence and mind moving through layers, and being ultimately determined by the lowest level of the system: the pervading level of consciousness—vision logic (Wilber 2000c). This schemata violates the poststructural insistence on aperspectivism—that theory should avoid privileging any one perspective (Belsey 2002)—because the lowest level of the system (levels of consciousness) implicitly valorises transpersonal theory and the Eastern episteme. This mirrors the arguments of the transpersonalists, such as Bradley (2004), Gebser (1985), Grof (2000), Hawkins (2002), Walsh (1990), Walsh and Vaughan (1993), and Wilber (2000c), who find that rationality is one developmental stage in the greater evolution of humanity towards transrational awareness.

There are two overriding paradigms displayed in Figure 2.2. At the fourth level there is the neo-Darwinian paradigm (Loye 2004c). This paradigm is part of a greater paradigm—the mechanistic paradigm. Figure 2.2 represents the crux of my argument—that contemporary mind and intelligence theory is embedded within a complex epistemic problematique.

I now turn to the greater details of the primary theory and method.

2.2 Postmodernism, poststructural theory and futures studies

In this section I begin by outlining postmodernist thought and poststructuralism. Critical futures studies and Inayatullah's Causal Layered Analysis will be further detailed.

Postmodernism and poststructuralism

Foucault (1984) epitomises postmodernist philosophy with his belief that all interpretation "is the arbitrary result of modernity's configuration of self-producing forces" (quoted in Shapiro 1992 p 3). Similarly, Kafka writes that all "truth… is uncertainty" (quoted in ibid. p 16).

Foucault, whose theory has deeply influenced critical futures studies (Inayatullah 2004b) set out to write disruptive histories, to problematise knowledge systems, and to uproot and expose the foundations of tradition. He felt that history is effective “to the degree that it introduces discontinuity into our very being” (Foucault 1984 p 88). The identification of patterns and continuities in history is evidence of an agenda for power and control, Foucault insisted. True history reveals a “barbarous and shameful confusion” (ibid. p 89). The forces of history are random and “not controlled by destiny or regulative mechanisms… being “without providence or final cause” (ibid. pp 88-89).

Foucault epitomises the essence of both the postmodernist, and the poststructuralist. The latter can be seen as derivative of the former. The former is a broader movement emerging from the skepticism and ambiguity of the modern era (Tarnas 2000), while the latter is a theory which deeply questions knowledge structures. The poststructural Foucauldian perspective does not seek empirical validation of theory. Its essence resides in determining the implications of the construction of knowledge, and in attempting “to distance by historicizing and by comparing and by whenever possible denaturalizing” (Inayatullah 2002b p 324).

Postmodernism, genealogy and the real

Chapter Three of this thesis develops a long-term temporal perspective on the thesis problematique, via the poststructural tool of genealogy. Inayatullah (2002a) defines genealogy in the following terms:

> This is history; not a continuous history of events and trends, but more a history of paradigms, if you will, of discerning which discourses have been hegemonic and how the term under study has traveled through these various discourses (p 27).

In genealogical theory, knowledge structures represent the outcome of a subtle struggle for power, legitimised by the victory of the dominant power (Shapiro 1992).

Foucault (1984) believes that individuals have restricted freedom to think and choose for themselves, being the ‘subjects’ of the invisible power dynamics of power. He asks:

> How are we constituted as subjects of our own knowledge?

> How are we constituted as subjects who exercise or submit to power relations? (Foucault 1984 p 49).

Inayatullah (2002a) lists three questions which genealogical inquiries seek to answer.

> Which discourses have been victorious in constituting the present?
>
> How have they traveled through History?
>
> What have been the points in which the issue has become important or contentious? (Inayatullah 2002a p 27).

I will seek to answer these questions in relation to the thesis problematique in Chapter Three. The focus is upon the way mechanistic representations of consciousness have come to dominate science and education, and the consequent rejection of spiritual discourses. A greater clarification of poststructuralism and postmodernism will be provided in section 2.6 below, where the poststructuralist approach to knowledge will be compared and contrasted with the mystical/spiritual worldview.

Futures studies

Futures studies emerged in the wake of poststructuralism. According to Inayatullah, futures studies is “Committed to multiple interpretations of reality”, and this legitimates “the role of the unconscious, of mythology, of the spiritual… instead of views of reality for which only empirical data exists” (Inayatullah 2002a p 3).

Within this thesis, these multiple interpretations of reality and their deeper constituents will be uncovered via deconstructing and reconstructing the future. There are three primary approaches to doing this: the predictive (empirical), the cultural (political), and the critical (ibid.). Predictive futures tend to perpetuate the status quo and the mythologies of the present. The cultural approach is able to extend the discourse across cultures, but tends to relativise and politicise the future (ibid.). To avoid these problems, I have chosen the critical approach for this thesis.

Critical futures move beyond mere litany and social forecasting. Ideas such as other ways of knowing, feminism, spirituality and intuition come into play (Inayatullah 2002a).

Beare and Slaughter (1993) represent such voices within critical futures discourse. They write about "the shift in attitude towards modern science, and what constitutes knowledge" (Beare & Slaughter 1993 p 55). They include the concepts of "transcendent knowledge" and hierarchical systems of comprehension—including vertical models of systems and consciousness. (ibid.: 63-66). Slaughter (1999) argues that we are "immersed in a web of being that ranges from the physical and the energetic to the symbolic, social and spiritual" (p 332). He refers to concepts such as Wilber's Great Nest of Being, subtle awareness, causal insight and "ultimate identity with the source", "psychic intuition", and "superconsciousness" (ibid. p 333), and suggests placing transcendent knowledge "at the very center of our future vision" (ibid. p 333).

Inayatullah (2002a) also incorporates the transcendental—within critical futures studies and ways of knowing:

> Metaphors and myths… return the unconscious and the mythic to our discourses of the future—the dialectics of civilisational trauma and transcendence become episodes that give insight to past, present and future (Inayatullah 2002a p 30).

I have chosen critical futures studies as the major method of this thesis because it permits discussion of these relevant issues. The futures that I am considering include the futures of self, of specific discourses (especially consciousness and intelligence), of humanity (education and society) and of cosmos (the role of agency and evolution).

Causal Layered Analysis

In the context of poststructuralism and critical futures research, Sohail Inayatullah's (1998, 2002a) Causal Layered Analysis (CLA) will be used to unpack the texts of intelligence, consciousness, and other relevant discourses. CLA is an aspect of critical futures studies (Slaughter 1999). It is:

> … less concerned with disinterest, as in the empirical, or with creating mutual understanding, as in the interpretive, but with creating distance from current categories. This distance allows us to see current social practices as fragile,

> as particular, and not as universal categories of thought—they are seen as discourse, a term similar to paradigm but inclusive of epistemological assumptions (Inayatullah 1998 p 16).

CLA permits the movement beyond purely Western futures, towards a "multi-civilisational view" of futures studies. The benefit of this for my analysis of the extended mind and integrated intelligence is that these concepts have been largely excluded from Western mainstream discourses on mind. They are primarily found in pre-modern and non-Western texts, or fields that have been influenced by them.

CLA is thus an ideal methodology for this thesis topic. The debate on integrated and transrational intelligence remains at an embryonic phase in intelligence theory and education. CLA allows the assumptions, worldviews and paradigms of the relevant discourses to be brought forward. My conclusions will enable future researchers to move into more specific aspects of this field with a greater sense of where the debate lies in relation to intelligence theory, consciousness research, and science and education in general. Finally, the method will establish the outlines of a map which will depict potential applications of integrated intelligence in contemporary education and society (Chapter Eight).

The layered structure of CLA is important in the analysis of the given texts. The first level of CLA is the litany, which examines the rational/scientific, factual and quantitative aspects of texts. It may also identify the assumed nature of the subject of analysis—such as the typical Western assumption that 'rationality' equates to logical, verbal and mathematical acuity. The second level—the social/systemic—analyses the economic, cultural, political and historical components. The third level of CLA explores the discourse/worldview of texts, identifying the deeper social, linguistic, and cultural structures. The final component is the mythical/metaphorical level. This reveals the hidden and explicit mythologies, narratives, symbols and metaphors contained in texts. This also may include any emotional, unconscious and archetypal dimensions to the subject matter (Inayatullah 2002a). As a component of my thesis is the examination of deeper psycho-spiritual motives and imperatives which underpin civilisations, paradigms and ideas and individuals, I include this analysis within level four of CLA.

Once the discourse is analysed via these four levels, the way is cleared for a movement beyond the critical and rational, allowing the re-introduction of the experience and employment of other ways of knowing (including integrated intelligence).

Summary

In Part One, the general theory (poststructuralism) and method (Inayatullah's CLA) of this thesis have been outlined. Yet a clearer explanation of two analytical tools I have referred to above—paradigms and ways of knowing—is still required.

Part Two: The Paradigmatic Perspective: Paradigms and ways of knowing

Figure 2.2 above depicted the central role played by paradigms and ways of knowing in this thesis. In particular I shall introduce and analyse the idea of the mechanistic paradigm and compare it with the mystical/spiritual worldview. An explanation of the paradigm-dependent concept of ways of knowing will follow.

2.3 The paradigm concept and the mechanistic paradigm

Identifying the epistemic foundations of knowledge is central to the thesis: for structuring the arrangement of knowledge (Inayatullah 2002a pp 128, 191). An episteme is a system of understanding or a body of knowledge which determines the boundaries of the knowledge of a particular time, civilisation or group. Epistemes tend to remain unconscious, and can be seen as constituted within levels three and four of Inayatullah's CLA (see Figure 2.1).

Epistemes are closely related to paradigms, the prime difference being that paradigms tend to operate within fields of knowledge, while epistemes encompass civilisational and epochal bodies of knowledge. Paradigms often emerge from epistemic foundations—they reflect the knowledge boundaries and the givens of the episteme. Thus, in Figure 2.2 above, the Western episteme sits below the mechanistic paradigm.

The paradigm concept

Kuhn (1970) posited the idea that all knowledge (including scientific knowledge) is premised upon specific paradigms. Sardar writes that a paradigm is "a way of looking at things: a set of shared assumptions, beliefs, dogmas, conventions, theories" (Sardar 2000 p 73). A key point is that paradigms have preferred and/or delimited ways of knowing. Schlitz argues that paradigms carry a set of assumptions, which are "a matter of faith" (Schlitz 2001 p 338). Grof (1985) compares paradigms with the concept of a map. He states that throughout the history of science: "the confusion of the map with the territory" has been characteristic of scientific practice (Grof 1985 p 5).

Theorists working within established paradigms often fail to acknowledge emerging paradigms, and may resist them (Inayatullah 2002 p 206). Paradigms by nature are habitual, implicit and unconscious:

> Paradigms have not only a cognitive, but also a normative influence; in addition to being statements about nature and realty, they also define the permissible problem field, determine the acceptable methods of approaching it, and set the standards of solution… (Grof 1985 pp 5-6).

Consequently, the paradigm sets limits upon both concept and method. Grof (1985) argues that under these circumstances research is cumulative, with scientists only selecting problems which can be examined with the acceptable tools, both conceptual and instrumental. In this system new theories can only arise when it is acknowledged that the expectations about nature and instruments are no longer working (Grof 1985 p 6).

Paradigms also delimit the range and types of questions asked. (Grof, 1985) Yet as Maddox finds, "The record of previous centuries suggests that the excitement in the years ahead will spring from the answers to questions we do not yet know enough to ask" (Maddox 1999 p 1). As paradigms shift, then, so do the focus of questions. For example, in the decade after the Second World War, the key question in psychology "was whether the stuff of inheritance consists of protein or nucleic acid" (Maddox 1999 p 19). At present, however, questions in mind science tend to be related to neurophysiology and genetics (ibid.).

Recently, the journal *Science* marked its 125th anniversary by stating the twenty-five biggest questions that are likely to be solved in the next 25 years (Questions 2005). Only five relate (directly or indirectly) to the extended mind and integrated intelligence, questions 1, 2, 14, 17 and 21:

> 1. What is the universe made of?
> 2. What is the biological basis of consciousness?
> 14. What genetic changes make us uniquely human?
> 17. How will big pictures emerge from a sea of biological information?
> 21. Do deeper principles underlie quantum uncertainty and nonlocality?
> (Questions 2005 www.sciencemag.org/sciext/125th/#inscience).

The second question is the most relevant to integrated intelligence. Yet at the litany level the question entails the materialistic presupposition that the basis of consciousness is purely biological, delimiting any conception related to the extended mind. Miller (2005) states explicitly that the focus of this question is upon the way that consciousness emerges from neuronal functions. There is little room here for the proto-consciousness view (Zohar 2000) or the conscious universe hypothesis (Radin 1997). A systems level analysis finds that reductionism underpins question 14, which implies that it is genes that make us distinctively human. Similarly, question 17 is reductionist. Of all the questions, question 21 is the most contentious, asking what "deeper principles" underpin quantum non-locality and uncertainty; this inquiry leaves room for innumerable hypotheses and further questioning.

Ultimately, it is the kinds of queries that are missing that establish these questions as paradigmatically delimited. Consistent with Bloom's (2001) critique of reductionist science as being unable to answer “why” questions, no question contains the word “why”. With the exception of question 21, there are no questions that might delve into the nature of the extended mind, confirming that the concept lies beyond the bounds of the Western science. The way that questions are posited often privileges a paradigmatic perspective: in this case the mechanistic paradigm.

Paradigmatic assumptions inevitably underpin all science, including intelligence discourse. Conversely, Maddox (1999) finds that “progress in many fields of inquiry is measured not by mere discoveries... but by the deepening of the questions people ask about nature” (Maddox 1999 p 377). This entails the deep questioning of the underpinning presuppositions of the paradigm itself. For this to occur, the givens of the paradigm must be made explicit.

In the following section I do precisely this, both for the mechanistic paradigm, and the mystical/spiritual worldview.

The mechanistic paradigm and the mystical/spiritual worldview

One of the prevailing ironies of modern science—which is typically seen as “objective” and as “a pure, autonomous activity” (Sardar 2000 pp 8-9)—is that it is founded upon a metaphor. That metaphor is the clock, and the machine in general. In 1687, in *Principia*, Newton exuded that: “the Copernican system of the planets stands revealed as a vast machine working under mechanical laws here understood and explained for the first time” (quoted in Panek 2000 p 103). The scientific “Enlightenment” of the seventeenth century, which precipitated the birth of modern science and philosophy, initiated what has been called the Newtonian, Cartesian, or “mechanistic” paradigm (Beare & Slaughter 1993; Capra 2001; Davies & Gribbin 1992; Fox & Sheldrake 1996; Goerner 2004; Grof 1985; Hawkins 1995; Kafatos & Kafatou 1991; Laszlo 2004; Panek 2000; Ross 1993; Sahtouris 1999; Sardar 1998; Sheldrake et al. 2001; Zohar 2000) This paradigm represents the universe as a great machine, and attributes mechanistic qualities to the contents and processes of that universe. Newtonian science describes a universe of solid matter, consisting of atoms which operate on the principles of determinism, with fixed laws governing the phenomena of a cosmos consisting of “chains of independent causes and effects” (Grof 1985 pp 18-19).

Despite the strong postmodernist critiques of modern science (Kuhn 1970, Sardar 2000), and paradigm-shaking developments within quantum physics and systems theory (Capra 2000, Fox & Sheldrake 1996; Stapp 2005), the mechanistic paradigm still dominates much of mainstream science, especially biology (Capra 1993, 2000; Sheldrake et al. 2001). This is crucial. As Figure 2.2 above shows, intelligence and consciousness theory exist at a ‘lower’ level in the epistemological system. Therefore the mechanistic paradigm must be fully addressed to gain a greater appreciation for the absence of integrated intelligence from the contemporary landscape of mind science.

Table 2.1 clarifies the defining characteristics of the mechanistic paradigm and its representations of mind. It juxtaposes those conceptions with contrasting equivalents within the mystical/spiritual worldview, which incorporates the concepts of the extended mind and integrated intelligence. Several significant examples and critiques from the literature are used to clarify each point.

Table 2.1: Characteristic differences between the mechanistic paradigm and the mystical/spiritual worldview, with a focus upon the extended mind and dominant mainstream mechanistic science

Characteristics of mechanistic paradigm and mainstream mind discourses	Characteristics of mystical spirituality, the extended mind and integrated intelligence
A. Materialism: Consciousness as epiphenomena. Brain-based, localised consciousness. Extended mind condemned or ridiculed. **Exemplars** Crick (1990): *Astonishing Hypothesis* Greenfield (BBC 2001): Explanations of consciousness all have reductionist explanations Persinger (2001): Spiritual visions reduced to temporal lobe anomalies Park (2000 p 93): "In an age of science … irrationalism is raging out of control"	**A. Spiritualism:** Acknowledges inner worlds, telepathy, clairvoyance, revelation, divination, prayer. Transpersonal, non-localised intelligence. **Exemplars** Kubler-Ross (1997): Cosmic consciousness Dossey (1999): Non-local mind Targ & Katra (2001): Remote viewing Sheldrake (2003): Morphogenetic fields Jung (1989): Collective unconscious Bucke (1999): Cosmic consciousness Wilber (2000c): psychic, subtle & non-dual realms. Sheldrake (2003): Morphogenetic fields Jung (1989): Collective unconscious Bucke (1999): Cosmic consciousness Wilber (2000c): Psychic, subtle & non-dual realms
B. Reductionism: Discrete, separated particles. **Exemplars** The scientific method. Stenger (quoted in Mole 1999 p 80): Humans just "temporary bits of organized matter"	**B. Holism**: A connected universe. **Exemplars** Bohm (1973): Holographic Universe; implicate & explicate orders Wilber (2000c): Universe is made of 'holons'
C. Dualism: Subject/object and observer split. **Exemplars** Descartes: "I think therefore I am" Mole (1999): Consciousness has no influence on objective reality Persinger (2001 p 517): "…experiment is most powerful tool we have to understand organization of causal variables that elicit a phenomenon"	**C. Receptivity**: Subject/object and observer mergence. Immediate knowing. **Exemplars** Wheeler (1983): "Participatory universe" Liberman (1995): "Open thinking", "whole information packet" Ferrer (2000, 2002): "Participatory knowing" (Anderson 1998 p 87): "the intersubjectivity of researcher, participants, & audience

Table continued from previous page	
D. Linear temporality: Linear, sequential; linear, sequential processing of data/cognition (various). **Exemplars** Scientific method Information processing in intelligence theory **Critique** De Bono (1986): Second stage thinking	**D. Non-linear temporality**: Time non-linear, past, present & future merge. **Exemplars** Australian Aborigines: Dreaming (Lawlor 1991) Einstein: Relativity theory. (Hawking 2003) Sheldrake (1988): *Presence of the Past* **Critiques** Wilde (1993): “Tick-tock” vs. “real time”
E. Verbal/linguistic and mathematical/logical ways of knowing: Highly verbal/linguistic , abstract & mathematical. Verbosity, prolixity, intellectualism, and cleverness validated. Heavily conceptual. Ordinary states of consciousness. **Exemplars** Jensen (1998): *“g” Factor* Hernstein & Murry (1994): *Bell Curve* **Critiques** Hawkins (2002): Intellectualisation has become an end in itself De Bono’s (1986 p 16): Universities are “irrelevant centres of mental masturbation”	**E. Ineffable, trans-linguistic, transrational, ways of knowing:** Silence and intuition valorised. ‘Non-ordinary’ states of consciousness. **Exemplars** Lao Tzu (quoted in Jiyu 1998): Deep knowledge is ineffable (Hanna, 2000 p 115): “Most mental functions are a liability on path to psychospiritual insight” Jacobson (1991): *Words From Silence* Rothberg (2000 pp 170-171): “Metaphysical thinking”
F. Detached affectivity: Denies affective/intuitive. Eros and agape denied, or reduced to chemistry, genetics, etc. **Exemplars** The non-emotional objectivism of scientific method Damasio (2004): mechanistic representation of emotions and feelings **Critiques** Wilber (2001c): Enlightenment eradicated Eros and Agape. Goleman (1995, 1998 p 6) “Emotional intelligence” undervalued Ross (1993 p 116): Twentieth century psychology “a dogma of feeling avoidance for oedipally frustrated male academics”	**F. Pronounced affectivity:** Acknowledges affective ways of knowing, and subtle feelings. **Exemplars** Austen (Begley 2001 p 41): “Felt a sense of enlightenment unlike anything he had ever experienced” Hawkins (1995 p 297): “Would feel an exquisite energy” within himself **Critique** Storm (1999 p 264): Psi-conducive environment needs an "increased awareness of internal processes, feelings, and images”

Table continued from previous page	
G. Individualistic: Ego-centered fighting for prestige and power. **Exemplar** Crick & Watson were "ambitious & arrogant" (Jardine 2000 p 356). **Critiques** Loye's (2004b p 254): Science dazzles with "complexity, obscurity… to gain doctorates, grants & book contracts" Krishnamurti (1987 p 533): "Thought has constructed itself as an instrument for survival"	**G. Transpersonal:** Sublimation of ego. **Exemplars** Walsh & Vaughan (1993): *Paths Beyond Ego*. Wilde (1993): "Death of the world ego" Markley (1996): Beyond confines of an egocentric sense of self Jacobson (1997): Surrender of the ego Strohl (1998): "Beyond ego"
H. Patriarchal: Domination, colonisation and control, conscious mind/ego in control. Ordinary states of consciousness. Death denial. Rigidity, hardness. **Exemplars** Military mind: Divide and conquer. Genesis 1:28: Dominion "over every living thing that moveth upon the Earth" (quoted in Loye 2004a p 86). Grof (1996): Perinatal metaphors. Bacon: Science must "torture nature's secrets from her" **Critique** Eisler (2004): dominator model. Wilber (1999): the "Atman Project".	**H. Feminine**: Surrender of control by ego and conscious mind. Grace, fluidity, receptivity. Chaos. "Non-ordinary" states of consciousness. **Exemplars** Liberman (1995): "Receptivity" Peat (1988) "Gentle action" Lao Tzu: Non-action (Jiyu 1998) Buddhism and the middle way, or wu-wei. (Nisker 1999) Christianity: the Holy Spirit and grace **Critique** Sheldrake et al. (2001): *Chaos, Creativity and Cosmic Consciousness* Hart (2000 p 46): Inspiration requires "focus, trust, letting go, listening, & embodiment"
I. Reification of the random: Purposelessness, meaninglessness. **Exemplars** Darwin and Neo-Darwinists Random mutation in natural selection. **Critique** Frankl (1985): *Man's Search For Meaning* Sheldrake et al. (2001): the enlightenment extracted meaning and purpose from cosmos. Dossey (2000): Science has lost touch with "awe" and "mystery"	**I. Cosmic Purpose**: Purposeful, meaningful universe. Teleology, synchronicity. **Exemplars** Jung (1973): Synchronicity Peat (1988): *Synchronicity: Bridge Between Mind and Matter* Sheldrake et al (2001): Future vector points; habits of nature de Chardin (1976): Omega Point. (Bussey 2004 p 84): "the ultimate alignment of individual & cosmic good"

Table continued from previous page	
J. Atheistic. Rejects the numinous, and concepts of divine or spiritual entities. **Exemplars** Persinger (2001): The experience of God is temporal lobe seizure Freud (1962): Mysticism is regression into infinite narcissism	**J. Acknowledges the numinous:** Acknowledges the divine, and spiritual realms and beings. **Exemplars** Kubler-Ross (1997): Encounters with ghosts, and spirit guides Sheldrake et al (2001): “Divine mind” Bentov (1988): “The Creator” Coole (2005): “Agentic capacities”
K. Machine metaphor. Dominant metaphors: machine, robot, clock, computer, the “bit/byte” **Exemplars** Dawkins (1977): Humans are “giant, lumbering robots” Newton: Universe is “a vast machine working under mechanical laws” (quoted in Panek 2000 p 103) **Critique** (Frankl 1985 p 157): “Psychiatry tried to interpret human mind merely as a mechanism”	**K. Light and water metaphors.** **Exemplars** Lao Tzu (Zhengkun, 1995: 159): “the Tao is to the World/ what the river and sea/ Are to the countless streamlets” Fox & Sheldrake (1996 p 51): “The water’s in the fish & the fish is in the water…” Ring (2000): “ light”

While the explicit focus in Table 2.1 is at the paradigmatic and worldview levels, the other three levels of CLA are involved. Within the mechanistic paradigm, at the litany level the material is valorised, and the spiritual and subtle denied (Table 2.1—A). At the system level, the scientific method valorises reductionist and dualistic approaches to knowledge production, while downplaying meaning, purpose, and the holistic and the receptive modes of consciousness (Table 2.1—B, C, I). The exaltation of the individual and rejection of the transpersonal (Table 2.1—G) constitutes part of the narcissistic thrust of Western individualism, at the social level. The valorisation of linear temporality over a non-linear perspective of time (Figure 2.1—D) also reflects the values of Western society, while drawing from its epistemic foundations (levels 2 and 3 of CLA). The privileging of verbal/linguistic and mathematical ways of knowing at the expense of the ineffable and affective modes (Table 2.1—E, F) is reflective of multiple levels: the insistence that the written word is more valid than inner knowing (the litany), the detachment of scientific method (system), and the mythology of the detached scientist (mythological). The valorisation of the patriarchal and suppression of the feminine (Table 2.1—H) spans the system, worldview and mythic levels. Mechanistic science's tendency towards atheism and rejection of the numinous realms spans the litany and the mythical (Table 2.1—J). Finally, at level four of CLA the valorisation of the machine metaphor within the mechanistic paradigm is contrasted with the dominant metaphors of water and light in mystical spirituality (Table 2.1—K).

I now address the paradigm-related concept of ways of knowing.

2.4 Ways of knowing

Ways of knowing (Broomfield 1997; Inayatullah 2002a; Pickstone 2000), mediated by historical, civilisational, and paradigmatic factors and ultimately levels of consciousness, have markedly affected the development of science, and in turn scientific conceptions of intelligence and consciousness. This was indicated in Figure 2.2.

My argument is based upon a distinction between critical/rational and mystical/spiritual ways of knowing. However these two categories can be further broken down into more specific types, as indicated in Figure 2.3.[11]

Here, I briefly outline these seven major ways of knowing.

[11] These categories should not be seen as distinct and inseparable. In regard to critical rationality, Pickstone's (2000) three dominant ways of knowing in science are interdependent. Further, all of these involve the final two categories—mathematical and rational/linguistic intelligences. For example Galileo, Kepler and Newton all employed mathematics to complement their experiments and observations (Hawking, 2003).

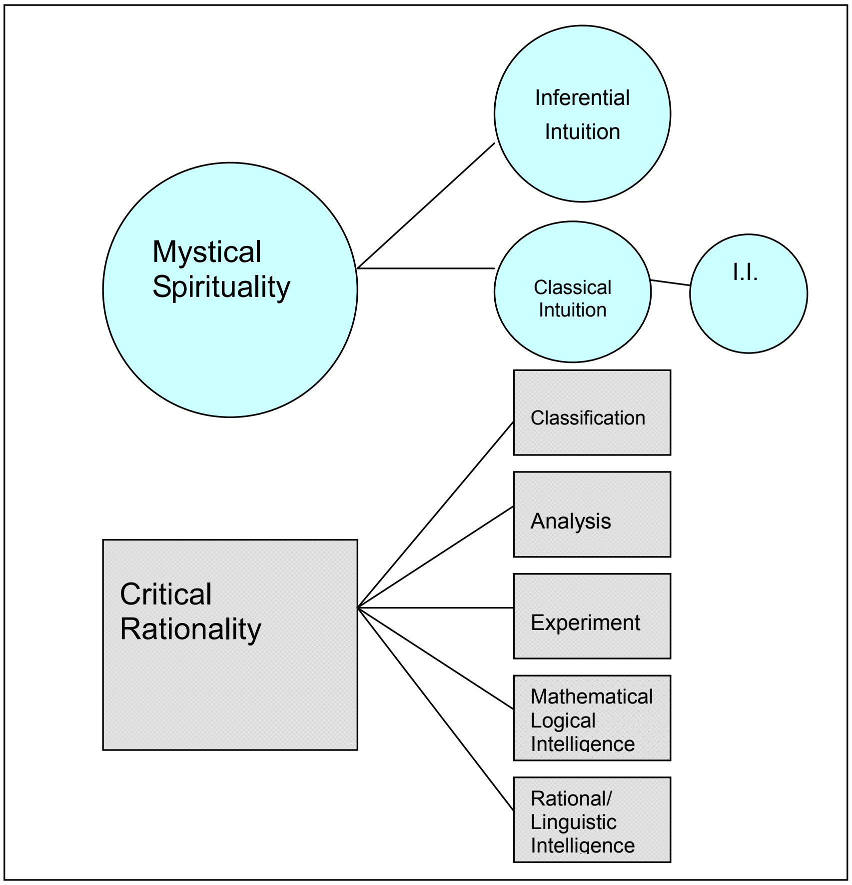

Figure 2.3: Critical rational and intuitive ways of knowing and integrated intelligence

Mystical/spiritual ways of knowing

Inferential intuition is mundane intuition. Torff and Sternberg (2001a) define intuitive intelligence as a form of implicit knowledge, or "knowledge structures that individuals acquire and use largely without conscious reflection or explicit instruction" (Torff & Sternberg 2001a p vii). As Ben-Zeev and Star (2001) argue, such 'intuitions' contain a barely-conscious reasoning process. Inferential intuition is a 'rational' construction, and incorporates no mystical components. It differs radically from classical intuition, such as that of Spinoza and Bergson, which holds that intuitions are metaphysical, a priori and antithetical to reason (Ben-Zeev & Star 2001 pp 31, 51). Integrated intelligence is therefore consistent with the classicalist position.

Critical/rational ways of knowing

The argument that follows builds upon Pickstone's (2000) three-tier model of rationality, with the addition of Gardner's (1993) generalised rational/linguistic and logical/mathematical intelligences.

Natural history is broadly similar to Wilber's (2001) "eye of flesh". Pickstone finds that this "notebook science" employs a way of knowing that is "about describing and collecting, identifying and classifying, utilizing and displaying" (Pickstone 2000 p 60). Its main purpose is to record the wonder of nature, motivated by "a compulsion to identify and collect" (ibid.), and not for functional use, nor to elicit meaning from nature (Pickstone 2000).

Pickstone states that natural history as a way of knowing dominated science beginning around the year 1500, when medieval anatomy texts featured naturalistic figures (Pickstone 2000 p 63) Thereafter, natural science and analysis were primarily responsible for the "massive restructuring" of science, technology and medicine beginning from the late eighteenth century (ibid. p 106). The main driving forces of natural history were "the pride of possession", "intellectual satisfaction", and the needs of "commerce and industry" (ibid. p 60).

Analysis as a way of knowing can be seen in science's analyses of the structures, processes and forms of plants and animals. Analysis also incorporates the earth and social sciences, which began to emerge around 1800 (ibid. p 106). In modern medicine, the proliferation of analysis can be seen in hospital laboratories. Here the components of bodies are examined by post-mortem anatomies or microscopical specimens, by analysis of blood chemicals and bodily tissues, by immunological testing for antibodies, and by electrical sensors (ibid.).

Experimentalism is “about making and displaying new worlds” (Pickstone 2003 p 30). The parallels between experiment and invention are so close that they may be considered the same thing (ibid. p 136). Experimentalism emerged around the mid-nineteenth century (ibid. p 30) and has broad similarities to Wilber’s (2001) “eye of flesh”. As Pickstone states, experimentalism “concentrates on the creation and control of novelty” (ibid. p 136). An example is when Pasteur designed bent-drawn-out necks on his flasks, which enabled him to satisfy audiences that he could control fermentation, and to show that fermentation was not a spontaneous process (ibid. p 135).

Moving beyond Pickstone’s (2000) three ways of knowing, I have added mathematics here because of its great significance in the development of the modern world and science. Logical-mathematical intelligence is employed to calculate and quantify mathematical problems, and to examine hypotheses and propositions (Gardner 1993). Western rationalism has been greatly influenced by the development of this intellectual capacity. Ben-David (1964, 1971) sees the scientific age beginning in the seventeenth century, with the coming together of the mathematical tradition of Europe and the experimental and empirical movement in England. Needham finds that “the application of mathematical hypotheses to Nature”, including “the geometrization of space”, was central to the development of science in the late Renaissance (Needham 1969 p 15). Further, the central issue raised by the Copernican revolution was “the right of the mathematical astronomer to make claims in natural philosophy” (Huff 2003 p 345).

Rational/linguistic intelligence is the capacity to use language and words to construct and understand thoughts, ideas and meanings (Gardner 1993). It is a prerequisite for all four other ways of knowing listed here, for even mathematical conceptions require the aid of language to posit questions, conceptions and problems. It appears that consciousness as we understand it is predicated upon language and that the kind of self-awareness that we associate with being conscious would not be possible without the use of language (Jaynes 1990).

Verbs of knowing

How can it be determined which way of knowing a person has employed in coming to a particular theory, perception, insight or conclusion? The answer may be explicit if the individual makes clear the cognitive processes that led him/her to make the said claim. Yet this is often not made explicit.

One means to assist us in determining the ways of knowing used within a text is by the identifying the "verbs of knowing". This process is relevant to two levels of a discourse. Firstly, it can be determined what ways of knowing have been employed by individuals to perceive and communicate their understandings. Secondly, where researchers and philosophers are commenting and critiquing other individuals, institutions, and even civilisations, the verbs that the critic attributes to those they are critiquing can be used to determine the civilisational or paradigmatic biases of the critic. Wilber's (2001) concept of "category error" is particularly relevant here; the employment of an inappropriate "eye of knowing" in attempting to understand knowledge originally gleaned from a different "eye of knowing" may lead to misunderstandings.

Though certain verbs may be used in both intuitive and critical/rational ways of knowing, they may be generalised into two distinct groups. Table 2.2 lists many of the most commonly employed verbs of knowing as used in the literature surveyed in this thesis. Here the verbs have been separated into the two relevant worldviews—critical rationality and mystical spirituality. The middle row of the table lists those verbs which can be applied equally well to both worldviews.

The verbs have been placed according to their most common usage in the texts which constitute the subject matter of this thesis. In the direct quotations gleaned from texts that are referred to and analysed in the chapters to follow, the verbs of knowing—where appropriate—will be highlighted in bold text.[12]

[12] Note: all bold type in quotations throughout the thesis has been added by Marcus Anthony.

Table 2.2: Classification of verbs of knowing according to worldview

Mystical Spirituality	Access Actualise Become aware of Be guided Channel Connect with Contemplate Delight Divine (verb) Dream Empathise Enchant Feel Get the impression of Harmonise Identify with Inspire Intuit Marvel Meditate Perceive Poeticise Ponder Possess Reflect Relate Resonate Reveal (revelation) Sense Surrender Sympathise Transmit Vibrate Vision Wonder
Neutral	Deliberate Discern Distinguish Hear Identify Know Recognise See Sense Understand
Critical Rationality	Argue Analyse Calculate Classify Cognise Collect Conclude Control Count Compare Contrast Criticise Critique Deconstruct Deduce Detect Devise Differentiate Discuss Dispute Dissect Examine Experiment Extrapolate Gather Intellectualise Measure Observe Postulate Question Rationalise Read Reduce Research Study Tabulate Take apart Tell Test Theorise Think Write

Summary

Part Two outlined poststructuralist theory and identified Inayatullah's Causal Layered Analysis as the primary method that is being employed here. I have also introduced the mechanistic paradigm, elicited its most defining features, and contrasted these with their counter-features within the mystical/spiritual worldview. It has been shown that there are clearly divergent worldviews/paradigms involved.

I now turn to a secondary theory and method which will form a significant part of the analyses ahead. These are transpersonal theory in general and Ken Wilber's Integral Theory in particular.

Part Three: The Transpersonal Perspective

In synthesis with the poststructuralist theory and Inayatullah's CLA, I will be employing transpersonal theory as both a theory and an analytical tool. The analytical method selected is Wilber's (2000a, 2000b, 2000c, 2001) Integral Theory, also known as the Four Quadrant Model.

2.5 Transpersonal theory: Wilber's Integral Theory and the Integrated/Fragmented Mind Model (IFM model)

The field of transpersonal psychology is the contemporary Western field that most closely deals with the extended mind and integrated intelligence. In this section a definition of transpersonal psychology is given. Transpersonal theorist Ken Wilber's

Integral Theory is outlined, as is my own construct of the Integrated/Fragmented Mind model (IFM model). I then outline several relevant problems related to transpersonal theory.

Transpersonal theory emerged against the background of the humanism of the mid-twentieth century, which denied the inner space of human experience (Ferrer 2002). The field is “concerned with the study of humanity's highest potential, and with the recognition, understanding, and realization of intuitive, spiritual, and transcendent states of consciousness” (Boorstein 2000 p 409). Transpersonal psychology is founded upon research into “unity consciousness” (Friedman 2005) and experiences of the transcendent and divine. It is strongly influenced by Eastern mystical traditions (Tarnas 2000). As I shall outline in Chapter Three, the transpersonal movement is a component of the alternative culture movement which emerged in the USA in the 1960s, and elements of which became the New Age movement in the present day. In turn, this can be traced back to the Romantic movement of the nineteenth century and the mystical traditions that have existed throughout Western civilisation since the time of the ancient Greeks (Tarnas 2000).

My focus is not so much the validity of transpersonal theory, but upon employing it as an analytical method to shed light upon mainstream dominant models of mind and intelligence, as a complement to Inayatullah’s CLA.

Wilber’s Integral Theory

Wilber’s (2000a, 2000c) Integral Theory specifies four domains of general human inquiry. The model is given in Figure 2.4, below. The four quadrants incorporate the individual, collective, interior and exterior aspects of perception, of the universe. Wilber’s argument is that none of the quadrants should be reduced to another. This includes the subjective, inner perceptions of the upper left being reduced to the exterior materialism of the upper right—a process endemic within contemporary psychology and consciousness theory (Wilber 2000a).

	Part (Individual)		
Interior (Subjective)	Consciousness ▪ Feelings ▪ Meanings ▪ Desires ▪ Beliefs	Physical Universe ▪ Nature ▪ Body ▪ Organs ▪ Cells ▪ Behaviour	**Exterior** (Objective)
	Culture ▪ Belief ▪ Goals ▪ Meaning ▪ Values	Societally Structured ▪ Behaviour ▪ Infrastructure ▪ World system ▪ Structure/function	
	Whole (Collective)		

Source: Slaughter & Bussey (2005), p. 103.

Figure 2.4: Wilber's four-quadrant model

Using Wilber's map, it can be seen that the depictions of consciousness and intelligence in Western texts in the modern era have tended to exclude the subjectivity of the upper left-hand quadrant—the interior/individual. This is the domain of the extended mind, the awareness of knowledge of the psychic and transpersonal as experienced via an inward, 'subjective' focus. In the twentieth century contemporary developmental and cognitive psychology became handmaidens to neuroscience (Maddox 1999), which focuses its attention upon the top right-hand domain—the exterior individual (Wilber 2000a).

The model is hierarchical; there is an outward and upward thrust of the evolutionary forces of the "Kosmos". Wilber's Kosmos has an intelligence/ consciousness and evolutionary imperative of its own (Wilber 2000c).

Yet Wilber's model fails to adequately distinguish between two fundamentally distinct interior cognitive processes. This mirrors the distinction between the personal and the transpersonal. Descartes' self-conscious "I think therefore I am" is a prime exemplar of the former. It is a philosophical and intellectualised experience of the interior realms, identification with the contents of mind. There is a marked difference between his interiority and that of the mystics. Nisargadatta's (2001) "I am that" moves beyond identification with ego and mind content. As Wilber states, the enlightenment philosophers merely intellectualised the transrational realms, while the mystics experienced them directly (Wilber 2000c). I have therefore modified Wilber's model in the way shown in Figure 2.5 (below), by differentiating the personal interior subjective and transpersonal interior subjective cognitive realms.

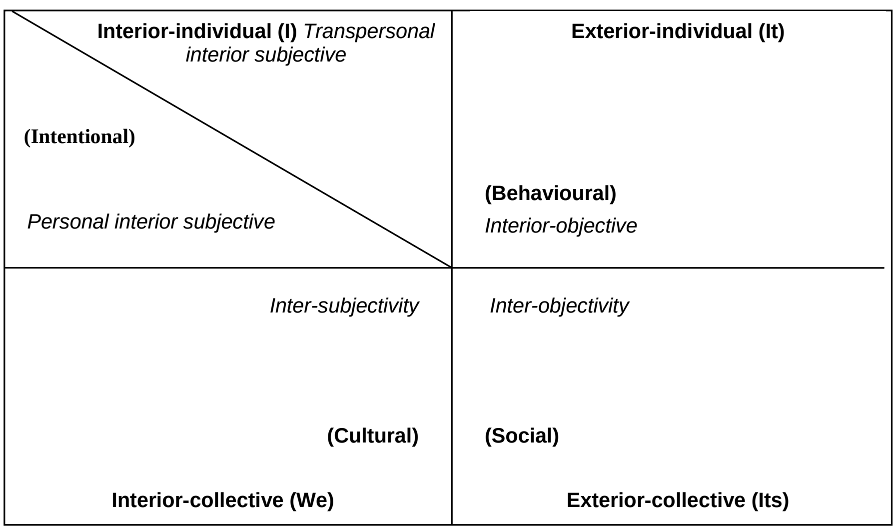

Figure 2.5: Wilber's four-quadrant model (modified) with differentiated upper-left quadrant

This modified model permits a clarification of ego-based subjective modes of cognition, and the transpersonal modes. Although there may be some argument that domain two integrated consciousness—the psychic and numinous realm—is a personal subjective experience, I have incorporated it into the personal interior subjective domain. This is consistent with Wilber's (2000b, 2000c) theory of consciousness evolution, where the psychic is seen as a lower level of transpersonal development.

This expanded model will be used as a means of analysing and situating the various theorists in intelligence theory, consciousness theory and mind science in general throughout this thesis. Wilber's theory will be the object of analysis in Chapter Seven; I will not examine its full depth here, as it has been analysed by other critics (Bauwens n.d.; Ferrer 2002; Slaughter 1999).

The aim is to have the two thesis methods form a complementarity. Comparing the two methods, there is an approximate overlap between Wilber's top right-hand quadrant and Inayatullah's litany; the top left-hand quadrant and the mythic/metaphor; the bottom left-hand quadrant and worldview; and the bottom right-hand right quadrant and Inayatullah's system/social level.

There are also differences between these two models; perhaps the most notable is between Wilber's top left-hand quadrant and Inayatullah's myth/metaphor level. Wilber (2000c) rejects the idea that myth is able to activate transpersonal potentials, finding it consistent with lower, prepersonal modes of consciousness. However, not all would agree with this, including Jung (1989) and Broomfield (1997). Finally, Inayatullah's model lacks a comprehensive framework for situating the transpersonal (although it fully permits it), yet has much greater explication of analytical process.

Given the differences, I will not attempt to produce a seamless synthesis of these two analytical tools and theorists, but weave them into the analyses, employing their respective strengths when relevant, in order to achieve a more thorough unpacking of the texts.

Wilber's pre/trans distinction

An important distinction is that between prepersonal and transpersonal modes of consciousness. This distinction is based upon the conceptions of Wilber (2000a, 2000b, 2000c), who argues for a hierarchic developmental model of consciousness evolution for both the individual and the human collective. Within Wilber's model, consciousness evolves from the prepersonal and undifferentiated modes, through rational realms (including the typical 'vision-logic' stage of contemporary humanity), and to the transpersonal modes, incorporating the psychic, subtle, causal and non-duel modes (ibid.). Conversely, he finds that the fusion experiences of indigenous peoples are typically not higher states of consciousness, but evidence of an earlier premodern mode of consciousness, which is prior to egoic and rational modes of awareness. Wilber's position is consistent with Jaynes' (1990) argument that until ancient times, humanity existed within the bicameral mind, the unconscious and conscious minds fused, before developing into the modern conscious and rational mind.

A common tendency, says Wilber, is to fail to make this pre/trans distinction, creating two problems. The first is that transrational states are reduced to prepersonal. This is the case of Freud, in *The Future of an Illusion* (Wilber 2000c p 211). In such accounts, rationality is seen as the ultimate pinnacle of consciousness development (ibid.) The second fallacy occurs when those sympathetic to the concept of the transrational mind elevate all non-rational states to the status of 'higher'. Wilber cites Jung and his followers as a prime example, whereby "indissociated and undifferentiated" states are granted spiritual status, when they lack genuine integration (ibid.). A key distinction according to Wilber's argument is that transrational states incorporate and transcend reason, while the "elevationists" such as the Jungians, Romantics, and New Agers tend to reject rationality as a kind of evil (ibid.).

In contradiction to Wilber's argument, there is some evidence to suggest that domain two integrated intelligence was common in indigenous cultures. For example, both

Lawlor (1991) and Wildman (1996) find that the Australian Aboriginal people exhibited a telepathic relationship with the land, and communicated with spiritual ancestors via dreams and divination. This contradicts Wilber's thesis that in indigenous cultures only the shamans had access to transrational domains; in Wilber's model, the psychic realm is posited at the lower end of the transrational domains of consciousness, not in the prepersonal realms he associates with indigenous cultures and romanticism.

Where Wilber's model will complement and add to Inayatullah's CLA will mostly be at the mythic/metaphor level. For the essence of Wilber's model is the issue of consciousness, and it is at level four of CLA that deeper levels of the psyche and consciousness come into play. Inayatullah's model is not as clear or explicit on this subject, tending to lump all of the workings of the psyche into the one undifferentiated group. While CLA will be the predominant methodological tool used in this thesis, Wilber (and transpersonal theory) will also come into play where finer distinctions are required regarding the human psyche. Figure 2.1 above, depicts this theoretical and methodological interplay.

The Integrated/Fragmented Mind model (IFM model)

The Integrated/Fragmented Mind model follows mystical and transpersonal theory (Ferrer 2000; Gebser 1985; Grof 2000; Wilber 1999, 2000c) which states that there are both rational/ego-based and transrational states of mind driving human evolution. As used here, the term "the integrated mind" features the conscious mind in awareness of its essentially non-localised and universal nature. Concurrent with this is the experience or knowledge of externalised 'influences' on the mind, including mystical, deific, spiritual and stygian.

The term "the fragmented mind" is the state whereby the conscious mind is unaware of its non-localised, transpersonal nature, and exists in dissociation from any genuine awareness of universal or spiritual consciousness. It is characterised by the mind's drive to perpetuate its state of separation, by a need for control and power, and to deny death and impermanence. It is thus equivalent with the more negative drives of the human ego, as often depicted in New Age and transpersonal literature (Grof 1996; Krishnamurti 1987; Milojević 2005; Wilber 1999, 2000c).

The function of this IFM model in this thesis is simple: to identify and situate those depictions of mind that are integrated with a cosmic or transpersonal intelligence, and those that are not.

Criticisms of transpersonal theory

Transpersonal psychology remains outside mainstream psychology. Indeed *The Penguin Dictionary of Psychology* has no entry for transpersonal psychology at all (Reber & Reber 2001). Miell and Thomas' (2003) *Mapping Psychology* is barely any more encouraging, making a single reference to transpersonal psychology in the second volume of the three volume set. The relegation of non-empirical psychology to the status of an aside in mainstream psychology reflects the sheer dominance of the materialist position today—a matter which I shall explore more fully in Part Two of Chapter Five.

Friedman (2005) criticises the field of transpersonal psychology for its "romanticism" and for championing all things related to Eastern thought and mysticism. He claims that transpersonal psychologists need to look beyond a single spiritual tradition to create an expansive discipline. Pleading for restraint in the claims of transpersonal psychology, Friedman states that it is "in its infancy and without the establishment of even the most rudimentary of scientific advances as a field" (Friedman 2005 www.westga.edu/ ~psydept/ os2/papers/friedman.htm).

Ferrer (2000) identifies other dangers of transpersonalism, namely "spiritual narcissism" and "integrative arrestment" (Ferrer 2000 pp 220-222). Ellis (1989) goes further and finds that transpersonal psychology is dangerous because it leads to irrationality and fanaticism, and has dubious potential as a therapeutic tool.

Ferrer (2000) also criticises the experiential approach to transpersonal studies as self–limiting. The problem with the experiential approach, argues Ferrer, is that it generates the dual problems of “intrasubjective reductionism” and “subtle Cartesianism” (Ferrer 2000 pp 217-218). The former is “the reduction of spiritual and transpersonal phenomena to individual inner experiences” (ibid. p 218); the latter is “the understanding of spiritual and transpersonal phenomena according to a subject-object model of knowledge and cognition” (ibid.).

The lack of clear definitions and distinctions is also problematic. Ferrer (2002) finds that transpersonal knowledge has “lacked an adequate epistemology”, and that this has been “deeply detrimental for the legitimization of spirituality in academic and social milieus” (Ferrer 2002 p 10). There is a lack of criteria for determining what valid transpersonal knowledge actually is. This has rendered transpersonal theory “a free-for-all open to any form of metaphysical speculation” (ibid.).

The inner objectivism of Wilber can be seen as a form of structuralism because it attempts to find universal structures that incorporate all mental, social and cultural variables (Ferrer 2002 p 96). These consistent structures are seen as more primary and seminal than the discontinuous components of cultures and their “artifacts” (ibid.), as human phenomena are reflective of essential structures within the human mind. Significantly, it is Wilber’s essentially structuralist position which permits his claims that the essential structures of consciousness are equivalent to the “Great Holarchy of Being”. This in turn allows Wilber to compare developmental levels of evolution, worldviews and various traditions of spirituality (Ferrer 2002 p 96). Yet the structuralist position has long been considered a highly problematic one (Ferrer 2002 p 96-97).

Ferrer (2002) accuses “most transpersonal authors” of “working upon unexamined and outdated objectivist epistemological assumptions” (ibid.). He finds the objectivist claims and “inner empiricism” (ibid. p 2) of transpersonalists untenable, problematic, and ultimately self-limiting. Instead, Ferrer prefers a “participatory vision” where there is no ultimate objective ground of being, but a diversity of spiritual paths not dependent upon hierarchies.

Wilber’s theory has other problems. Wilber’s model is a developmental one, and his initial stages of development are heavily dependent upon Piaget’s developmental model—something that Wilber (2000c) acknowledges himself. Yet Piaget’s model has been heavily critiqued and various problems identified. Some researchers have questioned the entire basis of the idea of developmental stages itself. (Sternberg et al. 2003).

Summary

Transpersonal psychology (and the various discourses involving integrated intelligence and the extended mind) does not deliver a clearly-defined epistemology for the idea of either integrated intelligence or the extended mind. There is a requirement for clearer epistemological foundations before these associated discourses can hope to gain greater acceptance within mainstream mind science.

Nonetheless, Wilber’s Integral Theory provides a valuable analytical tool in the chapters ahead. In particular it will assist in determining which variants of, and approaches to consciousness have been included or excluded from the texts and discourses being examined.

From this last discussion the apparent contradiction in the two methods may be noted: the structuralism of Wilber and many transpersonalists, versus the poststructuralism of Inayatullah’s CLA. This tension is the subject of discussion in Part Four.

Part Four: Integrating Perspectives

2.6 Integrated intelligence and poststructural theory seen from each other’s perspective

This section considers how integrated intelligence and poststructuralism appear from each other’s perspective. The following analysis of integrated intelligence is a matter of course, according to poststructuralist theory. Yet I will also turn the tables and subject poststructuralism to the very process that it regularly subjects other discourses to: potential disruption through incorporating the perspective of the other. The purpose here is to identify important epistemological differences, and to shed light upon the strengths and/or weaknesses of these divergent approaches to knowledge.

Integrated intelligence via poststructural theory and postmodernism

Poststructuralist theory explicitly sets out to avoid the valorisation of one perspective above any other (Inayatullah 2002a, 2002b). An aim is to identify the hidden power structures that exist within discourses, particularly at the linguistic level (Foucault 1984). Attempting to discuss potential futures involving integrated intelligence without subjecting them to the rigours of a poststructuralist analysis might recreate the same hegemonic thrust of the dominant discourses being subjected to analysis. This is one of the general weaknesses of cultural/interpretive approaches to the future. One litany is often replaced with another, with the new ideological system privileged over the previous one (Inayatullah 2004b). Such an approach:

> …privileges a model of rationality over other models of rationality and then asserts that one's model is ultimately the real world, while others are primitive and, for reasons deduced from one's own model, should be forgotten (Inayatullah 2004b p 59).

While Inayatullah employs the words "model of rationality" to explain his point, if the term "way of knowing" is applied instead, the effect is the same.

New Age, spiritual and mystical texts tend to downplay the rational, or posit it at a lower level of cognitive development. In the evolutionary models of Wilber (2000c), Gebser (1985), Reanney (1991), Wilde (1993, 2001) and Hawkins (2002), the rational is equated with the fragmented human ego, and reduced to a lesser developmental stage in human evolution. Hawkins (2002) finds that the great minds of science such as Newton, Freud and Einstein reached the highest stages of rational cognitive development, but failed to enter the transrational realms. Similarly, Wilber correlates rationality and the ‘mental’ domains of consciousness with ego-centered, alienated self-consciousness. In Wilber’s (2000c) model, rationality—like all but the final non-dual stages in his transpersonal developmental model—is merely a stepping-stone to enlightenment.

The emphasis upon the mystical does not necessarily exclude the rational or the empirical. Wilber (prolific writer), Hawkins (medicine) and Steiner (PhD) are/were all highly educated men. For Wilber (2000c) the ‘higher’ transrational stages of cognitive development transcend, yet include the levels below them, including the rational. Pearsall (1999), Broomfield (1997), and Sheldrake (2003) all employ statistics taken from parapsychology to back up their truth claims. However, these do not form the basis of their claims, which are founded upon direct mystical experience.

A common criticism of Eastern idealism (the philosophy that the Cosmos is ultimately spirit or mind) is that it reverses the Western episteme’s rendering of consciousness as epiphenomena at the behest of matter. It does this by itself elevating ‘spirit’ to the position of metaphysical ultimate while depicting matter as epiphenomena (de Quincey 1999).

Therefore a potential problem which might emerge if integrated intelligence were to merely replace and suppress critical rationality is that the material and ‘scientific’ might be denigrated. The religious/spiritual might be valorised at the expense of scientific and analytical knowledge (as was the case in medieval East and West). The litany of the ‘rational’ has simply been replaced by the litany of the spiritual.

This is a problem in the current Islamic world, according to Freidman (2006), where the volume of books published is much lower than in Western countries. Those books that are published are predominantly religious texts. Friedman finds that the dominance of religion is one of the reasons for the Islamic world’s failure to develop at the rate of both West and Far East in terms of literacy, internet usage, innovation and number of patents registered (Friedman 2006). Here the imbalance of power and obfuscation of certain knowledge forms at the level of the litany manifests in a similar power imbalance at the social/systemic level.

Transpersonal/mystical texts referring to or employing integrated intelligence often downplay social analysis. Commonly, social development is depicted as a stepping stone towards a utopian future. Society and culture are subsumed within metaphysics and the evolution of consciousness (e.g. Broomfield 1997; Moffett 1994; Wilde 1993). According to Wilber, cultures and societies merely reflect the evolution of 'spirit'. Just as individuals evolve into the transpersonal realms, societies evolve collectively, mirroring the evolution of the individual (Wilber 2000c pp 153-157). One exception is Zohar's (1994) text *The Quantum Society*, which employs evidence from quantum physics and mysticism to posit a model for an ideal society.

This highlights the potential abuse of power in a system which might—at the social level—create hierarchies of power with the shaman and clergy posted at the top of the hierarchy, and those with less developed intuitive acuity (including the scientist and the scholar) at lower levels. This has been a common theme in poststructuralist thought, the abuse of power over others via the invocation of the transcendental signified, whether that be religion's 'God', science's laws of nature, or the Enlightenment's 'reason' (Belsey 2002 pp 78-79).

At the worldview level, contemporary mystical texts tend to valorise the East, and neglect the West. This is apparent in New Age literature where Indian, Chinese, Native American and indigenous knowledge is given exalted status (for example, Dyer 1999; Kafatos & Kafatou 1991; and Kubler-Ross 1997). This is also seen in the writings of physicist Fritjof Capra (2000), who has found strong parallels between Eastern mysticism and modern physics. Relating of one particular epiphany while meditating near cliffs in coastal California and looking out to sea, Capra writes how he:

> …suddenly became **aware** of my whole environment as being **engaged in a giant cosmic dance**… As I sat on that beach…I 'saw' cascades of energy

> coming down from outer space, in which particles were created and destroyed in rhythmic pulses; I ‘saw’ the atoms of the elements and those of my body **participating** in this cosmic **dance of energy**; I **felt** its rhythm and I ‘heard’ its sound, and at that moment I **knew** that this was the **Dance** of Shiva, the Lord of dancers **worshiped** by the Hindus (Capra 2000 p 11).

The verbs of knowing (bold type) reveal a strong participatory transpersonal knowing. However it is ultimately the invocation of Hindu mythology that establishes the validity of the experience for Capra. In Chapter Seven I show how Broomfield (1997) and to a lesser extent Zohar (2000) employ similar validation processes in their mystical texts.

While such a validation process may deliver certain forms of intuitive knowledge generally denied in the modern West, the danger is that it may also sublimate the critical/rational ways of knowing that have led to so much scientific, material and technological progress in the West. This would occur if the mythological was placed above the critical/rational, such that the latter would find acknowledgement only if ‘verified’ via the former. As Wilber (2001) clearly indicates, different ways of knowing have their relevant domains of knowledge, including their strengths and limitations. The attempt to apply the inappropriate “eye of knowing” to phenomena outside of its legitimate domain of enquiry results in “category error” (ibid.). Yet the reverse is also possible. Attempting to apply strictly mystical insight to solve technical problems in physics is equally invalid. This is a potential problem in social structures where power remains in the hands of mystics.

One can continue with such a critical process and suggest further potential abuses of power in discourses and societies where integrated intelligence is implemented. The key with critical futures is that one hegemonic power structure is not merely replaced by another. Rather the processes of critical futures questioning should continue unabated, so the future will remain open and negotiable (Inayatullah 2004c).

In reference to level four of CLA (the myth/metaphor level), there is a typical employment of myth as a valid way of knowing in much transpersonal, New Age and spiritual literature, as has been noted above. This poststructural analysis of transpersonalism and integrated intelligence provides some lucid insights. These insights are unlikely to be attained within a strictly New Age/mystical episteme or methodology, where the givens of the discourse typically remain unaddressed.

It should be noted, however, that certain transpersonal theorists have been influenced by postmodernism, and are more reflective of the inherent problematics of their discourse. These include Wilber (2000c) and Ferrer (2000, 2002).

Poststructural theory and postmodernism via integrated intelligence

Postmodern and postcritical thought can also be examined from the mystical/transpersonal perspective of a cosmos evolving from pre-rational, to rational, to transrational modes of consciousness. Although the postmodern stance is explicitly critical of all paradigms and metanarratives (Belsey 2002, Inayatullah 2002a) it is itself implicitly a worldview and metanarrative, and may be critiqued (Tarnas 2000).

For Wilber (2000c, 2001) and Tarnas (2000), postmodern thought is an inevitable phase of human consciousness development. It is the point where pure objectivism and scientism is brought into question, where the rationally constructions of modernity begin to break down under deeper questioning and more expansive data—especially from quantum physics and systems theory. For Tarnas (2000 p 355) this represents “the crisis in modern science”.

From the point of the view of the IMF model, postmodern thought is the phase of dissociation where the detachment of the scientific method evolves into the dissociation of signifier and “the real”—where the real still remains unseen behind “sliding chains of signifiers” (Wilber 2000b p 163). The postmodernist does not make the shift from critical rationality to the observer/object fusion of transrational perception, and is still Murinbata’s “talking head”, an individual whose intellect is dissociated from body and soul (Murinbata

& Whitehead 2002). The way of knowing—essentially analysis via verbal/linguistic intelligence—is an inadequate means to access the deep knowledge of the mystic.

Postmodernism is thus head-centred, a perspective which implicitly valorises the brain-centric approach to consciousness and intelligence that is typical of Western science. The idea of an integrated intelligence, where self extends not only beyond the head but beyond the individual, threatens the very basis of the poststructuralist stance that we construct our cultures, identities and perceptions via language, via signifiers (Belsey 2002; Tarnas 2000). It challenges the poststructuralists' insistence that there is no transcendental signified that we can intrinsically know, that the space between the knower and the known cannot be bridged.

Poststructuralism therefore represents the limit of the Cartesian split. This valorises the European Enlightenment and the skepticism of the modernist mind, but moves into an even deeper and more radical skepticism (Tarnas 2000 p 399). Critical/rational ways of knowing remain dominant, while the intuitive and mystical remain as 'the other' in the sense that the mystics' knowledge is able to be included only at a theoretical level, and not at an experiential one—far removed from the place and means of production. As Tarnas notes:

> Postmodern philosophers can **compare** and **contrast** , **analyze** and **discuss** the many sets of perspectives human beings have **expressed**, the diverse symbol systems, the various ways of **making things hang together**, but the cannot pretend to **possess** an extrahistorical Archimedean point from which to judge whether a given perspective validly represents the "Truth" (Tarnas 2000 p 399).

From the verbs of knowing it becomes clear that the ways of knowing of the postmodernists are those of critical rationality. The *possessive* knowledge of the mystics is precluded by the self-obfuscating limitations of the postmodernists' methods.

Poststructuralism is a body of theory with little to say about comprehension/ perception of 'the real' in an intrinsic sense. Belsey (2002 p 56) points out that the key term in poststructuralism is “difference”. It is suspicious of absolute truths, preferring to identify the language and power plays of cultural and institutional control and suppression (ibid.). Belsey goes further to write that for the poststructuralist :

> The issue… is not what exists, but what we can accurately say exists. … poststructuralism is concerned with what goes on in language. Truths (or otherwise) are **told** in language. Poststructuralists don’t (normally) doubt that there is a world: their anxiety concerns what we can claim to know about it with any certainty (Belsey 2002 p 71).

In this sense poststructuralism has no capacity (or claim) to determine the validity of the often ineffable knowledge claims of mystical (or other) insight.

According to the poststructuralists, language shapes the world and our perception of it, and we cannot claim that knowledge is referential; rather it is differential and colours our perception of the world (Belsey 2002; Foucault 1984). There is therefore a limitation in that poststructural thought has no adequate means of analysis for truth claims that are transrational and ineffable. For if a perception contains no language, the poststructural maxim that perception is a function of language breaks down.

In contrast, mystics often claim a foundation of transrational, ineffable knowledge accessed only after prior knowledge structures have been released, or rationality has been transcended (e.g. Bucke 1991; Gebser 1985; Hawkins 2002; Watts 1989; Wilber 2001). Thus, the mystics and the poststructuralists generally share the same observation: the inherent limitations of language as a foundation of ultimate truth. Yet mystics move beyond this position to make the claim for transrational, affective, visual and sometimes ineffable knowledge structures which are accessible to those trained in the proper methods (ibid.)

This is expressed with the divergent representations of knowledge posited by the mystic Edwin Bucke (1991), and the poststructuralist Belsey (2002) in the quotations at the beginning of this chapter. Belsey finds that the poststructuralist position can make no final truth claims (“undecidability”); yet Bucke writes in the deep poetic and affective mode of the mystic (“exaltation”, “immense joyousness”, “Brahmic splendor/bliss”, “love” and “happiness”), speaking of “knowing” (“he saw and knew”) ultimate and metaphysical truths.

Further, as the literature from parapsychology indicates, such knowledge structures are often experienced by those with no training at all in the mystical—as is the case with near death experiences (Ring 2000; Sutherland 1995), exceptional human experiences (White 1998; Kennedy 2003) or extrasensory perception in general.

Mystical theory generally maintains that direct knowledge of ‘the real’ is accessible, and that in this sense there is a ‘transcendental other’. For mystics such as Gebser (1985), Hawkins (2002), Reanney (1991), Tarnas (2000) and Wilber (2000c), this fusion of self and other comes only at transrational stages of cognitive and collective development, or where the human intellect has reached its limit. For Tarnas (2000), the destabilisation of knowledge structures in the postmodern era is precisely what has been needed for the emergence of a new vision which will “preserve and transcend” (Tarnas 2000 p 402) postmodern differentiation and aperspectivism. This destabilisation is what has permitted the inclusion of the multiple perspectives which will carry us forward (ibid.).

In this sense, the postmodern and poststructuralist position and its preferred ways of knowing are seen as a developmental stage in human cognitive evolution, to be transcended in time. This is where transpersonal and mystical theory has the potential to take knowledge beyond the limitations of poststructuralist and modernist theory. With integrated intelligence the knower and the known form a unity, and entire vistas of knowledge and experience are opened to the knower.

The poststructuralist position is therefore an overtly European perspective, valorising critical rationality and the intellect of the fragmented mind. The mystical knowledge of indigenous cultures and the East is not included at an experiential level. Further, the transrational and translinguistic foundations of mystical experience bring into question the legitimacy of the poststructuralists' insistence that it is language which is the prime shaper of perception.

Poststructuralist theory permits some valuable critique of mystical spirituality and integrated intelligence, and in turn mystical spirituality and integrated intelligence provide important insights into the constraints of postmodern thought. Commenting upon epistemes and the long-term future, Inayatullah writes:

> The best tack then is to develop a complex knowledge base of the future that is data, value and episteme oriented, that is thus inclusive of structure and agency, at individual, national, civilizational and planetary levels (Inayatullah 2006, www.metafuture.org).

Inayatullah highlights the danger in exclusivist interpretations of the future. Poststructuralism warns us that our knowledge boundaries may be restricted due to unexamined epistemic and paradigmatic givens; and in turn our discourses may become hegemonic unless we make conscious reflection upon the epistemic foundations of knowledge (ibid.). Further, the analysis of postmodern thought provided here via the disruptor of mystical spirituality indicates that the same applies equally to postmodernist thought itself.

In the final part of this chapter I identify some further limitations of the methods and thesis in general.

Part Five: Limitations

2.7 Limitations of the methods and the thesis in general

Comparing and contrasting thinkers and schools from different eras is problematical. There is the possibility that the reviewer will interpret past texts in the light of his/her own worldview, and fail to consider important differences in method, culture, or consciousness itself. For example, the understandings and the worldview of Chinese mystic Lao Tzu (who lived some 2600 years ago in rural China), are vastly different from those of transpersonalist Ken Wilber (2000c), living in the present age. This is despite the fact that they both exhibit a mystical worldview. Jaynes (1990) argues that ancients such as Lao Tzu did not posses a differentiated consciousness, but lived in an egoless mental state directed by the auditory hallucinations of the "bi-cameral mind". If Jaynes's thesis is correct, attempting to interpret Lao Tzu's understanding as a product of a considered and introspective modern mystic is as invalid as Jiyu's (1998) attempt to depict it in line with the assumptions of the Marxian dialectic. The analytical tools of poststructural thought (Inayatullah 2002a) can help to disrupt such tendencies, but cannot guarantee any true impartiality. They can only make explicit the worldview of the interpreter. In my own case, I have a written a prelude at the beginning of this thesis which outlines my own personal values and perspective on the thesis subject matter.

Another major challenge is the impossible task of making a complete map of all thinkers, schools and developments within all the disciplines covered within this thesis. This is because of the sheer weight of research being carried out in each field. These fields include intelligence theory, various schools of psychology (transpersonal, positive, humanistic, cognitive, developmental, behaviourist and parapsychology), education, mysticism and spirituality, consciousness theory, systems theory, quantum physics, deep ecology, genetic biology and evolutionary theory. What I aim to achieve is not an exhaustive coverage of all these disciplines, but an unveiling of a cross-section of a theme (integrated intelligence) across these several fields, in order to offer dissent to the dominant discourse. The nature of futures studies is such that a cross-disciplinary approach is arguably the best means to uphold its inclusive nature.

The diversity of the fields themselves leads to the difficulty of attempting to gain a competent understanding of them all without misunderstanding or misrepresenting them. As an example, the comprehension of the abstract conceptualisation of quantum theory and its quantum logic (Clarke 1995) and the transrational knowledge of mysticism require completely different ways of knowing.

The different approaches to history and knowledge explicit within the scientific, philosophical and mystical discourses create a problem in terms of comparison and contrast. How does one analyse these disparate approaches without valorising the constituents or worldview of any of them, as is the common objective of poststructuralist discourse (Inayatullah 2002a)?

Inayatullah (1999) identifies several problems inherent within comparative methodologies. While his analysis refers specifically to situating the work of Indian mystic P.R. Sarkar, it is equally applicable to comparative approaches in general, such as that used in this thesis. Firstly, the comparative approach is ahistorical, with the possibility that two different worldviews/paradigms will be merely compared with one another at one particular temporal location (Inayatullah 1999). Secondly, the units of analysis become problematic (ibid.). Is integrated intelligence a cognitive modality, a theory of evolution, a new paradigm (or an old one), or a philosophical tradition?

The categories that are selected for comparison will inevitably be an essential component of cosmology and discourse (ibid.). In terms of this thesis, categories such as ways of knowing (including types of intelligence), paradigms, and even discourses themselves are relatively recent Western concepts. This means that the selected categories are implicitly problematic because they constitute a component of the structure of the given discourse (ibid.). There is thus the potential of constructing a taxonomy:

> …which effectively simply compares not two cosmologies with each other, but the given cosmologies with the silent cosmology that the categories chosen are themselves embedded in… (Inayatullah 1999 www.metafuture.org/sarkar/understanding_prout.htm).

Consistent with the poststructural perspective of Foucault (1984), in this thesis I will analyse the underlying power structures of dominant Western scientific discourses and identify significant hegemonies. Yet the limitation of this approach is the inevitable invalidation of the truth claims of the texts being examined. Therefore it also undermines the claims of spiritual and mystical discourses to provide a framework for meaning, and insight into a purposeful universe—or a meaningful future for humanity. Foucault, for example has often been criticised for his rejection of agency (Coole 2005). Coole is even more critical of postmodernism and postcritical theory's claims that:

> …subjects are too unstable or fragmented in their identities, too opaque in their self-knowledge and too nonrational in their thinking to sustain personal commitments or collective identifications; that there is no essential inner self, repository of freedom, will, identity or autonomy; that subjectivity is merely an effect of power or performative iteration; that history has no overall meaning or direction (Coole 2005 p 126).

Such a method creates an inherent dilemma when attempting to allow for the inclusion of integrated intelligence into any vision of a future society or education system. Agency is a prime conception within spiritual and mystical texts, as well as other fields which incorporate integrated intelligence. How can we incorporate integrated concepts of mind and cosmos when the method of enquiry renders its central conceptions illegitimate? This is part of the dilemma of the 'relativism' into which postmodern thought often degenerates (Wilber 2000c).

Nonetheless, I attempt to move beyond this limitation of poststructural theory and posit suggestions and possibilities for the ways in which integrated intelligence might benefit Western education, society and research in the future (Chapter Eight and Conclusion). The poststructural/mystical tension will remain unresolved, in line with the view that futures should remain open, uncolonised and negotiable.

Finally, while this thesis can make statements about the possible and probable futures of science, consciousness, education, and so forth, it cannot do so in any way that might be conceived of as empirical. The future, by its very nature, is nebulous and immeasurable, a field of potential and possibility, but ultimately unknowable.

2.8 Conclusion

In this chapter I have outlined the key theories and methods of this thesis. These were depicted, along with the subjects of analysis, in Figure 2.1 early in the chapter.

I employ a critical futures approach, with Inayatullah's CLA and its four levels as the main tool of analysis. The primary goal is to identify the explicit and unconscious power plays and givens of dominant discourses in mind science, education and society. This is to find the means by which integrated intelligence has been excluded from these discourses. An alternative future will be posited, with integrated intelligence and mystical spirituality acting as disruptors to the status quo. In addition, transpersonal theory (and in particular Wilber's Integral Theory) will constitute an important secondary theory and method. They will be used to analyse various discourses, and help constitute the implicit tension between the two epistemological approaches. In short, this is futures studies in the disruptive mode, and dissent is central.

The deeper analyses will begin in the next chapter, with a long-term perspective on the thesis problematique.

Chapter 3: The Epistemic Perspective: A Genealogy of the Western Rationalist Hegemony

3.1 Introduction

> But Helmholtz abhorred the mush of the Romantic. His mathematical treatment of the principle (of conservation of energy) coldly placed the emphasis where it has been ever since: there are no outside forces in our closed world of energy transformations. There is no corner in the stars for any god, no crack in this closed universe of matter for any Divine influence to seep through, none whatever. Julian Jaynes (1982 pp 437-438).

Before I outline the relevant debates in the following chapters, it is necessary to take a step backward in time. This will enable a more distanced perspective of the current science, consciousness and intelligence discourses.

The following figure (Figure 3.1) illustrates that, with each succeeding chapter, the focus narrows. The movement is from the epistemic/civilisational perspective, towards an eventual analysis of individual texts. Then, with the final chapter (eight) the focus expands, and analysis is supplemented with futures visioning.

The focus of Chapter Three can be appreciated from Figure 3.2, which reproduces the schemata of Figure 2.1 in the previous chapter.

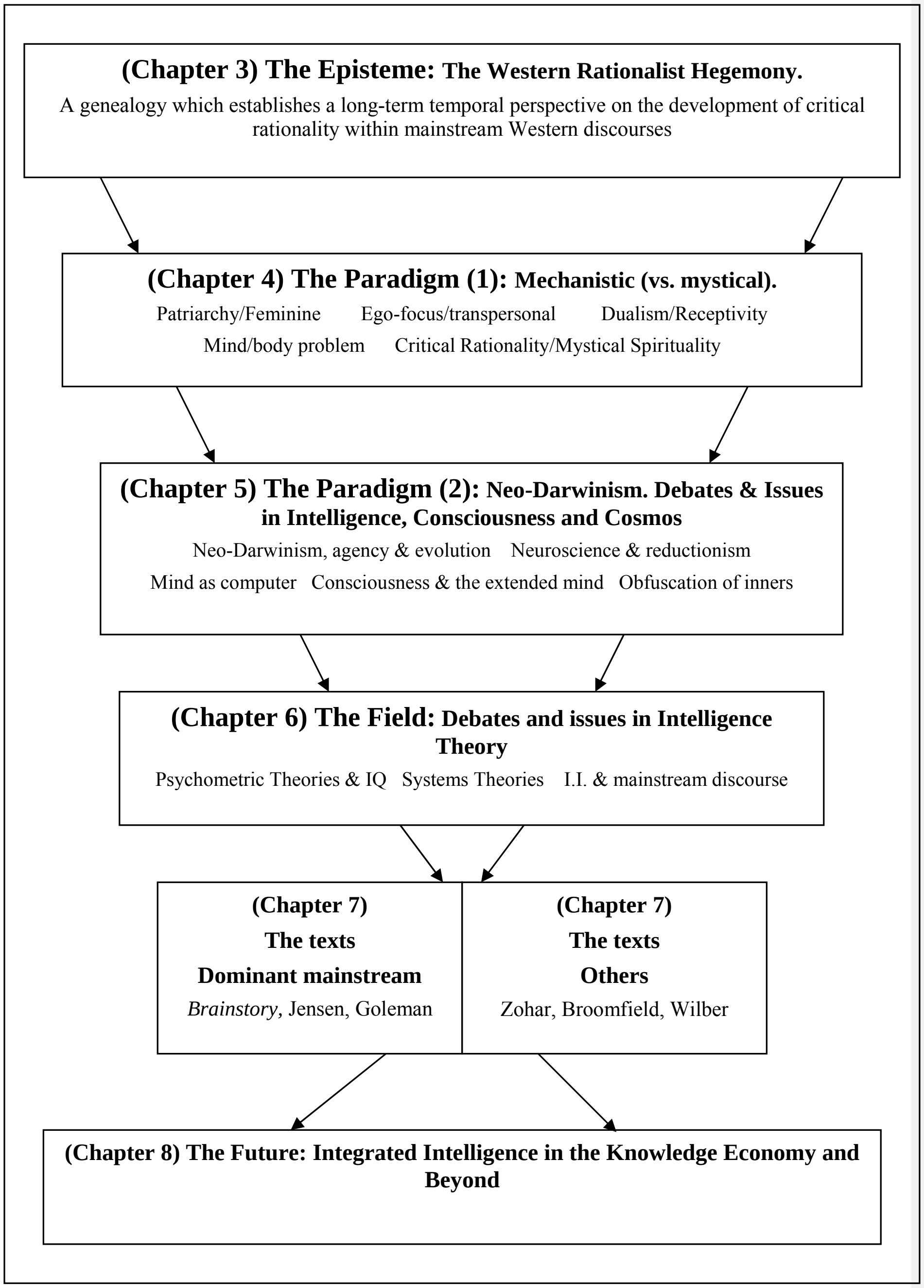

Figure 3.1: The focus of this and following chapters

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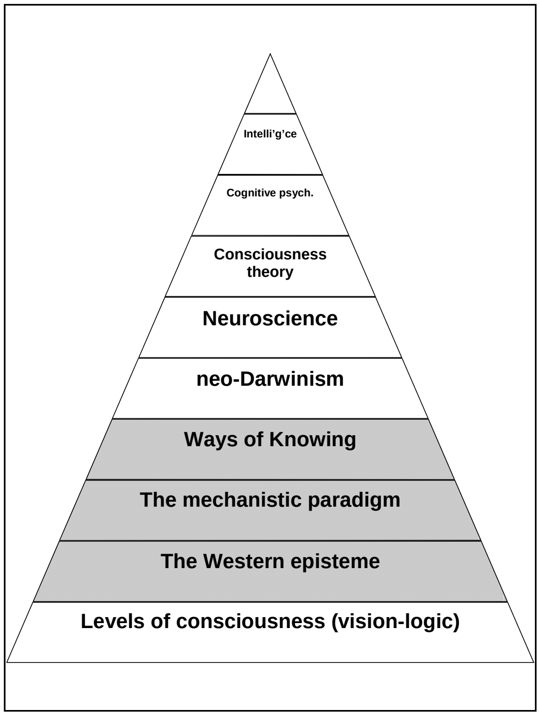

Figure 3.2: The focus of Chapter Three

In this chapter I will outline the defining moments within the development of the Western episteme which relate to its current dominant mind science. I shall trace the development of the Western mechanistic worldview and its preferred critical/rational ways of knowing, from the ancient world to the present day. The following historical analysis clarifies the ways in which the current mainstream discourses on mind are reflective of various non-objective events and factors, including subtle and overt struggles for power.

Conceptions of consciousness and intelligence have varied greatly within and between cultures and historical periods. The preferred ways of knowing have also shifted. There are both continuities and discontinuities. With fields as vast as those discussed below, critical selections have been made in order to keep the analysis focused. I discuss only the most important events and factors.

Each of the key events within this genealogy will be referred to as "seminal moments/events". I will identify the effect of these upon the key way(s) of knowing within the given time, culture, or discourse. The cumulative effect of these events has been a slow but hegemonic process within Western civilisation resulting in the establishment of the current dominant critical/rational worldview. Mystical/spiritual ways of knowing have become increasingly obfuscated as a result. This hegemonic process constitutes the Western rationalist hegemony.

Summary of the argument to follow

I begin with an outline of the distinctions between three broad types of worldviews: critical rationality, textual spirituality, and mystical spirituality. These underpin the argument in this chapter. In Part One, the genealogy begins with an analysis of the interplay of mystical spirituality and critical rationality in ancient Greece. In section 3.3 I shift focus to the early middle ages, where the role of Christianity is considered. I emphasise the influence of Augustine in downplaying both critical rationality and mysticism. There is then an examination of the Christian rejection of mysticism; and the development of a textual bent to Christian thought, especially with scholasticism and Protestantism. In section 3.4 I detail the rebirth of Aristotelian thought (and the university) in Europe in the early second millennium, and its influence on critical rationalism. Section 3.5 then focuses attention on the scientific revolution and the Enlightenment, including the fathers of modern science, and the rationally-minded empiricists and philosophers of Britain and Europe. In particular I consider the beginnings of experimental ways of knowing and new technologies. Section 3.6 addresses the industrialisation of society and the emergence of the secular state and how these helped perpetuate the rationalist hegemony.

In Part Two, I turn to the modern era and how the rationalist hegemony continued in contemporary biology, psychology and intelligence theory. The influence of modern reductionist and molecular biology is highlighted (3.7). This includes the crucial influence of Darwin and the beginning of the neo-Darwinian paradigm. The increasing dominance of reductionism is depicted as crucial in the further rejection of mystical/spiritual ways of knowing. In 3.8 I trace the emergence of modern psychology and intelligence theory. I then outline the significance of early experimental psychology and intelligence theory. Finally I consider the influence of Freud, behaviourism, and neuroscience.

This is not a simple linear history. Dominant paradigm analyses tend to posit the development of the paradigmatic tenets as linear and inevitable—the outcome of ineluctable evolutionary and historical forces (Grof 1985; Kuhn 1970; Sardar 1998, 2000). Postmodernist thought rejects such constructions. Foucault wrote that the present “is the arbitrary result of modernity’s configuration of self-producing forces” (quoted in Shapiro 1992 p 3). Throughout the following, genealogy reference will often be made to ‘the others’—thinkers, philosophers, scientists, schools of thought, and civilisational perspectives that were (or are now) rejected, forgotten or ignored. The identification of these ‘others’ will help establish the validity of Foucault’s claim.

Ways of knowing and the three worldview types

The employment of ways of knowing (Broomfield 1997; Pickstone 2000), mediated by historical and civilisational factors, has significantly affected the development of Western civilisation and science, and thus scientific conceptions of intelligence and consciousness. The essential distinction between rational and intuitive ways of knowing is crucial. Intuitive ways of knowing incorporate inferential and classical intuition (Torff & Sternberg 2001), the latter incorporating integrated intelligence. Conversely, critical rationality prefers to employ classificatory, analytical and experimental ways of knowing (Pickstone 2000), mediated by mathematical/logical and rational/ linguistic intelligences (Gardner 1993).

This chapter takes these ways of knowing and develops the argument that they are reflected in three worldviews central to the development of Western civilisation. These are the critical/rational, textual/spiritual, and mystical/spiritual worldviews. Table 3.1 below, summarises these three types.

Table 3.1: Three significant worldviews in the West

	Critical rationality	Textual spirituality	Mystical spirituality
Ways of knowing	**External/egoic** (exterior objective). Experiment, analysis, classification, mathematical/logical, rational/linguistic intelligences. Inferential intuition as 'lower'.	**External/egoic and internal egoic** (personal subjective interior). Faith is primary. Rational/ linguistic. Some analysis and classification. Text-based spirituality. Transpersonal rejected or feared.	**Internal/trans-egoic** (transpersonal subjective interior). Classical intuition, integrated intelligence. Rational as 'lower'.
Cognitive modalities	Fragmented, conscious mind and ego in control; ordinary states of consciousness.	Fragmented, conscious mind in control, ego may dominate. Ordinary states of consciousness.	Extended mind; transcendence of ego as ideal; non-linear, immediate. Non-ordinary states of consciousness.
Subject/object relations	Subject/object split.	Subject/object split.	Collapse of subject/ object dichotomy.
Divinity/ numinous	Seen as illusion, self-deception, pathology.	Transcendent. Text/faith-based divinity. Numinous distrusted.	Imminent. Divinity may be embraced; or numinous and deific may be downplayed.
Power structures	Individualism. State, corporate, scientific and educational institutions.	Divine, mediated via church, religious institutions, clergy or human authority.	Ego surrenders to Divine/transpersonal. The guru.
Relevant Exemplars	Modernity. Scientific materialism. Atomistic ancient Greeks. Skeptics. Nominalism.	Christianity (Augustine, scholasticism, Protestantism, Fundamentalism).	Christian mysticism, gnosticism, paganism, Romanticism, The New Age/counter-culture.

The genealogy to follow will trace the interplay between these three types of worldview, from the ancient world till the present day. At various times in history different types have held sway over others, and the power balance shifted—often quickly and radically—from time to time. Table 3.2 (at the end of the chapter) summarises these shifts, chronologically positing the most prominent individuals, schools of thought and movements within the three worldviews. The 'event' is written under the worldview of best fit, and where there is overlap with other worldviews this is indicated by the grey shading.

Table 3.1 outlines the nature of the three crucial worldviews. It shows that there are five relevant variables. The critical/rational worldview—by definition—employs critical/rational ways of knowing; textual/spiritual worldviews tend to rely upon textual interpretation and decodification, faith and rational/linguistic ways of knowing; and mystical/spiritual worldviews primarily employ intuitive ways of knowing. Notably, integrated intelligence is employed in the mystical/spiritual worldview, but generally not in the other two.

In terms of cognitive modalities, it should be noted that ordinary states of consciousness mediated by the ego are the preferred cognitive modes for critical/rational and textual/spiritual worldviews, while mystical/spiritual worldviews tend to prefer non-ordinary states of consciousness and transpersonal perspectives. The subject/object dichotomy remains in place in the first two types of worldviews, while spiritual/mystical worldviews feature a collapse of the subject/object dichotomy (Tarnas 2000).

The representation of the Divine and spiritual realms also differs. Critical/rational worldviews see the Divine as delusion or pathology (Grof 2000). Textual/spiritual worldviews tend to intellectualise the Divine, and/or relegate it to a transcendent realm (Wilber 2000c). Spiritual/mystical worldviews focus upon the direct experience/ perception of the Divine as an imminent presence.

The final distinction lies in the mediation of power. Critical/rational worldviews tend to valorise individualism, with the state, corporations and educational bodies also exercising considerable power. Textual/spiritual worldviews tend to place power into the hands of religious bodies and hierarchies, which in turn dictate interpretation of their texts. Mystical/spiritual worldviews generally permit and often encourage individual union with the Divine, with a possible strong mediation of institutional power (such as a monastery or Church) and/or the teacher or "guru".

These categories should not be seen as absolutely distinct. It is difficult to find worldviews that fit precisely into one category without the necessity of some qualification.[13] For example, Christianity is categorised as textual spiritual in nature. Yet Christianity is incredibly diverse, and has experienced considerable changes throughout its history. The conceptions of the experience of the Holy Spirit, illumination through prayer, and the meditative traditions in some schools of Christianity all incorporate strong transpersonal themes.

The aim here is not to develop the interrelationships between these worldviews, but to highlight their differences as a means to appreciating the way integrated intelligence has been included and excluded throughout Western history (Inayatullah 2002b p 55).

These three worldviews will be referred to repeatedly throughout this thesis, but the focus will be upon the interplay of critical rationality and mystical spirituality.

I now commence this genealogy of the Western rationalist hegemony.

Part One: From Ancient Greece to the Birth of Modern Secularism

Attention now turns to an analysis of a broad stretch of history that established the hegemony of critical/rational ways of knowing in the Western world. It begins in the ancient world in Greece, where critical/rational ways of knowing first became prominent.

[13] The mystical, the intellectual and the empirical are not necessarily incompatible. The science/religion separation is a false dichotomy. French philosophe Jean le Rond d'Alembert first posited the argument that science and religion are incompatible in the eighteenth century, and the idea has since permeated much modernist history and analysis (Donnelly 2006). The argument presented in this thesis is that such a separation is unnecessary. My employment of the trichotomy of worldviews used in this genealogy reflects a general thrust in Western civilisation, but does not insist upon the validity of such a separation of worldviews or ways of knowing.

3.2 The interplay of critical rationality and mystical spirituality in ancient Greece

The integration of mundane and Divine space (and thus integrated intelligence) was an intrinsic aspect of ancient cultures such as those of the Greeks (Brumbaugh 1981; Shapiro 1991), the ancient Chinese (Jiyu 1998), the Jewish peoples (Kafatou & Kafatos 1991; Pearsall 1999 p 58-59), and the Egyptian, Indian, and Islamic traditions (Grof 1985, 1994, 2000). Ancient cultures held strong beliefs in gods and various psychic potentials of human beings. Mystical/spiritual ways of knowing included prayer, breath control, meditation, and movement meditation for inducing non-ordinary states of consciousness (Grof 1994).

Competing ideologies in Ancient Greece

The interplay of critical rationality and the intuitive was one of the most notable features of ancient Greek civilisation, an interplay that would recur repeatedly throughout the Western world for the next two and a half millennia. This interplay makes it difficult to strictly separate philosophers and sages of ancient Greece into mystics and rationalists.

The early ancient Greeks and the intuitive and mystical

Ancient Greek culture saw space in vertical dimensions, suggesting some places were more sacred, more Divine than others. There was much less separation between the Divine and the mundane than modern Western cultures permit (Shapiro 1992 p 6). Although the ancient Greeks were fascinated by the physical cosmos, they were not materialists in the modern sense. Matter was considered to be both material and Divine (Tarnas 2000). For example, Thales believed that: “All is water, and all in the world is full of Gods” (quoted in Tarnas 2000 p 19).

Even as the atomists came to increasingly dominate ancient Greek thought, the ideas of Pythagoras stood as a contradiction. Pythagoras’ ideas were as much religious as rational, despite his legacy to the present day being most notable in mathematics (Tarnas 2000). For Pythagoras, nature and the intellect were intimately intertwined via spiritual illumination. Pythagoras and his followers conducted science within a framework permeated by the ideals of the mystery religions, in particular Orphism (Tarnas 2000). The Pythagorean concept of “Harmony of the Spheres” and the Hippocratic “sympathy of all things” reflected a universe premised upon integrated intelligence (Dossey 2001 p 115). Mathematics and astronomy were not conducted in the modernist sense, but were comprehended via an integration of mind, world and cosmic soul (Tarnas 2000).

Plato is a symbolic figure, embodying “the central tension in the classical Greek mind between myth and reason” (Tarnas 2000 p 15). For Plato, ideas were not purely intellectual or logical. They were “transcendent essences” directly accessed, with the potential of evoking “mystical rapture” (ibid. p 41). Philosophical contemplation was an *emotive* faculty, with the philosopher permitting himself to be “inwardly grasped” by Eros, or a “universal passion… to overcome the separation from the Divine and become one with it” (ibid.).

Plato’s method—possibly influenced by the Greek mystery religions (ibid. p 43)—incorporated receptivity,[14] an opening to Divine space. Although Plato’s philosophy was essentially rationalist, the goal of philosophy for Plato was not a logical validation, but the recovery of the soul’s forgotten knowledge of the Divine, the true source and cause of all things. Attempting to comprehend the world without the luminosity of transcendent ideas was a mere attempt to understand shadows, Plato believed. Divine intelligence, not blind chance, ruled the world (ibid.). While Plato emphasised the importance of self-critical logic (ibid.), for him it was the intuitive and Divine that held promise of deepest truth.

Heraclitus (*fl.* 500 BC) claimed that most people did not understand the *Logos* (originally meaning thought, speech or words) and thus lived in a false world of dreams. The awakening of the comprehension of the *Logos* could restore the proper relationship with the intelligence of the universe (Tarnas 2000 p 46). A similar synthesis of rational

[14] The concept of receptivity will be discussed further in Chapter Four (section 4.3).

and intuitive could be found in the ideas of other Greek philosophers such as Thales (*fl.* 585 BC) and Anaximenes (*fl.* 525 BC) (Ross 1993 p 40). These men were practical-minded, and sought understanding through observation, which allowed them to discern the theories of basic elements. However, their worldview was mystically imbued with the idea of a psycho-spiritual sub-stratum (ibid.). Later, Neo-Platonists, especially Plotinus (205-270 CE) in Rome, would epitomise the mystical predilections of these ancient Greeks.

In summary, many of the ancient Greek philosophers held that the cosmos was regulated by a Divine intelligence, and that the human mind reflected this intelligence. The implication is that the human mind was capable of comprehension of this cosmic faculty. Tarnas writes:

> After Plato, the terms *Logos* and *nous* were both regularly associated with philosophical conceptions of human knowledge and universal order, and through Aristotle, the Stoics, and later Platonists, their meanings were increasingly elaborated. As ancient philosophy progressed, *Logos* and *nous* were variously employed to signify mind, reason, intellect, organizing principle, thought, word, speech, wisdom, and meaning, in each case relative to *both human reason and a universal intelligence*… (Tarnas 2000 p 47. Italics added).

The Logos was *a Divine revelatory principle*, which operated within both mind and nature (ibid.). The individual could therefore access universal mind. Inner knowledge of this Divine reason was the ultimate end for the philosopher; that cosmic intelligence both ordered the cosmos, and revealed it. The ancient Greek philosopher was not the critical/rational modern one, but an individual employing the "supreme *rational-spiritual* principle" (ibid.).

The ancient Greek concepts of *nous* and *logos* are perfectly compatible with integrated intelligence, and the latter thus formed an integral part of ancient Greek thought.

The ancient Greeks and critical rationality

There was also a central thrust in ancient Greek civilisation to uncover the 'underlying rational unity and order' of the cosmos. The task included elucidating the *arche*, or the fundamental governing principle and constituent of the cosmos (Tarnas 2000 p 19). This can be seen in Table 3.2 (at the end of this chapter), where the left-hand column (critical rationality) comes increasingly into play after the fifth century BCE.

As Greek thought evolved, the initial representation of a cosmos governed by anthropomorphic entities and Divine intelligence was replaced by a mechanistic representation, and the rudiments of a naturalistic empiricism developed (Tarnas 2000 p 20). Parmenides' (*c.* 515-459 BC) role was significant, with his extreme version of abstract rational logic (ibid.). Yet ironically, Parmenides claimed the source of his knowledge was Divine revelation (ibid.), suggesting further that even for the rationally inclined ancient Greeks, there was often no logical contradiction between the Divine and the rational/logical.

However Parmenides advanced a trend towards both an individualised rationalism and naturalism. In turn, Empedocles and Anaxagoras and then the atomists Leucippus and Democritus would modify Parmenides' monism, constructing pluralistic models with fundamental elements. With the atomists, mechanistic blind chance rather than Divine intervention eventually came to be seen as the driving force of the cosmos (ibid.). Further, there was a general trend towards "individual critical judgment" (Tarnas 2000 p 24), a requirement for critical rationality.

At the height of ancient Greek culture in the fifth century BCE, a "delicate balance" existed between the traditional mysticism and the developing rationalism (Tarnas 2000 p 25). The gods continued to be central to their thought but a meticulous analysis and theory was observable, even in the buildings, sculptures and paintings (ibid.). As the century advanced, the human and mundane became more essential than the Divine. In the second half of the fifth century BCE the Sophists, such as Protagoras, epitomised the increasing rationalism and naturalism. The Sophist ideology was an even more pronounced skeptical pragmatism, with the human intellect, subjective opinion and critical judgment being central (ibid.). Nature was seen as an impersonal phenomenon predicated upon blind chance, and myths were seen as allegorical fables, not revelation (ibid.). This represented “a decisive shift in the character of Greek thought” (Tarnas 2000 p 27).

Socrates and his method

It was at this time that Socrates (469-399 BCE) became influential. As with many other Greek philosophers, Socrates was both rationalist and mystic. Socrates felt he had “a duty to enquire” (Brumbaugh 1981 p 124), and was a man who reasoned through “a rigorous dialogue of intellectual investigation” (Tarnas 2000 p 34). The Socratic method was at heart a philosophical and intellectual process. “The life not tested by criticism is not worth living” he stated (quoted in Tarnas 2000 p 35).

Socrates’ intellectual bent has been well appreciated by modern critics. Brumbaugh writes:

> … throughout Greece his interest in the human self and his spirit of *impartial enquiry* found many admirers who continued his work; and, to the present day, his example reminds us of the importance of *intellectual* freedom, and the right and duty of the individual to engage in *intelligent inquiry* (Brumbaugh 1981 p 124. Italics added).

The Socratic method was a question and answer process, with an emphasis on the status of the individual to challenge the polity of the State, and the consensus of society. It was, argues Clarke (1989), a precursor of modern Western intellectual individualism and the detachment of Western scientific enquiry (Clarke 1989). Socrates tended to employ hypotheses instead of didacticisms (Brumbaugh 1981 pp 126, 129), foreshadowing scientific skepticism.

Yet both Clarke and Brumbaugh fail to properly indicate that the Socratic method was an “illumination” and, indeed, a “spiritual quest” (Tarnas 2000 p 37). For Socrates (as with Plato), the intellect was a “Divine faculty”, and the interplay of the Divine and mundane was central (ibid. p 38).

Despite Socrates’ spiritual predilection, his main legacy has been to exacerbate the rational bent of the Western mind. Thus, Buckley (2001) writes that the Socratic method has been highly influential in education and ways of knowing in the West for more than two millennia, and also influenced Freud’s methods and depth psychology (Buckley 2001). Yet the spiritual component of the Socratic method has been largely forgotten amidst the hegemony of Western critical rationalism.

Aristotle

Aristotle (384-322 BCE) would come to be highly influential just a few decades after Socrates. As is commonly appreciated, Aristotle opposed Plato’s metaphysics, finding that it was the human senses not transcendent realms that could deliver greatest truth (Tarnas 2000). For Aristotle, the world was composed of individual and separate substances, and his philosophy emphasised organic biology. Logic and language were his prime tools. He established the instruments of analysis that would greatly influence the West—deduction and induction, syllogism, analysis of causation; and the distinctions between subject-predicate, essential-accidental, matter-form, potential-actual, universal-particular, genus-species-individual, and quantity, quality, relation, place, time, position, etc (ibid. p 60). Empiricism and logic were the foundations of his knowledge, not intuition as with Plato (ibid.).

Yet as Tarnas points out, there was more than logic to Aristotle’s philosophy, and once again this is often unacknowledged in idealistic modernist Western representations. According to Aristotle, the mind was eternal, Divine and immortal. Aristotle believed in the active intellect via which universal truths could be *intuited*. This intellect was the illuminated human consciousness, yet beyond it. It was only because mankind was able to participate in this “Divine *nous*” that humanity could comprehend universal truths (Tarnas 2000 p 60). Humankind was able to participate with the Divine intellect, setting us apart from the animals. While Aristotle downplayed Plato's Forms, he also found Democritus' atomism inadequate as a means of explicating all domains of the cosmos. Further, there was a teleological bent to Aristotle's philosophy. Like Plato, he felt that there was a *telos*—an end towards which things would ultimately actualise (ibid.).

Though his was a strongly rational philosophy, for Aristotle the cosmos was "humanly knowable" (ibid. p 61) via an integrated intelligence. The source of the knowledge was unknowable, but the knowledge itself perfectly attainable.

It can be seen that there was an increasing rational skepticism in the evolution of ancient Greek thought. For researchers of the modern age, this rational aspect tends to be emphasised at the expense of the Greeks' appreciation of the Divine and intuitive. John Burnett in *Early Greek Philosophy* thus writes:

> It is an adequate description of science to say that it is thinking about the world in the Greek way. That is why science has never existed except among people who came under the influence of Greece (quoted in van Doren 1992 p 33).

Similar examples of simplistic representations abound. Burke argues that Aristotle defined mankind as a rational animal. This has influenced both science and intelligence theory, and has led to an obsession with IQ (Burke, 2001). Gardner Kornhaber and Wake (1996) find that the ancient Greeks helped shape the dominant modern view that intelligence is the capacity for abstract reasoning in mathematics and language. The schools established by Plato, Aristotle and others valorised logic, geometry, and "disputation" (Gardner et al. 1996 p 33). The influence of this system, they find, extended over two millennia and was still powerful in the late 1900s when scientific psychology was being established (ibid.). Meanwhile, de Bono (1986) finds that the Greeks initiated the Western predilection towards rigid linear and sequential thinking processes.

Yet the suggestion that the ancient Greeks were the originators of *merely* rational cognition represents anachronism. The Greeks were as much mystics as rationalists. The evidence I have posited here shows that this is true even of the ancient Greek philosophers most valorised within modernity—Pythagoras, Plato, Aristotle, and Socrates.

Greece was conquered by Rome in 146 BCE, and the locus of European power shifted to the Roman Empire. My focus likewise now shifts to medieval Europe, where two factors in particular—the rise of Christianity and the eventual emergence of a university system—would prove to be seminal in the ongoing hegemony of Western rationalism. Yet the Greek influence would live on.

3.3 Christianity and the suppression of the mystical

Christian thought has been highly significant in the development of ways of knowing in Western culture. Despite the overtly secular nature of modern Western culture, Christian influence still permeates it (Tarnas 2000). Of seminal importance was the development of a text-centred way of knowing, consistent with textual spiritual worldviews (Table 3.1, above). In particular the effects of the 'textual' modes found in Augustinian, Protestant and 'fall-redemption' Christianity (Fox 1988; Ross 1993) are highlighted here.

St Augustine

St Augustine (CE 354-430) was a man who definitively shaped the development of knowledge and ways of knowing in Christendom (Fox 1988; Ross 1993; Wilber 2000c p 372). His was an "otherworldly" philosophy, deriding the body and sexuality as evil (Rohmann 1999 p 33; Tarnas 2000). He also emphasised the limited cognitive capacity of "fallen" man, and the necessity of an authoritative Church structure to facilitate guidance, discipline and sacramental grace (Tarnas 2000 p 146). After Augustine, Christianity became more institutional, juridical and dogmatic (ibid. p 154).

Augustine denied the feminine (a cornerstone of mysticism (Ross 1993) and receptivity), and therefore integrated intelligence. He wrote that: "Man but not woman is made in the image and likeness of God" (quoted in Ross 1993 p 270). Fox (1988) and Ross (1993) find that much of the suppression of the feminine and the destruction of

‘Mother Earth’ in the West originates in Augustinian philosophy. Notably, Wilber (2000c) finds that in the denial of the earth and the body there can be no ascent into transrational realms of consciousness (Wilber 2000c pp 349-354). For Wilber, original sin represents “the stamp of frustrated ascent” and “mythic dissociation” (Wilber 2000c p 372). Like the mystics, Augustine turned inward. Yet unlike the mystics, for Augustine the Divine was otherworldly and unknowable. There was the need for the mediating power of Church, sacrament and the grace of Christ (Tarnas 2000).

Nonetheless, it should be noted that while Augustinian philosophy facilitated textual spirituality, it also stultified critical rationality. For faith—not ‘intellectuality’ or ‘reason’—was the basis for comprehending the deeper mysteries of the cosmos (Tarnas 2000 p 112). There was debate and philosophy, but these predominantly focused upon matters related to the scriptures (ibid. p 113). Intellectual freedom was given over to the perceived greater need for subservience to Church and God’s grace (ibid. p 118). In the wake of Paul and Augustine, Christians also tended to see the physical and biological as prone to the demonic (ibid. pp 141-142). This discouraged the development of natural science and empirical enquiry. The dominance of Christianity in the first millennium can thus be seen as a temporary denouement for the Western critical rationality.

Likewise, early Christian influence was an obstruction to mystical spirituality’s possible inclusion in mainstream Western culture. A barrier was positioned between human consciousness and Divine knowledge structures. This legacy of early Christianity would persist for the remainder of the millennium.

Scholasticism

Scholasticism came to dominate Christian theology from approximately the year 1000, until 1500. Its prime method was the *scholastica disputatio*, whereby faith was subjected to reason via questioning and evidence. Both faith and reason were viewed as emanating from the mind of God. The influence of scholasticism on the Western mind cannot be underestimated: it formed the foundation of all schooling and university education up till the twentieth century (Rohmann 1999 p 353).

With scholasticism a new “intellectual spirit” emerged in Western culture (Tarnas 2000 p 200). The scholastics exhaustively critiqued Aristotle, developed alternative hypotheses, and were quintessentially perceptive, skeptical, and open to change. Their discussions made possible a shift in intellectual climate which helped facilitate “a more empirical, mechanistic, and quantitative view of nature” (ibid. p 201). The idea that the world has a rational and coherent order and is a machine created by a Divine being according to “number, weight and measure” are medieval themes put forward by Christian clerics, theologians, and canonists (Huff 2003 pp 40-41; Nelson 1991). Further, the idea of laws of nature has Judeo-Christian groundings. The mechanistic predilections of later Western science were therefore presaged by similar themes in medieval Christian thought (Huff 2003).

Notably, the scholastics leant heavily on classical philosophers, especially Aristotle, and early Church fathers, particularly St. Augustine (Huff 2003). Copernicus, Galileo, Tycho Brahe, Kepler, and Newton were all products of the procrustean and scholastic universities of Europe (ibid. 344).

Perhaps the most influential scholastic figure was Thomas Aquinas (1225-1274 CE). His impact was extraordinary (Tarnas 2000). Aquinas helped to facilitate empirical enquiry and the beginnings of modern science. For Aquinas, both reason and faith emerged from the same source—the Divine. Therefore, Aquinas felt that through the study of nature and the universe that humanity could move closer to the Divine—nature and spirit were intertwined (Tarnas 2000). Human reason was a God-granted gift, and its employment in understanding the natural world led to a greater understanding of God, and was therefore perfectly compatible with spiritual development. Aquinas believed that the employment of the senses to grasp the empirical was Divine, for from the particular the universal could be known (ibid.). Yet Aquinas denied the claims of Plato and

Augustine that humans could intuitively grasp transcendent ideas directly; Aquinas belived the senses were required to activate man's limited potential for understanding the cosmos (ibid.).

Aquinas thus helped initiate Western natural science and experimentation, for he opened the way for the re-ignition of the Hellenic intellect by reacquainting medieval Europe with Aristotle and his values. The Greek and Christian worlds became united (ibid.).

The role of Oxford's William of Ockham (1280-1349) was also seminal. He sought to undermine the Platonic idea of the human potential to grasp universals and ideal forms. Ockham denied the existence of universals outside the human mind and language. Only individual beings existed, and concrete experience was the only valid basis of knowledge. Ockham's philosophy gave birth to nominalism, destroying the more integrated predilections of Aquinas' theology (Tarnas 2000). With Ockham, the idea of connection between individual and cosmos lost considerable ground.

Although the thrust of their theology was spiritual first and foremost, under the scholastics and Aquinas, the Western rationalist hegemony—initiated in the latter stages of ancient Greece—began to regain momentum. Analysis via questioning, disputation and the requirement of evidential procedures regained a significant position as the preferred ways of knowing. Empiricism, grammar and logic began to replace metaphysics (Tarnas 2000). Aquinas' and Ockham's attitudes downplayed man's potential for intuitive illumination in favour of a more limited sensory modality. This attitude towards the mystical mirrored a longstanding attitude of the Church.

Christianity and the mystical

Frazer (1914) shows that Christianity has strong pagan and animistic roots. Shamanism, visionary experience and prophecy were all apparent in early Christian thought and practice (Sheldrake 1994 p 185). The dualism of Plato and the ancient Greeks was adopted by the early Christian Church, with matter seen as lower and the

Divine as higher. It was an hierarchical system, with humans situated between the angels and the lower animals (Ross 1993).

However, Orthodox Christianity came to discourage mystical experience. It persecuted those who practiced or preached ideas such as the immanence of God, accessibility to Divine intelligence (rather than revelation to the clergy), and pagan and druidic rituals and philosophy (Tarnas 2000). The Church—both Protestant and Catholic—sided with those who found the Divine to be above and beyond (Wilber 2000c).

This intolerance of mysticism was apparent in the Christian rejection and persecution of Gnosticism. Gnosticism was prominent in the early years of Christianity up until about 300 CE. According to the Gnostics, a Divine essence permeated all human souls; despite the fall of man into the corporeal world, the divinity within could be awoken via gnosis, or esoteric knowledge. However, the Church denounced Gnostics as heretics (Bullock & Trombley 1999 p 368). This persecution was also applied to the more "intellectually esoteric and doctrinally unconstrained" forms of early Christianity (Tarnas 2000 p 118), and forced the Church to concretise the cannon of the scriptures and establish a theological creed (Bullock & Trombley 1999 p 368).

Centuries later the Inquisition was established in order to police the dominant Church-centred view of a transcendent God accessible only through the Church. This in part was a response to "an extraordinary wave of mystical fervor (which) swept through much of Europe" in the late thirteenth and early fourteenth centuries (Tarnas 2000 p 197). Thousands of men and women were involved, with their prime purpose to achieve Divine union (ibid.). The centre of this wave was in the Rhineland, and epitomised by the figure of Meister Eckhart (1260-1327), who was criticised and excommunicated for his mystical spirituality. Eckhart's mysticism stands as an example of integrated intelligence, as evidenced by his words: "When I am one with that in which are all things past, present and to come, all the same distance and all just the same, then they are all in God and all in me" (quoted in Chalquist 1997).

The movement was put down by the Church. With its basis in direct religious illumination, this new mystical practice meant the clergy were no longer necessary mediators in spiritual activity. The relationship of such mystics with the Divine made the Church's highly philosophical theology superfluous (Tarnas 2000 pp 197-198).

Such persecutions would continue periodically till well beyond the middle of the second millennium. Witchcraft, a form of paganism, was persecuted by the Roman Catholic Inquisition in Europe, while in America the Puritan clergy often targeted strong and independent women. This has led some writers such as Murray (1921) to argue that the attempt to eliminate witchcraft was predicated upon a fear of women empowered via an intimate relationship with nature. This threatened the patriarchal establishment, and most notably its rational nature (Rohmann 1999 p 429-430).

Yet in seeming contradiction to this, the Church generally tolerated the revival of classical humanism in Europe—beginning with Petrarch in the mid fourteenth century and moving through to Ficino and Pico della Mirandola in the fifteenth (Tarnas 2000). Scholasticism was losing its grip on the Church at this time, and Ficino opened the Platonic Academy in Florence. Plato and his mystical predilections were again popularised by the movement. They also drew inspiration from the Hermetic corpus, Zoroastrian oracles, the Hebrew *Kaballah*, and Babylonian and Egyptian texts. Humanism was in a sense a reaction to the extreme intellectualisms of scholasticism. Neoplatonism was at its heart, with the world seen as an emanation of the Divine. Nature and the Heavens were viewed as being replete with the numinous, and with Pythagorean mystical mathematics forms ordering the universe and its mystical intelligence. Notably, the Humanists conceived of humanity as being imbued with that same intelligence, with humankind capable of discovering that divinity within itself (ibid.). Fico proclaimed that man's soul was capable "by means of the intellect and will, as by those twin Platonic wings … of becoming in a sense all things, and even a god” (quoted in Tarnas 2000 p 212).

However the Protestant Reformation would call for restraint to such exultancy, being deeply influenced by Augustinian thought. Martin Luther (1483-1546), the prime instigator of the Reformation (Rohmann 1999 p 239) was an Augustinian monk. His refutation of the infallibility of the pope and power of the clergy, and the Reformation’s ideal that the Divine was accessible to the individual (ibid.) could have opened the way for a more expansive integrated intelligence. Yet the Reformation reinforced an ‘intellectualised’ way of knowing. The Bible was posited as the sole source of Divine wisdom—not any intuition or mystical union with the Divine (ibid.)

Later, the transcendental Protestant cosmologies of the seventeenth century—which depicted a God that had created the world but was not bound by it—would reinforce a distance between nature and both man and God. People came to study nature “for its fullness and regularities, no longer for its messages” (Pickstone 2000 p 29). Natural philosophy became independent of philosophy. It came to be believed that nature could be “interrogated by experimental manipulation” (ibid.). This was the antithesis of the attitude of reverence and awe that underpins the indigenous and romantic relationship with nature. The ‘reading’ of nature and the psychic—an integral aspect of integrated intelligence—is the antithesis of the distancing effect of Protestant theology and Augustinian thought.

Creation spirituality versus fall-redemption Christianity

The Christian tradition has featured two quite disparate embodiments: one favorable to integrated intelligence, the other not. Fox (1988) refers to these as “fall-redemption” spirituality and “creation” spirituality. Rosemary Radford Reuther summarises Fox’s interpretation:

> Fall-redemption spirituality abolishes the original goodness of creation, the original goodness of our own created natures, rooted in God as the ground of

> our being. Our natures and the nature of the world around us is defined as sinful, *alienated and cut off from God.* Salvation is then bought down *from above*, from a place *transcendent* to our sinful nature, making us the unworthy recipients of a gratuitous redemption that has *no connection with our own created capacities*. (quoted in Ross 1993 p268. Italics added).

In this system, mankind is unworthy of the Divine, and dependent upon Church and God. With man's sin and fall, "both man and nature lost their Divine inheritance" (Tarnas 2000 p 140). This mirrors Wilber's (2000c) argument that Christian medieval theology left its parishioners adrift, unable to connect with the Divine ("above") and dissociated from the body ("below") (Wilber, 2000c). The Augustinian tradition was permeated with fall-redemption spirituality, and this was re-vitalised in the Protestant reformation. Dualism was apparent. Fall-redemption spirituality, writes Reuther, featured:

> …the *splitting* of God from Creation, soul from Body and *human consciousness from the natural world.* The human intellectual soul, as the recipient of saving grace, stands *alone, separated from the nexus of relations to the larger psyche*, to the body, to human community and to the earth. Fall-redemption spirituality *tends towards rationalism and individualism*. (Reuther, quoted in Ross 1993 p 268. Italics added).

And further, fall-redemption spirituality is:

> …*death denying* and *anti-ecological*, seeking to extricate the *immortal* (male ruling class) intellect from its embededness to morality, process and relationships. (Reuther, quoted in Ross 1993 p 269. Italics added).

There are obvious parallels with the tenets of the West's mechanistic paradigm (Table 2.1): the various dualisms, splitting of humanity from nature, alienation from the psyche; and the valorisation of rationalism and individualism. The rejection of nature and the material was also a detriment to empirical enquiry, as all moral and spiritual enquiry was directed away from the material and towards a transcendent Divine (Tarnas 2000; Wilber, 2000C).

Even as fall-redemption Christianity came to dominate Christendom, creation spirituality was "largely repressed" (Fox 1998; Ross 1993 p 267). Notably, its roots lie in the cosmologies of the indigenous peoples of the world. It was also a strong feature of the Hebrew Bible (Ross 1993). According to Ross (1993), Christ was the prime exemplar of this tradition, which later found expression through other medieval theologians like Hildegard of Bingen, Francis of Assisi, Thomas Aquinas, Mechtild of Magdeburg, Meister Eckhart, Julian of Norwich and Nicolas of Cusa (Ross 1993 p 269). It was deeply mystical and pantheistic. It held that imminent divinity permeated the entire cosmos (Ross 1993 p 267).

Notably, the way in which the Church dealt with the concept of the Holy Spirit—possibly the Christian theological concept closest to the transpersonal and mystical—mirrors its suppression of mysticism. In early Christian thought, the wisdom, grace, and Divine knowledge of the Holy Spirit was seen as being available to all. But the spontaneous expression of the Holy Spirit became a problem for the Church, because the spontaneous and possibly revolutionary utterances of individuals claiming the mediation of the Holy Spirit challenged canonical authority. It also challenged the uniqueness of Christ's teachings, and suggested the potential of the deification of common humanity. Thus the Church discouraged experience of the Holy Spirit, such as spontaneous spiritual ecstasies, miraculous healings, speaking in tongues, prophecies, and new claims of Divine revelation. The Church's favoured ways of knowing became mundane and 'rational'—the sermon, religious services, rituals, institutional authority and doctrinal orthodoxy. The idea of an imminent, pervasive Holy Spirit available to all was replaced by the concept of a Holy Spirit mediated only via the Church authorities (Tarnas 2000 pp 156-157).

There are two important factors to emerge from the prevalence of fall-redemption spirituality. Firstly, the potential for integrated intelligence is stultified within fall-redemption spirituality. The individual is seen as unworthy of Divine knowledge, and the Divine is delivered to a transcendent sphere beyond the reach of the ordinary individual and mediated by the clergy. Secondly, fall-redemption spirituality presaged several themes of modern science: the splits of mind/body, conscious mind/psyche, and man/nature. It exacerbated the tendency towards individualism and textual rationalism, even in understanding spiritual and mystical concepts.

Christian theology embraced the idea of the Divine, but it was increasingly a textual, interpretive divinity. Revelation became canonical (Tarnas 2000). The Bible—written text requiring verbal/linguistic decodification—became the cornerstone of Judeo-Christian religious inspiration (Tarnas 2000). As Tarnas writes:

> The Christian approach centred on the revelation of one person, Jesus Christ, and thus the devout Christian sought Enlightenment by reading Holy Scripture. (Tarnas 2000 p 112).

The scriptures (not intuition) were thus "the final and unchanging repository of universal truth" (Tarnas 2000 p 115). There was a "surrender to the Divine" (ibid.), but this was mediated via text and clergy, stultifying the immediate knowing that characterises integrated intelligence.

In effect, the physical world was "despiritualised" (Ross 1993 p 41). Ross writes that the effect of this on the common people was that they became:

> … vulnerable to total exclusion in the scheme of things and it made the systematic empirical investigation of (the) denigrated demystified material realm inevitable. (Ross 1993 p 41).

Like all power (Foucault 1984), that of the Church represented a 'temporary victory', and would be challenged by a development that would facilitate the movement towards greater critical rationality: the beginnings of the university and institutional autonomy. Even as the Church repressed the mystical, it inadvertently encouraged the growth of the individual conscience, self-responsibility, and personal autonomy by emphasising the value and immortality of the individual human soul (Tarnas 2000).

3.4 Towards the scientific revolution: The birth of the university and the Aristotelian revival

Up until the sixteenth century in Europe, the Christian Church was "the ultimate arbiter of reality" and conceptions of the cosmos were largely mediated by the Church's teachings (Dossey 1993 p 163; Laura & Leahy 1988). Yet a shift in locus of power from clergy to scientist occurred over several centuries. This shift both featured—and was mediated by—the emergence of predominantly critical/rational ways of knowing. Huff writes that:

> What laid the foundations for the scientific revolution was Europe's unique synthesis of Greek philosophy (Aristotle), Roman law (The *corpus juris civilis*) and Christian theology. (Huff 2003 p 317).

This shift created a social and legal revolution which laid the foundations of modern society (ibid.).

The re-introduction of Aristotle in the eleventh and twelfth centuries

Huff (2003) argues that the introduction of Aristotelian thought into Europe in the eleventh and twelfth centuries sparked the Western rationalist revolution. He describes the common assumption that the scientific revolution began in England in the seventeenth century as "a strictly internal history" (Huff 2003 p 19). Huff (2003) concludes that experimentalism was not the new driving force of modern science, and that it was triggered prior to Galileo (ibid. 32). There was a powerful intellectual and social revolution beginning around the twelfth century. Reason was valorised as a means to truth, and became deeply embedded in vocabulary and discourse (ibid. 187). Huff states that this shift:

> was… motivated by the idea that the natural world is a rational and ordered universe and that man is a rational creature who is able to understand and accurately describe the universe. Whether or not men and women can solve the riddles of existence… they are able to advance human understanding mightily by applying reason and the instruments of rationality of the world we inhabit (ibid. p 1).

Huff thus finds that the organised skepticism of science began no later than the twelfth to thirteenth centuries. Biblical criticism was common in schools and universities, where rational demonstration was valorised and believed to grant humankind the capacity of comprehending the universe and nature “with or without the aid of Scripture” (Huff 2003 p 340). The common usage of the metaphors of the “world machine” and the “Book of Nature,” suggests the depth of the metaphysical and religious foundations of science (ibid. p 340-441).

A shift in university education was a direct result of the re-introduction of the Aristotelian emphasis upon explaining the world via fundamental elements, causal processes, and reason (ibid. p 339). This was the cornerstone of the arts curriculum, which preceded the study of law, theology and medicine (ibid.). This system was still in place when Galileo, Kepler and Copernicus were developing modern physics and astronomy (ibid.).

In 1170, the University of Paris was founded, and intellectual centers were developing at Oxford and Cambridge (Tarnas 2000). By the thirteenth century European universities were:

> … establishing neutral zones of intellectual autonomy which allowed philosophers and scientists to pursue their agendas free from the dictates of the central state and the religious authorities. The founders of the universities consolidated the curriculum around a basically scientific core of readings and lectures. This was embodied in the natural books of the new Aristotle that became known during those centuries… (Huff 2003 pp 317-318).

This was an open forum, where scholars could dispute propositions and ask questions, and were taught how to do so (Huff 2003 p 318).

Huff also finds that “a new set of universal mathematical symbols and a corpus of manuals, texts, and other documents” were brought together between the eleventh and fourteenth centuries to aid the teaching of astronomy in universities (Huff 2003 p 346). Aristotelian thought was supplemented with a new curriculum (Huff 2003). This was called the “corpus astronomicus”, new scientific knowledge which included standard texts, scientific instrumentation (such as the abacus, armillary sphere and astrolabe), and collections of data, as well as tables of astronomical observations. These permitted the measurement of local time, and prediction of astronomical events including eclipses and conjunctions of planetary bodies (Huff 2003 pp 345-346). Such curriculum shifts reflected the “deep interest in astronomy and naturalistic inquiry among medieval Christian scholars” (ibid. p 346). By the thirteenth and fourteenth centuries a new “arithmetic mentality” had emerged (ibid.).

It can be seen that Huff’s thesis is compatible with the argument presented in this chapter. The influence of Aquinas and the scholastics in valorising Aristotle and natural enquiry opened a window of opportunity for educational institutions to implement a more ‘rational’ curriculum, and the Church offered little resistance to such developments.

Institutional power increases

Another factor which was seminal in the development of Western science was the great “social, intellectual, and legal revolution” in the medieval period (Huff 2003 p 339) that allowed institutions to develop relatively independently from the power of state and Church. Huff argues that even though there was a clash between church and scientist, it was not as great as often imagined, and allowed for the gradual introduction of rational and scientific enquiry into education and society. Thus the Copernican revolution vindicated the efficacy of the institutional structures that had been developed to protect more open debate of revolutionary ideas (Huff 2003 p 358).

The legal revolution led to the creation of new forms of social interaction, group and social agency, and greater intellectual and political autonomy. The key breakthrough for the development of modern science was the legal watershed which permitted the development of autonomous institutions such as the university (Huff 2003 p 339).

Huff writes that in creating greater autonomy:

> …the Western legal tradition created both *neutral zones* (universities) and a variety of public spaces in which various kinds of *open discussion and debate* took place. These new forums included courts of law with regularized procedures, standards of due process, and the use of advocates to defend the rights of the accused (Huff 2003 p 317. Italics added).

Thus there was the assumption of:

> …collective and *individual rights and interests*, which must be reconciled through open debate and representative delegation of authority. This revolution also *sharply demarcated the religious domain—the moral and the ethical—from the secular state*. Not least of all, these changes created both the legal and institutional foundations for the emergence of professional associations of physicians, lawyers, merchants, and, eventually, scientists (Huff 2003 p 317. Italics added).

There were thus a number of processes occurring to facilitate the greater development of critical/rational ways of knowing early in the second millennium. The increased open discussion and debate enhanced individuality and ego-centred autonomy. This, together with the separation of the religious and secular, meant that institutions were no longer burdened with the need for spiritual and mystical considerations. This represented a freeing of control from the Church, and allowed intellectual discourse and scientific method to flourish. However, it also moved those institutions and the populace further away from spiritual conceptions, especially in terms of the meditative processes that might otherwise have facilitated experiences of integrated and transpersonal intelligence. The groundwork for the Enlightenment had been laid.

3.5 The scientific revolution and the Enlightenment

The methods used to determine the real during the scientific revolution and the Enlightenment finally established the victory of critical rationality as the dominant worldview the West. In particular, mathematical and analytical ways of knowing came increasingly into play, while the insistence upon observation reinforced the external, sensory focus of perception. As Needham (1969) notes, modern science developed in Western Europe at the time of Galileo in the late Renaissance, when the essential structure of the natural sciences was initiated.[15] This structure was mediated by the application of mathematical hypotheses to nature, a deeper appreciation for the experimental method, the recognition of primary and secondary qualities, the geometrisation of space, and the implementation of a mechanistic conception of reality (Needham, 1969). These all require critical/rational ways of knowing.

The Copernican shift and the scientific revolution

The heliocentric universe as posited by Copernicus (1473-1543) was not only an intellectual shift, it was metaphysical one (Huff 2003). As Huff notes:

> The fundamental issue at stake in the struggle over the Copernican hypothesis was not whether the particular theory had or had not been established but whether in the last analysis the decision regarding truth and certitude could be claimed by anyone who was not an officially authorized interpreter of revelation (Huff 2003 p 183).

This shift of power facilitated a shift in the dominant civilisational ways of knowing of the Western world. Copernicus's vision of the cosmos represented a great challenge to the Church and its power to interpret revelation. It was "the last gasp of a restrictive ideology, which no longer had the power to regulate such questions" (Huff 2003 p 183). After the Copernican revolution, the scientific method became the final arbiter of the real. Kepler, Galileo, and Newton could not have contributed to Western knowledge without the shift from a geocentric to a heliocentric universe (Huff 2003 p 327). What is more important is that the study of such ideas became the core of the university curriculum. This new examination system represented a shift towards "the inculcation of a scientific worldview" (Huff 2003 p 183).

The emergence of the 'fathers of modern science', beginning in the seventeenth century, was of great significance. Notable were the astronomy and physics of Galileo,

[15] Needham's (1969) argument is not incompatible with Huff's (2003). Huff sees *critical rationalism* as beginning with the Aristotelian revival in the eleventh century, while Needham is referring more to the scientific method and its empirical and mathematical predilections.

Kepler, Brahe and Halley (Gribbin 2003), which expanded humanity's focus into the heavens. The seminal work of Robert Hooke and Isaac Newton was particularly crucial. Hooke was responsible for the development of a wide array of new ideas. He was the world's first prominent microscopist; the publication of his *Micrographia* in 1665 opened the eyes of people to the microscale (ibid. p 154). His drawings of cork cells and microscopic animals fascinated a generation. Notably, he also became a key figure in the establishment of the Royal Society (ibid.). Further, just two years after *Micrographia*, Leeuwenhoek's discovery of microorganisms would reinforce the opening to the microscale (Tarnas 2000).

It was Hooke's intellectual adversary Newton who would actualise the basis of the mechanistic paradigm. He was, writes Gribbin: "the greatest scientist who ever lived" (Gribbin 2003 p 174), and "established the single, profound truth that the universe works on mathematical principles" (ibid. p 149). Gribbin's valorisation of Newton reveals the elevated esteem in which Newton is held in the modern age. Newton's *Principia* (1687)—in which he identified the importance of the inverse square law of gravity and the three laws of motion—is considered by Gribbin to be the most important book of science ever published (ibid. p 186). The magnitude of *Principia* lay in its establishing that "the world works on essentially mechanical principles that can be understood by human beings" (ibid. p 187).

Yet Newton's legacy was to be—unintentionally—more important than a mere clarification of various operational principles of nature. By the end of the nineteenth century, Newton's initial work had developed into classical physics, where the world is seen to be constructed of micro-particles moving through space according to the fields created by these particles. In classical physics, the universe is viewed as being fixed by laws emerging from the microscale, where events occurring at any given location in space are caused locally (Stapp 2005 p 44). Most crucially, classical physics would ultimately reject the theistic predilections of Newton, Galileo, and Kepler, explicating all phenomena in purely physicalist dimensions, and reducing consciousness to the status of epiphenomena. The bond between mind and matter was effectively cut (ibid.). This assumption of severance would continue through to the modern era, where brain science would depict consciousness as emerging from material substrates—despite the lack of any definitive evidence for the claim (as will be discussed in Chapter Five, Part Two).

Observation and the scientific method

The scientific method—requiring sensory observation, experimentation and repeatability of results—emerged from the work of the fathers of modern science, especially Galileo, Gilbert, Boyle, and the writings of Bacon (1561-1626) (Gribbin 2003). Its critical/rational ways of knowing helped shift the Western world's dominant worldview. After the development of this method, phenomena which were not easily measured and observed became less real, and intelligibility was found predominantly in the observation of matter (Ross 1993 p 41; Grof 1985 p 19). This ultimately affected the representation of consciousness, which was essentially ignored until the very last years of the twentieth century because of its intangible nature (Blackmore 2001; Maddox 1998 pp 2-3). As Maddox (1999) points out, the interplay between observation and explanation was made more explicit with the clarification of scientific method. At this seminal moment extra-sensory phenomena began to be left off the map. This has led to the situation in contemporary science where a theory is not deemed a valid explanation unless it has been tested by observation or experiment. Thus all phenomena demand a physical explanation, and this includes the workings of the human brain (Maddox 1999 p 2). This has made the examination and representation of integrated intelligence and the extended mind highly problematic within modern science.

Enlightenment science valorised the sensory, and rejected the subtle

With the coming of the Enlightenment, a new philosophy emerged, based upon reason and sensory evidence. As Panek (2000) writes of the new astronomers such as Galileo:

> [they) … trusted in evidence from the telescope, but they trusted in it even more when it didn't depend on the interpretation of the observer; when it was answerable to the higher power not of ancient authority, or even to God, but of Nature; when it was quantifiable, measurable, replicable, absolute—when it was, in a word, mechanical. (Panek 2000 p 85).

Science thus developed a dualism, based on the detached, rational observer and the non-sentient object. This sense was typified by Enlightenment philosopher David Hume, who found that only reason and empiricism were valid ways of knowing:

> If we **take in one hand** any volume—of divinity or school metaphysics, for instance—let us ask, Does it contain any **abstract reasoning** concerning *quantity or number*? No. Does it contain any **experimental reasoning** concerning matter of fact and existence? No. Commit it them to flames, for it can contain nothing but sophistry and illusion (quoted in Zohar 1994 p 184. Italics added).

Hume's critical/rational verbs of knowing reveal his worldview.

Thus, in a matter of decades, the Church, which had stripped away mystical knowing with its denunciation of Gnosticism and mysticism (Ross 1993) and replaced it with the divinity of the priesthood, had itself been usurped as the arbiter of ultimate knowledge (Dossey 1993; Laura & Leahy 1988). In the space of two centuries "man had gone from being the apple of God's eye to being God's eye" (Panek 2000 p 61).

Dualism exacerbated fragmented intelligence

A dominant conception of reality developed as dualism emerged from the birth of the scientific era. Of seminal importance here is the seventeenth century philosopher Rene Descartes' (1596-1650) oft-quoted "Cogito ergo sum" (I think therefore I am), which encapsulated the essence of this dualism. Cartesian dualism depicted mind as separate from matter (de Quincy 1999; Grof 1985 p 19; Gardner et al. 1996 p 33; Ross 1993 p 42). Descartes' dualism was central to the birth of Newtonian science and its mechanistic and materialistic predicates (Ross 1993 p 42). Yet in terms of the IFM model, "Cogito ergo sum" epitomises the fragmented mind, and its preferred intellectual and philosophical ways of knowing.[16] In Wilber's (2000c) terms, this cognitive standpoint trapped knowledge within the personal interior subjective domain (upper right quadrant, lower triangle; see Figure 2.5, Chapter Two), and cut it off from the transpersonal interior subjective domains.

This implied a split between humanity and nature, and between the individual and society. As the authority of science increased, this dualism was increasingly legitimated within the psyche of the population (Kafatos & Kafatou 1991 p 17), damaging the "very ideals" of Western culture (ibid.). The new science was incapable of answering deep questions about the meaning of life and each person's place in society and cosmos (ibid.). Consciousness became increasingly self-fixated, and the focus of cognition became externalised and alienated from the inner dimensions of the psyche.

The 'spiritual' fathers of science

The development of modern science is usually attributed to the ideas and work of five men: Copernicus, Kepler, Galileo, Descartes, and Newton (Kafatos & Kafatou 1991 p 18). Yet these men were not scientists in the contemporary sense of the word (ibid.). Indeed the term 'scientist' was not used until the second half of the nineteenth century when developed by Cambridge philosopher William Whewell (Huff 2003 p 20). It is therefore anachronistic to think of individuals prior to that time as having a completely formed self-image as a scientist (ibid. p 21). Thus, argues Huff: "scientific values and the ethos of science are constructs that emerged over time and evolved out of nonscientific contexts" (ibid. p 20).

The range of interests and worldviews of the fathers of science differed significantly from those of scientists of the modern era. A notable distortion of modernist

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[16] The great irony here is that Descartes' conceptions—which launched modern empirical science - were precipitated by a mystical/spiritual experience—three dreams where he saw phantoms, whirlwinds, fiery sparks, and books of symbolic wisdom (Radin, 2006 p 24).

interpretations of ‘the fathers of science’ lies in the underplaying of their spirituality, and the overemphasising of their “rationality” (Grof 1985, 19; Ross 1993 p 42). This Mirrors the common misrepresentation of the ancient Greeks outlined above.

Thus Hawking (2003) employs verbs of critical rationality to describe the ways of knowing of Copernicus, Galileo, and Newton. Copernicus “calculated” planetary positions, and “observed” the motions of planets (Hawking 2003 pp 2, 3); Galileo “invented” the hydrostatic balance and the “calculating” compass, “described” the motions off falling bodies, “interpreted” his discoveries, “demonstrated” the principles of motion and “calculated” the path of projectiles (ibid. pp 394-397); Newton “defined” the laws of motion and the laws of gravity, “experimented” on the properties of light, “researched” celestial mechanics and gravitation, “deduced” the inverse square law, and “explained” motions of the planets (ibid p 725-732).

It may appear from Hawking’s account that these men were ‘scientists’ in the modernist sense. Yet according to Kepler himself, astronomers were not mere observers:

> … in all acquisition of knowledge it happens that, starting out from the things which impinge upon the senses, we are **carried** by the operation of the mind to *higher things* which *cannot be grasped* by any sharpness of the senses. (quoted in Huff 2003 p 353. Italics added).

This is not strict critical rationality, but embraces aspects of mystical spirituality. The ego/conscious mind does not appear to be in full control (“we are carried”), and is taken to what may be a transrational domain not accessible to the eye of flesh (“higher things which cannot be grasped by…the senses”). Yet in the representation of Kepler by historian of science, Jardine (2000), little of this is indicated in her employment of verbs of knowing. Jardine states that Kepler “argued” for the truth of the Copernican system, “calculated” planetary orbits, “proved” that sight was triggered by the eyes’ reception of light, and “wrote” about the optics of telescopes (Jardine 2000 pp 378-379). Another historian of science, Gribbin (2003) concedes that Kepler was “too mystically inclined to be known as the first scientist" (Gribbin 2003 p 54). He informs us that Kepler was a student of astrology, though adding with distain that "he was well aware that the entire business was utter tosh" (Gribbin 2003 p 53). Nonetheless, Gribbin finds that Kepler "used pure reason and imagination" to explain the cosmos, "puzzled" over the question of why there were only six planets, and "came up with" the idea of elliptical orbits for the planets, although it only "*seemed* to him to be like a Divine revelation" (ibid. p 56. Italics added). The virtual sarcasm of Gribbin represents a paradigmatic bias, which derides the mystical conceptions of Kepler as 'lower than' Western contemporary science.

God was a major predicate of Copernicus's, Newton's and Descartes' conceptions, and Copernicus was actually a priest (Hawking 2003 p 1). Newton's spiritual bent included a fascination with astrology, occultism and alchemy. He did not think that the universe could be explained from material causes, but only through reference to God (Grof 1985 pp 19-20). Descartes also believed that only the direct perception of God created the objectivity in the universe. A belief in Divine intelligence was therefore at the core of worldviews of the first 'scientists'.

The rationalists versus the empiricists

The Enlightenment debate between the rationalists such as Descartes (1596-1660), and the British empiricists such as Thomas Hobbes (1588-1679) and John Locke (1632-1704), established a precedent that is still central to consciousness and intelligence theory in the contemporary world (Gardner et al. 1996 p 33). Locke and David Hume argued that the contents of the mind could be explained entirely in terms of sensory inputs. Their argument was based upon the idea of the mind as 'tabula rasa' or a blank slate, with the environment determining mind and personality (Ross 1993 p 115). These assumptions would be echoed in the early to mid years of the twentieth century, when behaviourists postulated similar notions (Ross 1993 p 115).

Kant (1724-1804) adopted aspects of both camps (Gardner et al. 1996 pp 35-36). On the one hand he argued that the human mind held innate conceptions such as relation, unity, quantity, and time and space. Like the rationalists, he argued that the mind lacked a material substrate, and could not be examined empirically. Further, he believed knowledge was dependent upon sensory experience, although he claimed that the ways that this knowledge is acquired are innately determined (Gardner et al. 1996 pp 35-36). Most notably, Kant deconstructed Bacon's claims of man's capacity for unmediated perception of nature, reuniting the knower with the known; but as Tarnas notes, "not to any objective reality" (Tarnas 2000 p 348). In the wake of Kant, there was no way to know if one's perception held any objective or transcendent reality. For all direct connection with cosmic order was thereby severed (ibid.).

The result—when combined with Copernicus's revolutionary displacement of man from the centre of the universe—was that: "Cosmological alienation was… compounded by epistemological alienation" (ibid.). Kant's ideas would later have a vital and influential impact upon various branches of psychology, such as Piaget's developmental conceptions (Gardner et al. 1996 pp 35-36).

The instruments of reason

New technologies also shifted the ways of knowing. During the Enlightenment, both questions and answers were largely driven by the development of new instrumentation (Jardine 2000 p 9), and the emerging ideas quickly began to spread to disciplines such as botany, geography, geology, mineralogy, zoology, physiology and pharmacology (Panek 2000 p 73).

The development of the telescope and microscope radically altered humanity's perceived place in the universe. Leonard Diggs invented the reflecting telescope in 1551—and probably the refracting one thereafter (ibid. p 15). The shift in perspective was enormous. Before the publication of Galileo's *Sidereus Nuncius* in 1610, the Copernican universe stretched as far as Saturn, with the sun as the centre (Panek 2000). The New World had yet to be discovered by Europeans. By the beginning of the twentieth century, the universe had become "exactly one galaxy big" (ibid. p 123); and by

January 5th, 1996, that number had multiplied by approximately forty billion, the number of estimated galaxies revealed by the Hubble Space Telescope (ibid. p 1).

Such was the enormous influence of the telescope that Panek writes:

> The relationship between the telescope and our understanding of the dimensions of the universe is in many ways the story of modernity. It's the story of how the development of one piece of technology has changed the way we see ourselves …the pivotal division between the world we inhabit today and the world of our ancestors was the invention of this instrument… it's what we have designed it, and then refined it … to do: address our place in the universe, literally. To size up all of space and figure out where we are in it. (ibid. p 4).

Prior to the invention of such instruments, the frontiers of knowledge had belonged to philosophers and sages, predominantly employing what Wilber (2001) refers to as the eyes of reason and contemplation. Galileo, Newton, Kepler, and the first 'scientists' shifted the focus to the sensori-motor domain, aided by the advanced instrumentation and mathematics which they employed. Galileo stated that he placed his faith "not in ancient tomes, but in close observations and personal consecration…" (quoted in ibid. p 72).

The word 'telescope' is derived from the Greek *telescopio*, or "to see at a distance" (ibid. p 55). The telescope, the microscope and the spectroscope took human perception from inner to outer. The world of faith, divinity and eventually philosophy was relegated to secondary status, and often derided as limited, irrelevant or even dangerous. With this shift, came a secondary shift: an emphasis upon, observation, measurement and their mathematical means of verification (Panek 2000). Truth was to be derived via the manipulation of numbers, with strict mathematical laws and procedures (ibid. p 53-56).

Ironically, although the telescope was expanding humanity's perceptual fields, it was at the same time limiting it in other ways:

> In seeming to bring a distant object closer and closer, the telescope wound up concentrating on a smaller and smaller field of view—the length and breadth of what the eye could see through a telescope. (Panek 2000 p 70).

As the telescope moved humanity's gaze further outward, the inner telescope became increasingly blurred, along with the worlds and consciousness therein.

It can be seen that the Enlightenment and the scientific revolution entrenched critical rationality within the Western psyche. Mystical spirituality and the subtle lost further ground as reason and empiricism took hold. Yet there were strong spiritual elements in the conceptions of numerous Enlightenment philosophers and scientists.

Most of the Enlightenment philosophers and scientists lived, worked and contemplated nature and the cosmos in a pre-industrial society. Yet a massive social and civilisational shift would follow soon after. Newton died in 1727, just a few decades before the beginning of the industrial revolution.

3.6 Industrialisation, secularisation and egoic consciousness

The influence of the industrialisation of Western society and the emergence of the secular state had a profound affect on the Western mind and its relationship with nature, the cosmos and the Divine. Such effects included the desacralisation of space, the establishment of an increasingly utilitarian education system and the reinforcement of ego-centred consciousness. This process further entrenched the Western rationalist hegemony.

The industrialisation of society and the ego

The Industrial Revolution saw profound changes in society. In Britain, masses of people left agriculture and migrated to the cities. The great growth of urban centres and their industries created a demand to identify and train individuals with the capacity to manage the social and economic challenges that were occurring (Gardner et al. 1996 p 41). This eventually led to the development of 'technoscience', which would radically alter the way that humanity saw itself and the universe (Pickstone 2000).

The industrialisation of society compounded the movement towards ego-centred modes of consciousness, as it established the modern society with its individualised, competitive and fragmented nature (Clarke 1989). Ross (1993) equates this period with the ego-centric consciousness of adolescence: with individuals seeking identity through comparison to societal norms. Others to equate modernity with ego-centred consciousness are Elgin, (1993, 2000), Wilde, (1993, 2000), and (Reanney, 1991). Ross describes the last two centuries as a period of “anthropocentric optimism”, which “bred the philosophy of atheistic materialism” (Ross 1993 p 35). This mirrors Grof’s (1985) argument that the mechanistic paradigm (predominant at this time) is unable to acknowledge ‘higher values’ such as spiritual perception, love, aesthetic requirements, or the sense of justice. This paradigm “endorses individualism, egoistic emphasis, competition, and the principle of ‘survival of the fittest’” as normal and healthy (Grof 1985 p 27). Cooperation, synergy and ecological factors are not assigned value in this model (ibid.; also Loye 2004a). Therefore the industrial society and the mechanistic paradigm represent a synergy of consciousness.

Education eventually became ensnared in the industrial mentality. Beare and Slaughter (1993) state that modern schools are modelled upon the factories of the Industrial Revolution. The economic system and worldview which developed in Europe in the wake of the Industrial Revolution focused upon science, technology and instrumental reality (Beare & Slaughter 1993; also in Burke 2001 p 13; Milojević 2004). This impetus continues to this day in the globalisation movement (Milojević 2004). In this sense, students became mere cogs in the societal machine. The goal of education became not wisdom or spiritual development, but short-term economic and political considerations (Moffett 1994a). This further exacerbated the estrangement from inner worlds and the spiritual.

Separation of Church and state

Modern Western society is one constructed around the idea of the separation of Church and state (Laura & Leahy 1988). As stated earlier, this separation can be traced back to the twelfth and thirteenth centuries' development of institutional freedoms and the legal revolution (Huff 2003). By the fifteenth century, an emerging merchant class had gained power through wealth. As a result, medieval feudalism collapsed, with the nobility and royalty suffering a consequent reduction in power. This power shift altered the philosophical outlook of society. No longer were spirituality and God the focus of the typical person's life. Christian theology was questioned, and the individual became the center of the universe (Kafatos & Kafatou 1991 p 17).

Shapiro points out that medieval space (in which the idea of Divine will and spiritual representations of the universe and life abounded) was based upon the "estate system" (Shapiro 1992 p 13). Space was vertically constructed: sacred and profane, protected and open, urban and rural; and in cosmological theory there were terrestrial, celestial and super celestial places (ibid. p 12). However, in order to validate commercial enterprise, various thinkers developed critiques and political ideologies which supported commercial enterprise. These ideologies undermined the validity and power of the estate-based society, with its static, Divine predicates (ibid. p 13). Thus Adam Smith's (1723-1790) liberal political economy:

> …recast Divine will as a set of dynamic *mechanisms* regulating the process of production…the creator was banished from the world and was replaced by a view of nature that construed it as a series of *mechanisms* in the world regulating the play of interests and exchange of value. (Shapiro 1992 p 13. Italics added).

In short, Smith replaced "piety with calculation" (ibid. p 13). Political space was reorganised, and this made room for the analysis of political economy, as epitomised by Marxism (ibid.). Somewhat ironically, it was Marx who then depicted the intellect as a pawn in the struggle for economic hegemony, thus undermining the validity of autonomous human intention (Ross 1993 p 42). Later, the development of early psychology and behaviourism would be deeply influenced by “the exploratory and exploitative drives of nineteenth century capitalism” (ibid. p 116).

The crucial point here is that the birth of the modern industrial/secular state eliminated not only hierarchical social structure, but also rejected the spiritual and metaphysical framework upon which it was predicated. The focus became economy and work, and mathematical and abstract modes of operation became institutionalised even as Smith’s “calculation” superseded divination. This situation has effectively continued to the present day, where the contemporary globalisation movement has maintained similar foci, with economics and technoscience as the basis of social organisation (Milojević 2004; Pickstone 2000). The emergence of the secular state and the desacralisation of space represented a continuation of the rationalist hegemony. It also laid the foundation for increasingly ego-based and fragmented representations of intelligence and mind in the modern era.

The ‘others’: the Romantics

The Romantic movement of the late eighteenth to early nineteenth centuries represented a significant component of the development of Western civilisation. It emerged almost parallel to the Enlightenment, and in a sense represented all those qualities that the latter denied or rejected (Tarnas 2000). The movement drew inspiration from the mysticism of Greco-Roman culture, becoming evident first in Rousseau, then in Goethe, Schiller, Herder, and in German Romanticism. Then it continued in Blake, Wordsworth, Coleridge, Shelley, Keats, Byron, Emerson, Thoreau, Whitman, and many others (ibid.). The Romantic vision looked upon the world as a unitary organism. Humanity was valued for its spiritual and imaginative potentials, emotional depths, and artistic creativity. Nature was not an object, but “a live vessel of spirit, a translucent source of mystery and inspiration” (ibid. p 367). The Romantics valorised individual subjectivity, emphasising affective experience and the “transmuting power of the relationship between subject and object” (Buckley 2001, 458).

It was not exteriors, but interiors which inspired them. They had an intense interest in human consciousness, self-awareness, emotion, imagination, the irrational, the soul and the problem of good and the evil (Tarnas 2000). Further, the Romantics contemplated God as a mystical, pantheistic, and imminent cosmic process (Tarnas 2000 p 372). Perhaps in greatest contrast to the Enlightenment philosophers, they had an openness to transcendent experience, and were in opposition to science's positivism and claims of objective certainty (Tarnas 2000). They privileged the transpersonal subjective interior, to use the modified Wilber model.

Western society had reached a pivotal point. The Romantics stood against the philosophes and 'scientists' in a division that represented a seemingly irreconcilable differentiation. Some attempted a synthesis—Goethe's *naturphilosophie*, Hegel's all-encompassing fusion of nature, spirit and matter, and the later depth psychology of Jung. Yet all these men would ultimately be deeply criticised and rejected by the mainstream (Tarnas 2000). Instead of the Romantics' transmuting power of self and subject, the mechanistic paradigm would become fixated with the story of the transmuting power of the machine and a cosmos that could be dissected as so many bits and pieces of that machine.

Meanwhile, the postmodern position was emerging from the post-Enlightenment thinking of Nietzsche, Hume, Kant, and Hegel, and the pessimistic existentialism of Sartre, Heidegger, and Camus. It was these men who set the stage for the deep questioning, ambiguity, and sometimes nihilism of the twentieth century (Tarnas 2000 pp 388-397). Ironically, the postmodernist position would reinforce the critical/rational worldview, in that the mystical knowledge and ways of knowing of European mystics, indigenous cultures and the East were implicitly excluded (as outlined in Chapter 2).

Nonetheless, Romantic elements would continue to form a significant but marginalised element into the twentieth century. The Romantics potentially undermined the predicates of the critical/rational worldview, such as the idea that values and all answers to questions of action and free will are amenable to the human intellect. They believed that these questions were unanswerable, either subjectively, empirically or via a priori reasoning (Buckley 2001).

Summary

So far in this chapter the Western rationalist hegemony prior to the modern era has been situated within a civilisational context. Yet the development of critical rationality as the dominant worldview was not a linear process. Table 3.2 (at the end of this chapter) indicates that mystical spirituality (and textual spirituality) has been strongly represented in many periods. However, each of these movements became an 'other'—a fringe discourse to dominant critical rational or textual spiritual power structures. By the dawn of the modern era, textual spirituality had lost its place as the driving force of Western culture and knowledge. The dominant discourses within Western society had developed mostly critical/rational ways of knowing.

The door was then open for Western society and science's preferred ways of knowing to entrench their hegemony on the various emerging discourses on mind (psychology), life (biology) and intelligence.

Part Two: Biology, Psychology, Intelligence and the Modern Era

Attention is now turned to seminal moments in the Western rationalist hegemony within the modern era. The focus is upon developments in modern biology (microbiology, genetic biology and neo-Darwinism); psychology (developmental and cognitive psychology, and neuroscience); and intelligence theory. The way that all of these have shaped contemporary dominant discourses in mind science will be outlined. The argument is chronological where possible, although the analysis moves through different discourses and disciplines.

The argument will focus upon the top five layers within Figure 3.1 above, beginning with biological science.

3.7 Biological theory and evolution

Biological theory is still dominated by mechanistic representations of life (Sheldrake 1990). This can also be seen in the mechanistic presuppositions of biological accounts of consciousness, such as in neuroscience and genetic theory (Dossey 2001; Grof 1996, 1992), as will be shown in Chapters Four and Five. In the wake of these factors, modern cognitive psychology has “become a handmaiden to neuroscience” (Maddox 1999 p 278). Specifically, the hegemonies of neo-Darwinism (Loye 2004a), the reification of DNA molecule (as argued below) and reductionist methods in biology will be addressed here.

Neo-Darwinism and evolutionary theory

The publication of Darwin’s theory of evolution in *On the Origin of Species* (1859) and *The Descent of Man* (1871) had a massive impact upon science in general and upon ways of knowing (Gardner et al. 1996 p 39; Maddox 1999). Darwin permanently changed humanity’s perspective on its place in nature by emphasising that all life on the Earth is the product of the same processes—chance variation and natural selection (Maddox 1998 p 235). Darwinian theory incorporated not only the human body, but also mental ability. Darwin wrote that “mental aptitude, quite as much as bodily structure…appears to be inherited” (quoted in Gardner et al. 1996 p 40).

Evolutionary theory further challenged the idea of a static universe orchestrated by unchanging and immutable laws, and the will of the Divine (Sheldrake 2004; Gardner et al. 1996 p 40). Previously it had been widely held that human beings were created in the image of God, and endowed with a rational mind (Gardner et al. 1996 p 40). Darwin’s theory represented a changed view of humankind's place in the world by suggesting that our origins lie in nature. This reinforced the Copernican Principle (Maddox 1998 p 7).

The nineteenth century saw a concerted effort by mainstream science to eradicate all reference to purposefulness or teleology in science, in line with the tenets of the emerging evolutionary theory (Sheldrake et al. 2001 p 10). By the twentieth century, the neo-Darwinists took control of Darwinian theory and focused upon the idea of natural selection via the process of random mutations within the gene (Loye 2004 p 281). The idea that the universe is random, meaningless, and purposeless, would become a given of mainstream discourse. Those that challenged this given faced the possibility of not only being considered heretics, but “naïve and stupid” (ibid.).

Most crucially the “neo-Darwinian hegemony” (ibid.). reinforced not only paradigmatically restrictive conceptions—and implicitly—critical rational ways of knowing (analysis, reductionism and experimentalism). It also exacerbated the severance of the empathic link with nature and the Divine, which the industrialisation of society and entrenchment of critical rationality had already set in place.

Alfred Wallace: the ‘other man’

Darwin’s name lives on well beyond his death, and Darwinism has reached almost mythical proportions in modern science. Yet few people outside of evolutionary theory know of Darwin’s contemporary, Alfred Russell Wallace, who was an instrumental figure in the development of evolutionary theory. The reason for this is perhaps best stated by Bryson, who relegates Wallace to a single sentence in his *A Brief History of Almost Everything.* Bryson writes that Wallace: “…fell from scientific favour by taking up dubious interests such as spiritualism and the possibility of life existing elsewhere in the universe” (Bryson 2003 p 389).

Science writer Gribbin finds that Wallace’s interest in vitalism and spiritualism “tainted his scientific reputation” (Gribbin 2003 p 357). Wallace’s excommunication from mainstream science was effectively because his worldview was influenced by mystical spirituality. That his predilections are deemed “dubious interests” indicates the degree to which such issues have become ridiculed and scorned within modern scientific discourse. Wallace thus became the “other man” (Gribbin 2003 p 350) in early evolutionary theory, and a point of contention within the development of evolutionary discourse was rendered incontestable. The Western rationalist hegemony continued unabated.

Darwinism developed in a mechanistic context

Darwin posited his theory at a time when progressive and evolutionary conceptions of society, art, and science were already taking hold, spawned by the Industrial Revolution and Marxist theory (Sheldrake 2004). The neo-Darwinist assumption was of an evolution driven by "accidental" variations in the genetic material being shaped by the environment (Sahtouris 1999). This emphasis on the accidental and atheistic reduced the legitimacy of integrated conceptions of consciousness and intelligence. For, if the cosmos truly was driven by random forces, there was indeed "no crack in this closed universe of matter for any Divine influence to seep through" (Jaynes 1982 pp 437-438). The logical inference must inevitably have been that there is no Divine or numinous realm for intelligence to be integrated with. As Grof (1985) notes, the shift to a spiritless, Godless conception of the universe occurred "somewhere very high in the Darwinian pedigree" (Grof 1985 p 21).

The problem of neo-Darwinism

David Loye (2004a) argues that the Neo-Darwinists of the twentieth century took Darwin's name and ideas, and "misused" these to distort the original theory of evolution. Loye writes:

> Darwin … had actually gone on to write a completion for his theory that at the level of human evolution almost wholly contradicts the science that claimed his name. Both the nature of the shock and the challenge is most quickly indicated by the fact that in *The Decent Of Man*—and this nearly a hundred years earlier, clearly anticipating the rise of humanistic psychology—Darwin actually wrote of "love" ninety-five times, of "the moral sense" ninety-two times, and "mind" ninety times versus only twice about "survival of the fittest". (Loye 2004c p 10).

Loye argues that "hegemonic neo-Darwinism" wholly "ignored the humanistic completion" of Darwin's theory (ibid.). The prejudices of the mechanistic paradigm can be clearly seen here: the denial of Eros ("love"), consciousness ("mind") and the subtle and immeasurable ("the moral sense"), while valorising and focusing upon natural selection.

Yet survival of the fittest was deemed by Darwin to be of lesser importance than "other agencies" in influencing "the highest part of our natures" (quoted in Loye 2004a p 27). Darwin wrote about "mutuality" (which Loye interprets to mean "cooperation") nearly three times as often as "competition" (ibid.). It may be supposed that the term "survival of the fittest" has been privileged because of its compatibility with the tenets of the mechanistic paradigm (Table 2.1). Natural selection incorporates reduction to the microscale (genetics), the random (random mutation of DNA), and the mechanistic (the 'law' of natural selection).

Loye (2004a) also argues that Darwin was not simply dismissive of religion and spirituality, as has been widely interpreted in popular science and media. In *The Decent of Man*, Darwin wrote:

> … a belief in all-pervading spiritual agencies seems to be universal, and apparently follows from a considerable *advance* in man's reason, and from a still greater advance in his faculties of imagination, curiosity and wonder. (quoted in Loye 2004a p 34. Italics added).

Notably, belief in spiritual agencies is seen as a higher level of reasoning (an "advance"), not a regression, as is the case in many modernist texts (Wilber 2000c). Similar sentiments are expressed by Darwin no less than five times in *The Decent of Man* (1871) (Loye 2004a). Thus Loye claims that Darwin actually anticipated transpersonal psychology and the renewed interest in spirituality by more than a century (ibid. p 31).

According to Loye, Darwin himself rejected the idea of blind chance, the latter writing that "The understanding …revolts at such a conclusion" (quoted in Loye 2004a p 31). Loye finds that that "pure chance… does not appear to be a significant factor in the evolution of life" (ibid. p 253).

The most telling criticism of Darwin and the neo-Darwinists is that *The Origin of Species* did not appreciably deepen the understanding of its central motif—the origin of species (life)—a problem which Maddox finds remains unresolved to this day (Maddox 1998 p 235). It adds support to Bloom's (2001) claim that empirical science cannot deal with ultimate causes and is ultimately descriptive in nature.

There are appreciable inconsistencies between Darwin and neo-Darwinists: a differential explicable via the prejudices of the mechanistic paradigm and hegemony of Western rationalism.

Genetics and microbiology

As the "monolgical gaze" (Wilber 2000a p 226) of Western science peered more closely into the external microcosm, an entire biological worldview was assembled around the gene. Genes became the fundamental components of humanity (Bloom 2001). This outcome has been served by the establishment of Western rational ways of knowing. It continues to reinforce the mechanistic paradigm.

Microbiology gained further momentum when Pasteur developed the process of pasteurization and many of the processes of microbiology in the 1860s and the latter part of the century (Maddox 1998; Pickstone 2000). Pasteur's work branched out into industrial problems and animal diseases, and exploited biotechnologies. His models led to the development of both practices and principles (Pickstone 2000 p 136).

Pasteur did more than show that bacteria are responsible for turning milk into cheese, however. His work was an important step in the development of critical/rational ways of knowing, especially experimentalism. Pasteur's legacy was reinforced with the discovery of penicillin by Alexander Fleming in 1929. The reductionism and microscale focus of life sciences were also reinforced. Both Pasteur's and Fleming's methods were ultimately methods of control, mirroring the psycho-spiritual imperatives of egoic consciousness (Anthony 2005b; Sheldrake et al. 2001). They also undermined the concept of 'spontaneity' (and thus the immediacy of integrated intelligence) in human knowing.

Experimentation became increasingly controlled, planned, and rationalised. This ultimately led to a modern science where, as Maddox (1999) laments: “The days have long since gone when a little scribbling on the back of an envelope or two could yield a worthwhile theory of anything, let alone a theory of everything” (Maddox 1999 p 120). With Pasteur, spontaneity in science began to diminish.

The work in genetics of Mendel—which became belatedly well known at the turn of the twentieth century—helped establish modern biology. Like Pasteur’s work, it represented a further vindication of reductionism. The inevitable implication of Mendel’s work was that cells were the essential units of living things, although this idea had been recognised since the 1830s (Maddox 1998 p 18). Mendel’s concept of dominant and recessive genes was significant, as it enabled the mathematical prediction of inherited characteristics (Gardner et al. 1996 p 53).

The effect eventually filtered down to intelligence theory. Mendelian conceptions became a popular way to describe human characteristics, including intelligence. Mendel’s ideas remained popular until at least the 1920s, when their simplistic nature was recognised (Gardner et al. 1996 p 54).

The human genome project

In the middle of the twentieth century, the discovery of the structure of the DNA molecule (1953) had a great impact upon science, especially biology, psychiatry, and psychology. It ranks in importance with Copernicus's heliocentric hypothesis (Maddox 1999 p 20).

What is crucial in the development of the Western rationalist hegemony is that when Crick and Watson built a structural model of the DNA molecule, ontogeny had finally been bought within the bounds of rational enquiry (Maddox 1999). Writes Maddox:

> That was the springboard for a detailed explanation of what has proved to be the universal *bio-chemical machinery* of living things, which continues still at breakneck pace (Maddox 1998 p 20. Italics added).

Maddox's summation suggests both that the model was founded upon the mechanistic assumptions of the Newtonian paradigm, and that this paradigmatic model continues unabated.

The valorisation of the human genome project and the gene itself reflects modernist science's reductionist and mechanistic epistemology. The gene is microscale, measurable, observable, and quantifiable; and its functions can be described mathematically. Vitalism, animism, pantheism, and mysticism were seemingly dead. The mechanists' insistence on an accidental universe where life and consciousness are mere epiphenomena was consecrated. The random mutation of the gene—seen as the overriding 'driving force' of nature (Dawkins 1976, 1987)—was made material, sensible, observable, empirical and thus 'real'. As Crick and Watson stood before their replica of a DNA molecule, it represented the apotheosis of critical rationalism in Western civilisation. Consciousness and awareness had moved outward and downward, and the inward and upward foci of the mystics became obscured before the model of a single molecule.

The preoccupation with the microscale of biological systems has obfuscated transcendent knowledge. Meaning and purpose are obscured by the dominant ways of knowing. Reductionism in modern biology has become self-stultifying and self-perpetuating, mirroring the general process inherent in the Western rationalist hegemony.

I next examine the development of two discourses which have been deeply affected by the reductionist biology analysed here: modern psychology and intelligence theory.

3.8 Modern psychology and intelligence theory

Modern psychology is a vast field. There are at least six main schools: the behaviourist, the psychodynamic, the humanistic, the cognitive, the social constructivist, and the evolutionary (Gross 2003). The attempt here is not to analyse all these fields, but to identify the seminal moments in the history of psychology and intelligence theory that have confined contemporary psychology within the critical/rational worldview. Each of these important events followed the lineage of the rationalist hegemony of Western culture. They consolidated the conception of consciousness and intelligence as mechanistic.

The beginnings of modern psychology

Despite Kant's insistence that consciousness could not be studied objectively, later anatomical and physiological investigations of the nervous system revealed clear links between human abilities and brain structure (Gardner 1996 pp 36, 37). The period from the 1860s until the early 1890s saw the wide deployment of experiments using "complications tasks", reaction times and the subtractive procedure (Gardner et al. 1996 p 37).

The research of Francis Gall in the early nineteenth century implied that the development of the cerebral cortex was linked to enhanced human and mammalian capabilities. Other European physicians and scientists were revealing that brain damage impaired mental functions. These included Marc Dax, Paul Broca, Carl Wernicke, and Hermann von Helmholtz (Gardiner et al. 1996 pp 36-37). When Helmholtz demonstrated that nerve impulses travel at 100 metres per second (Gardner et al. 1996 p 37), he effectively grounded the brain and consciousness in the material world. The way was then open to research the mind at a physical level, in line with the tenets of Western materialism

In the mid-nineteenth century, astronomy helped establish empirical psychology. The time it took individuals to measure the transit of stellar objects was used to establish a more scientific understanding of measurement and response. In the light of this, "complications tasks" (where two or more sensory modalities were employed) quickly became the primary means of studying "higher mental processes" (Gardner et al. 1996 p 37). F.C. Donders (in the late 1860s), calculated how long it took to make an "operation of discrimination" by measuring reaction times to a single stimulus, and then subtracting that time from the time it took that individual to solve a complication task (Gardner et al. 1996).

Therefore the study of mind became increasingly focused on measurement, externalities, and the realm of the sensory. This undermined Kant's insistence that there could be no mathematical science of consciousness. Prior to Donders, nerve impulses were seen as unrelated to the physical body, and akin to the immaterial mind or the soul (Gardner, 1996 pp 36, 37).

This dominant empirical approach meant that the subtle realms of mind and experience were receiving little attention. To use de Bono's terms, the tendency was to "tackle only that part of the situation that can be tackled with precision and ignore the rest as if it did not exist" (de Bono 1986 p 17). Thus, by the early to mid-twentieth century, mirroring the general thrust of the Western rationalist hegemony, those aspects of consciousness which could not be readily measured became neglected, or even considered irrelevant (Ross 1996).

The dawn of experimental psychology: Wilhelm Wundt

Wilhelm Wundt established possibly the world's first experimental psychology laboratory in 1879 (Gardner et al. 1996 p 38). Wundt proposed that complications were solved by a number of "elements", including reflex, perception, cognition, judgment, and voluntary action (ibid.). He attempted to study consciousness the way that physicists studied the external world (ibid.). For Wundt, even religion, language and customs could be explained as consisting of "elements". Individuals were the units that developed culture and transmitted it from one generation to the next, moving from simpler to more advanced cultures over time (ibid.). Here was the equivalent of Newtonian linear and sequential cause and effect.

Many researchers from around the world were attracted to Wundt's work, and employed his empirical methods (ibid.). However, it is notable that Wundt's more humanistic *Volkerpsychologie* (cultural psychology) was largely forgotten as American psychology became predominant (Owusu-Bempah & Howitt 2000).

Wundt's attempt to mirror the methodologies of physics was seminal in establishing modern psychological theory. The physics of Wundt's day, being prior to the revolutionary propositions of relativity and quantum theory, was heavily imbued with the suppositions of the mechanist paradigm. Ironically, those revolutions were to follow soon after Wundt's work, transforming the paradigm upon which physics is founded. Yet crucially, psychological theory has failed to acknowledge and incorporate these new ideas (Grof 1985; Ross 1993). It has remained bound within the theoretical, philosophical and metaphysical framework upon which it was founded—the mechanistic paradigm.

Early intelligence theory

Francis Galton's work in the mid to late nineteenth century was important in the development of intelligence and aptitude tests. He applied statistics to the study of intelligence. Galton was Darwin's half-cousin and believed that intelligence was inherited, and not dependent on such factors as social class or education (Gardner et al. 1996 p 41-7). Galton gathered data about people's weight, height, hand strength, power of breath, head size, and psychophysical characteristics such as reaction times and ability to distinguish fine sensory discriminations (Gardner et al. 1996 p 46). These tests focused on sensory modalities, which reflected the philosophy of the British empiricists such as Locke and Hume, who held that data entered the mind via the senses (Gardner et al. 1996). The assumption was that those with greater capacity for sensory perception had a greater amount of data to work with, and greater discriminatory acuity (Gardner et al. 1996 p 47). This presaged the mind-as-computer metaphor which currently dominates cognitive psychology (Maddox 1999).

Although Galton's tests were later shown to be of limited predictive value (ibid.), his use of statistical methods helped establish a trend in modern psychology which continues to this day. This includes the development of factor analysis, which is widely employed in determining IQ test results (ibid. 51). Researchers who began to adopt similar statistical approaches to intelligence in the wake of Galton's work included James McKeen Cattell and Clarke Wissler (ibid. 47). The statistical and normative methods of contemporary psychology were greatly influenced by Galton. Contemporary IQ theorists such as Arthur Jensen (1998) and Murry and Hernstein (1994) follow comparable normative approaches.

At approximately the same time as Galton, an alternative approach to testing intelligence and psychophysical processes was developed by Alfred Binet (Gardner et al. 1996 p 47). He was more interested in comprehension, judgment, and the capacity for reason and inventiveness. His tests became widely adopted, and focused upon simple everyday things, such as comparing two objects from memory, counting from twenty to zero, and comprehending abstract words and disarranged sentences (Gardner et al. 1996 p 49). Binet's tasks therefore focused upon verbal/linguistic, arithmetic, mnemonic and artistic acuity. But both his and Galton's approaches are notable for an absence of any deeper reflective processes that might require introspection or even mildly non-ordinary states of consciousness. Binet's focus helped entrench the dominance of externalised and phenomenological approaches to human intelligence, by avoiding inner worlds and self-reflexive consciousness.

The tendency of some of those who later employed Binet's methods was to interpret intelligence as a single universal measure—and the IQ score became 'reified'. It came to be seen as a "distinct, quantifiable 'thing'" within the individual's head (Gardner et al. 1996 p 50). This is best understood in the context of the first half of the twentieth century, when the measurability fixation of experimentalism and mechanistic science was widespread (Ross 1993).

The influence of Freud

Freudian psycho-dynamics has also profoundly influenced contemporary understandings of the human psyche (Vandermeer 1996). Like the behaviourists, Freud's model was a linear, stimulus and response model, but with the unconscious and its intricacies as the focus (Goleman 1986 p 57-60). Freud's major contribution to knowledge is his tool of free association (Wilber 2001 p 52), an interrogative process which mirrors the Socratic method, and is still the basic tool of psychoanalysis. However, Freud failed to account for transpersonal experience (Grof 1985, 1992).[17]

The leaders of psychological theory at the turn of the twentieth century premised their work on the concept of human automata. Ross (1993) argues that despite the fact that Freud and his fellow psychoanalysts and contemporaries were investigating the deep psyche, they remained "at heart incorrigible mechanists and materialists" (Ross 1993 pp 116-117). Freud explicitly used the principles of Newtonian physics to establish psychology as a scientific discipline (Grof 1985 pp 37, 143). Other critics have also pointed to Freud's mechanistic predilections (Epstein 2002; Goleman 1986; Grof 1996; Vandermeer 1996; Wilber 2001).

Freud was profoundly influenced by Ernst Bruecke, who was his teacher and the founder of the Helmholtz School of Medicine (Grof 1985). This organisation wished to introduce Newtonian scientific thinking into other fields of enquiry. The school viewed all biological organisms as complex atomic structures strictly governed by scientific axioms, in particular the principle of the conservation of energy. Biological organisms had only one active force, the physiochemical processes of matter, which could be reduced to the ideas of attraction and repulsion (Grof 1985 pp 143-144).

Freud tended to dismiss religion as mere infantile wish fulfilment (Wilber 2000c). Grof (1985) argues that this explanation is adequate only in relation to the performance of rituals, and fails to account for the nature of the visionary experience of alternate realties (Grof 1985 p 24).

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[17] Grof's findings are more consistent with early Freud, where he dismissed the occult as superstition. But by 1921 he admitted that the occult could not be easily brushed aside (Radin 2006 pp 65, 69).

In Freud's model the superego is the highest determining force. The shadow (Id) is situated below the ego, which is the driving force of much of behaviour (Freud 1994). However, Freud's superego contains no transpersonal element. The superego is simply the noble, higher part of the mind. Freud's focus was not upon the transcendent, but on the biographical resonances situated within the human psyche (Grof 1985)

Conversely, the multi-dimensional nature of expanded states of consciousness (including integrated intelligence) transcends three-dimensional space-time (Grof 1985; Laura & Leahy 1988). The Freudian model is paradigmatically constrictive, and precludes the possibility of an integrated intelligence that transcends Newtonian space and time (Grof 1985 pp 144-46). This is clear when one compares its spatial/temporal presuppositions with relativity theory (four-dimensional space-time) and quantum theory and systems theory (the latter two of which acknowledge the existence of non-locality) (Ross 1993; Targ & Katra 1999).

Grof (1985, 2000) argues that Jung (1973, 1989) was the first to use a truly scientific approach to mind. His principle of synchronicity (Jung 1973) transcended the linear mechanics of the Newtonian framework. Jung was keenly interested in the developments of modern physics, as well as "the paradoxical, mysterious, and ineffable" (Grof 1985 p 190). Yet because of his spiritual predilections, Jung effectively became *persona non-grata* in the wake of the behaviourist and rationalist hegemony of the mid-twentieth century (Ross 1993).

Bettleheim and the misrepresentation of Freud

In contradiction to the critics of Freud mentioned above, contemporary and colleague of Freud, psychiatrist, Bruno Bettleheim (2001), laments that Freud has been misrepresented in his English translations. He writes that "most references to Freud's work are either refutations or trivializations of his work" (Bettleheim 2001 p 19). Bettleheim's argument suggests that the delimitations of the mechanistic paradigm restricted the way that his work was interpreted, and thus affected his legacy.

Bethlehem's argument suggests the bias in the West in favour of the measurable and quantifiable—the privileging of 'hard' sciences (Bettleheim, 2001). It is for this reason that the translators of Freud have misrepresented him, argues Bettleheim. They downplay or fully ignore his references to the soul, the deep psyche and introspection, and render his work more analytical and 'rational' than it actually was. This, Bettleheim argues, stems from the translators' fear of the psyche and the shadow itself. Bettleheim's accusation is that the translators (and the West in general) are afraid of what lies within their own psyches, and so have avoided that most crucial component of Freud's work (ibid.). Thus he writes:

> The English translations cleave to an early stage of Freud's thought, in which he inclined toward science and medicine, and disregard the more mature Freud, whose orientation was humanistic, and who was concerned mostly with broadly conceived cultural and human problems and with matter of the soul. Freud himself stated that he considered the cultural and human significance of psychoanalysis more important than its medical significance. (ibid.).

While emphasising that Freud was an atheist, Bettleheim argues that Freud stressed that "the work of psychoanalysis is spiritual, as distinguished from physical or material work" (ibid. p 63). A paradigmatic distortion is highlighted by Bettleheim in the following passage, where it is suggested that Freud's English translations:

> …appear to readers of English as *abstract*, *depersonalized*, *highly theoretical*, erudite and *mechanized*—in short, *scientific*—statements about the strange and very complex workings of our mind. Instead of instilling a *deep feeling* for what is most human in all of us, the translations attempt to lure the reader into developing a "*scientific*" attitude toward man and his actions, a "*scientific*" understanding of the unconscious and how it conditions much of our behavior (Bettleheim 2001 p 5. Italics added).

This statement indicates once again the distorting affects of the mechanistic paradigm—the denial of the affective, and the elevation of the rational and the 'hard'.

The final irony in regard to Freud was that he dearly wished to see that psychoanalysis did not become a science merely for medical scientists. Yet this is precisely what happened after World War Two, when mechanistic American psychiatry came to dominate the field (Bettleheim 2001). Freud lamented the American commitment to materialism and technological achievement, which excluded the cultural and spiritual values that were most important to him (ibid. p 79). He criticised “the obvious American tendency to turn psychoanalysis into a mere housemaid of Psychiatry” (quoted in Bettleheim 2001 p 36).

Freud’s description of the subjugation of psychoanalysis to the position of “housemaid of Psychiatry” (ibid.) would mirror the later subjugation of cognitive psychology to the position of “handmaiden of neuroscience” (Maddox 1999 p 278). Freud and Maddox are referring to the continuation of the same process—the increasing scientisation and mechanisation of dominant paradigm representations of the mind—half a century apart.

Thus Freudian theory has been seminal in the proliferation of mechanistic representations of mind in the modern world, relegating even deep psychic processes to the realm of mechanisation. The legacy of Freud is something of an irony. As with the ancient Greeks, Darwin, and Wundt, his more spiritual and humanistic side tends to be forgotten in the contemporary world. Yet it is nonetheless true that his earlier work excluded transpersonal elements, and tended to downplay religious experience.

Behaviourism

The emergence of behaviourism from “the exploratory and exploitative drives of nineteenth century capitalism” (Ross 1993 p 116) represented another seminal event in the rationalist hegemony. It had a powerful influence upon the development of psychological theory and practice in the twentieth century (Bullock & Trombley 1999; Dossey 1999; Gardner et al. 1996; Ross 1993 pp 112-113). Behaviourism dominated experimental psychology from the 1920s till well beyond mid-century (Blackmore 2001). It emerged in a time of dominance of mechanistic thinking, where all mind was being reduced to matter by mainstream science (Ross 1993 p 115).

Gardner et al. (1996) point out that the work of John Watson—the first noted behaviourist—was carried out at a time (early to mid twentieth century) when many shared his views. This was especially the case in the United States and Russia, where introspectionists' claims were thought to be subjective and unreliable. First-person accounts were thought to be unreliable. Instead, it was felt that objective verification, modeled on the data-specific disciplines of physicists and chemists were more accurate (Gardner et al. 1996 p 52). Behaviourists wanted to make psychology rigorous and scientific, and to avoid nebulous ideas such as "plans, images, consciousness, schemata, thoughts, ideas and the mind" (Gardner et al. 1996 p 52). Behaviourism was a discipline which attempted to base its foundations on observable behaviours and identify the laws which underpinned them (Gardner et al. 1996 p 52).

B.F. Skinner (1971) refined the field of behaviourism with his concept of operant conditioning. He wrote: "What we need is a technology of behaviour comparable in behaviour and precision to physical and biological technology" (quoted in Ross 1993 p 114). Skinner was particularly damning of parapsychology and the paranormal, and wrote a scathing critique upon one of the Rhine ESP experiments[18] (Green 2002 p 20).

The most problematic aspect of behaviourism in terms of the representation of the intuitive is that it completely denied consciousness (Ross 1993). References to mental entities were rejected, as they represented the nebulous "'ghosts in the machine that haunt the explanatory accounts of human conduct" (Nash 2005 p 7).

Thus Watson wrote that psychology "is a purely objective, experimental branch of natural science which needs consciousness as little as do the sciences of chemistry and physics" (quoted in Ross 1993 p 113). He also stated that consciousness, "…has never

[18] The Rhine ESP experiments were possibly the first clinically controlled ESP experiments; they began at Duke University in 1929 and continued until 1965. In the most common of these experiments, participants had to 'guess' the symbols behind types of cards (Radin 2006 pp 68-99).

been seen, touched, smelled, tasted, or moved. It is a plain assumption just as unprovable as the old concept of the soul" (quoted in Dossey 1999 p 22). This denial of consciousness was "an audacity which could only have been countenanced in a society falling into the hypnotic trance of atheistic materialism" (Ross 1993 p 112).

The focus of behaviourists was on the "particular" and the "measurable" responses to "particular" and "measurable" stimuli (Gardner 1996 p 52). As Bettleheim (2001) writes:

> Behaviourism concentrates on *what can be seen from the outside*, what can be *studied objectively*, by an *uninvolved observer*, what can be *replicated and assigned numerical values* (Bettleheim 2001 p 108. Italics added).

To use Wilber's (2000c) terminology, behaviourism was a "Flatland" science of surfaces. Even language was depicted as "biosocial stimuli" (Ross 1993 p 112). It was the "apotheosis of (mechanistic science's) gross denial of internality" (ibid). Behaviourists were interested only in the observable, the empirical and the external (Wilber 2000a p 84). This was a mirror of the conceptions of the empirical philosophers such as Locke and Hume.

Wilber (2001) writes that the behaviourists took the mechanistic cause and effect predicates of Freudian psychotherapy and translated them into behaviourism, replacing Freud's Newtonian psychic forces with a Newtonian stimulus/response model. In both models, the possibility of the integration of psyche and a universal consciousness was not considered. Causality was linear, localised, and individualised. Behaviourism was an almost perfect projection of the mechanistic paradigm, where "the human organism is viewed as a rather complex but totally reactive mechanism" (Wilber 2001 p 50). In that mechanism there was no place for consciousness or spirit.

Behaviourism fell from favour after the mid twentieth century. Yet, as Dossey indicates, the computer replaced it as the leading metaphor, thus perpetuating the denial of life and humanness (Dossey 2001 pp 50-51).

More recent developments

In mid-century the conceptions of Jean Piaget deeply influenced developmental psychology, as did (later) the information and computer models of consciousness. Yet Piaget made no attempt to observe or measure any effect or process involving spiritual or reflexive inner dimensions. Piaget used the scientist as the basic model of the learner (Gardner et al. 1996 p 113). Piaget's *method clinique* was a dialogical question and answer method modelled from Freud (Wilber 2000b). Thus, the process was heavily verbal/linguistic, and did not allow for the non-ordinary states of consciousness which facilitate mystical experience. In the wake of the successes of Piaget, other researchers such as Kohlberg, Loevinger, Broughton, and Maslow also employed a dialogic approach (Wilber 2001 p 54).

The neuroscience which dominates modern cognitive psychology was becoming well established by 1949, when psychologist Donald O. Hebb declared:

> Modern psychology takes completely for granted that behavior and neural function are perfectly correlated. There is no separate soul or lifeforce to stick a finger into the brain now and then and make neural cells do what they would not do otherwise… One cannot logically be determinist in physics and biology, and a mystic in psychology (quoted in Dossey 1993 p 138).

Hebb's materialistic position that the machinations of individual brains and consciousness are inseparable remains the foundation of physiological psychology (Dossey 1993 p 139). Francis Crick epitomised this with his "astonishing hypothesis" that "everything about you" and "all aspects of experience …can be explained by neurons" (BBC 2001; Crick 1994). The names of dominant modern brain sciences—*neuro*logy, *neuro*science, *neuro*physiology—all have their bases in the study of the neuron, a micro-component of the brain. As Nash (2005) critiques:

> In a realist theory of science, a concept has no place in a causal explanation unless it has an actual reference: and the most successful reference of intelligence' is, in fact, to a property of the brain. (Nash 2005 p 7).

In this way psychology (and intelligence theory) has been restricted by the same factors that have restricted theories of consciousness and the mind. Only fixed, measurable, isolated and preferably microscale entities are permitted to qualify as causal; the neuron is the perfect fit.

The 'others'

Even as this hegemonic mechanistic rationalism seized Western civilisation, there were 'other' movements in the twentieth century which were humanistic and spiritual.

Maslow (1971) moved beyond the limitations of mechanistic perception, and incorporated a transpersonal dimension into his arguments and research, by examining transpersonal and spiritual components of human experience. His work was part of humanistic, positive and transpersonal psychology, which had strong influence in pockets of the West during the 1960s and1970s, particularly in California. This paralleled the alternative culture movement, with its strong romantic, spiritual and environmental foci (Tarnas 2000). Yet such movements have never gained mainstream academic and scientific approval.

There have been numerous 'others'. Notable has been the painstaking work of parapsychology, also ignored and derided by mainstream science (Braud 2003). Further, the non-deterministic nature of much of modern physics of the twentieth century has had little impact on mainstream mind science. The work of physicists Planck, Bohr, Einstein, and Heisenberg (Gribbin 1998) did not have the same influence on contemporary psychology as Newtonian physics had on earlier figures like Freud and Helmholtz. When the Aspect experiment in 1982[19] offered empirical evidence to validate Bell's theorem and the principle of nonlocality (with its astounding implications), it generated little interest outside of physics (Talbot 1992). This was despite (or possibly because of) the

[19] The Aspect experiment, using an electron generator, was carried out by Alain Aspect and colleagues at the Institut d'Optique in Orsay, France. It demonstrated that at a subatomic level, electrons were nonlocally connected (Radin 2006 pp 226-227).

fact that such physics radically undermines the very basis of the materialist fortress of modern mind science. Stapp calls this effective denial and rejection “an irrational act” (Stapp 2005 p 57). More radical recent theorists such as Capra (2000), Bohm (1973), Pribram (1991), and Peat (1988) are often derided as “New Age”. Meanwhile the spiritually focused education of Steiner, Montessori and Krishnamurti continue to form a significant but peripheral component of modern education (Milojević, 2005).

In terms of textual spirituality we may note the rise of fundamentalism, especially in the United States originating in the late nineteenth and early twentieth century in opposition to Protestant liberalism and secularism. This avowed the incontestability of scripture (Berliner 1997); this process is repeating itself in the wake of the ‘911’ incident in New York.

These movements and theorists do not constitute the mainstream discourse on mind and intelligence.

The not-so-astonishing present

Ironically it has been the publication of Crick’s *Astonishing Hypothes*is (1994) which has been crucial in the re-introduction of the concept of consciousness into recent scientific discourse (Maddox 1999). It is Crick’s mechanistic hypothesis and his methods (microscale focus upon the neuron) that establish the validity of his thesis within dominant consciousness discourse. This epitomises the self-perpetuating and self-obfuscating hegemony of dominant paradigms: only when a conception conforms to the paradigmatic parameters and is explicated via its preferred ways of knowing, will it be acknowledged. In short, Crick’s hypothesis[20] is not at all astonishing. Its lineage can be traced back through the history of Western civilisation to the atomists of ancient Greece.

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[20] Crick’s (1994) hypothesis is that all aspects of mind can be attributed to the functions of the neuron and microprocesses in the brain.

The turn of the new millennium found eminent neuroscientist Steven Pinker epitomising the developmental thrust of contemporary mind science, when he attempted to predict the future of this science:

> In evolutionary psychology, a combination of mathematical and computer modelling with data from ethnography and experimental psychology will lead to an elucidation of the adaptive basis of major mental abilities… Techniques such as Functional Magnetic Resonance Imaging, Magnetoencephalography, and Optical Imaging will become the standard empirical tools of psychology (Pinker 1999 p 198).

Here the ways of knowing remain fixed within the critical/rational worldview: mathematical, experimental, and empirical, with data processing as a key component. The brain-scanning "techniques" show that the machine has become not merely the dominant metaphor, but the ultimate arbiter of the real.

Summary

Within contemporary dominant mind science, the concept of integrated intelligence has effectively been silenced. There can be no integrated (transpersonal) domain, as neuroscience is dominated by what Wilber (2001) calls the "eye of flesh", and the process of reductionism.

3.9 Conclusion

What has been argued in this chapter is that throughout the history of Western culture there have been significant events regulating both the concepts and perceptions (ways of knowing) of mind and intelligence. Seminal events have included: the emergence of critical rational ways of knowing in ancient Greece; the cognitively restrictive theology of Augustine; the Christian rejection and persecution of mysticism; the Aristotelian revival early in the second millennium AD, and the simultaneous establishment of the university in Europe; the advent of new technologies, beginning with the telescope and microscope in the sixteenth century; the advent of classical physics around the time of Newton; the Industrial Revolution and its valorisation of individualistic egoism, desacralisation of space and secularisation of education; Darwin's evolutionary theory and the neo-Darwinian hegemony; the empirically-minded experimentalism of early psychologists such as Helmholtz and Wundt; the reductionist focus of microbiology and its effect upon neuroscience; the rationalist tendencies of Freud, exacerbated by the rationalism of the English language translations; the mechanistic behaviourists; the reductionist hegemony of microbiology; the experimentalism of Piaget and modern developmental psychologists; and the self-limiting mind-as-computer metaphor. These seminal events have stultified introspection and insight, and usurped critical/rational ways of knowing. Science became increasingly focused upon critical/rational ways of knowing, and scientists and humanity in general became less able to experience and accurately interpret intuitive knowledge.

Yet this has not been a linear process and, as has been shown, this rationalist hegemony has been mediated by numerous incursions of textual and mystical spirituality. The tendency within modern discourses has been to downplay the importance of these events, and/or depict them as temporary aberrations in the ineluctable march towards modernity.

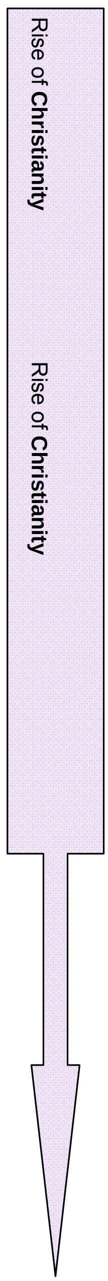
The power relations which underpin the Western rationalist hegemony have been—and continue to be—both covert and overt. Modern and postmodern humankind is the product of this hegemony and its overriding critical/rational worldview. We have, as Foucault (1984) lamented, become the subjects of our own knowledge. We exist in a subtly regulated Newtonian billiard-ball universe, where Monad's (1972) chance and necessity, and Dawkins' (1976) selfish gene remain the epitomic metaphors. To again quote Jaynes: "there is no corner in the stars for any god, no crack in (the) closed universe of matter for any Divine influence to seep through" (1982 pp 437-438).

In this chapter I have established a civilisational perspective on the mechanistic, fragmented and intellectualised nature of dominant modernist discourses on mind and intelligence. This has been a long-term temporal view. Having thus outlined the big picture, in the following chapter I narrow the focus a little to outline several paradigmatic issues and debates related to the subject matter.

Table 3.2: Seminal Events in the genealogy of Western rationalist hegemony

- Grey coloring (in-text) represents predominant worldview type(s) influenced by the "event."
- Dates taken from sources listed in thesis text, & from Gregory (2001), Tarnas (2000), & Rohmann (1999).

Key event/period	Critical Rationality	Textual spirituality	Mystical spirituality
Hellenic Greece (till *c.* 323 BC)			(*fl.* 585 BC) **Thales**
	(570 BC) **Anaximander** develops systematic cosmology.		
			(545 BC) **Anaximenes** posits transmutations of underlying substance.
			(*569-c* .500 BC) **Pythagoras** develops synthesis of science & religion.
	(*c.* 515-459 BC) **Parmenides.** Increased rationalism & naturalism.		
	(*fl.* 500 BC) **Heraclitus**: concept of pervasive flux & universal *logos*.		
	(469-399 BC) **Socrates** – analytical method.		
Hellenic Greece			(460BC) **Anaxagorus:** Concept of universal mind (*nous*).
	(459 BC) Emergence of **Sophists.**		
	(c. 460-370 BC) **Hippocrates** - "sympathy of all things."		
	(430 BC) **Democritus**' atomism.		
	(399-347 BC) **Plato** writes *Dialogues.*		
	(384-322 BC) **Aristotle.** (335 BC) founds Lyceum.		
	(320 BC) **Skepticism** founded by **Pyrrho of Elis** – taught at Platonic Academy till 60 BC.		
	(306 BC) **Epicurus** founds **Epicurean school.** (Ans)		
			(300 BC) Zeno founds **Stoic School** (Athens).



Critical Rationality	Textual spirituality	Mystical spirituality
(240BC) **Archimedes** dev. classical mathematics & mechanics.		
	(8-4 BC) Birth of **Jesus of Nazareth.**	
	(35) Conversion of **Paul** on way to Damascus.	
	(40) **Philo of Alexandria** Integration of Judaism & Platonism.	
(140) **Ptolemy's** *Almagest* & *Tetrabiblos* codifies classical astronomy & astrology.		
		(100-200). **Gnosticism** flourishes.
	(175) Earliest extant authoritative canon of **New Testament**.	
(190) **Sextus Empiricus** fl., summarises classical **Skepticism.**		
	(248) **Origen**'s *Contra Celsum* defends **Christianity** against **pagan** intellectuals.	
		(265) **Plotinus** writing & teaching in Rome, emergence of **Neoplatonism.**
	(312) Conversion of **Constantine** to **Christianity.**	
	(313) **Edict of Milan** est. religious toleration for **Christianity** in Roman Empire.	
	(354) Birth of **Augustine.**	
		(361-363) **Julian the Apostate** briefly restores **paganism** in Roman Empire.

(c. 11-16 ©) New **arithmetic mentality** as **Aristotelian thought** forms new curriculum.

(2^{nd} millennium) **Legal revolution**: institutional & individual autonomy, Separation church & state, increased intellectual & political autonomy.

(c. 11-15©) Scholastic movement

Scholastic movement

Critical Rationality	Textual spirituality	Mystical spirituality
	(386) Conversion of **Augustine.**	
	(391) **Theodosius** prohibits all **pagan** worship in Roman Empire.	
	(429) Closing of **Platonic Academy** in Athens by **Justinian.**	
	(430) Death of **Augustine.**	
(781) **Alcuin** est. study of seven liberal arts as basic medieval curriculum.		
	(866) **John Scotus Erigena's** *De Divisione Naturae*, synthesis of **Christianity** & **Neoplatonism.**	
(1090) **Roscellinus** teaching **nominalism.**		
(*c.* 1150) Rediscovery of **Aristotle**'s works begins in Latin West.		
(1170) Founding of University of Paris Intellectual centers developing at Oxford & Cambridge. Intellectual autonomy expands.		
(1247) **Roger Bacon** begins experimental research at Oxford.		
	(1266-73) **Aquinas**' *Summa Theologica.*	
		(1300-30) Spread of **mysticism** in Rhineland, **Meister Eckhart** (possibly) burned at stake (1327).
(1319) **Ockham** teaching at Oxford.		
	(1323) **Aquinas** canonized.	
(1330-1350) Spread of **Ockham**'s thought (nominalism) at Oxford		

arithmetic mentality

Scholastic movement

(c. 1500) Classification/n as WOK emerges.

(c. 1500-1600) **Protestant Reformation**

	& in Paris.		
	Critical rationality	**Textual spirituality**	**Mystical spirituality**
	(1335) First public striking clock erected in Milan.		
			(mid-14©) **Petrarch** & rise of **Humanism.**
			(mid-15©) **Ficino** & **Pico** della Mirandola - Neoplatonists.
	(1473-1543) **Copernicus** – heliocentric universe. Mathematical WOK become prominent.		
		(1517). **Luther** posts 95 theses - **Protestant Reformation** begins.	
	(*c.* 1551) Leonard **Diggs** invents reflecting telescope - & later (probably) refracting.		
	(1561-1626) Francis **Bacon**'s writings inspire scientific method. Matter valorised, subtle phenomena obfuscated.		
	(1609) **Kepler**'s *Astronomia Nova* – 1st 2 laws of planetary motion.		
	(1610) **Galileo**'s *Sidereus Nuncius* - telescopic discoveries.		
	(1637) **Descartes**' *Discourse on Method* – "*Gogito ergo sum.*" Emerging dualism, individualism & fragmented mind.		
	(1651) **Hobbes** *Leviathan*.		
	(1665) **Hooke**'s *Micrographia*.		
	(1677) **Leeuwenhoek**'s discovery of microorganisms.		

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(c. 1780-1830) **Romantic Movement**

(Mid-18©) **Industrial Revolution**, secular state emerges – expanded egoic consciousness.

(c. 1800) Analysis as WOK emerges.

(c. 1850) **Experiment** as WOK emerges, incl. early psychologists.

Critical rationality	Textual spirituality	Mystical spirituality
(1687) **Newton**'s *Principia*. Classical physics begins.		
(1690) **Lock**'s *Essay Concerning Human Understanding.*		
(1747) **La Mettrie**'s *La Homme-Machine.*.		
(1723-1790) Adam **Smith:** calculation usurps divination.		
(1779) **Hume**'s *Dialogue Concerning Natural Religion.*		
(1781) **Kant**'s *Critique of Pure Reason -* severs link with objective knowledge.		
		(1790) **Goethe**'s *Metamorphosis of Plants.*
		(1793) **Blake**'s *Marriage of Heaven & Hell.*
		(1798) **Wordsworth** & **Coleridge**'s *Lyrical Ballads.*
		(1807) **Hegel**'s *Phenomenology of Mind*.
		(1807) **Wordsworth**'s *Ode: Intimations of Immortality*.
(1850) **Helmholtz** demonstrates nerve impulses travel at 100 m/s.		
(1858) **Darwin**'s *Origin of Species.*		
(1860s) Pasteur develops pasteurization, & many processes of microb'logy.		
(late 1860s) F.C. **Donders** calculates time to make "operation of discrimination."		
(mid-late 1800s) **Galton**'s statistical approach to intelligence.		

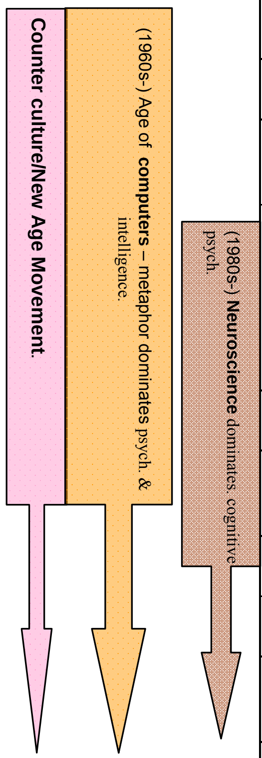
Experiment as WOK

Parapsychology begins.

Neo-Darwinist hegemony takes hold.

Behaviourism dominates psychology

Critical rationality	Rational spirituality	Mystical spirituality
(mid-late 1880s) **Binet**'s tests valorise verb./ling., math., memory & art ability - IQ reified.		
(1879) **Wundt** est. 1st psych. Laboratory.		**Wundt's** *Volkerpsychologie* forgotten.
(1871) **Darwin**'s *Decent of Man.*		
(1882) George **Romanes**' *Animal Intelligence.*		
		(late 1800s - early 1900s) Alfred **Wallace**'s mystical evolution – forgotten.
(1890s) **Mendel**'s work rediscovered - cells essential units of living things.		
	(late 19©-early 20©) Rise of fundamentalism in United States.	
(1900) **Freud**'s *Interpretation of Dreams*		
(1919) **Watson**'s *Psychology From Standpoint of a Behaviourist.*		
		(Early 1920s-now) **Quantum mechanics** & systems theories challenge mechanists
(1924) **Piaget**'s *Judgment & Reasoning in the Child*.		
		(1927) **Heisenberg** posits uncertainty principle; **Bohr's** complementarity principle.
(1929) Discovery of penicillin by **Fleming**.		
		(1934) **Jung**'s *Archetypes of the Collective Unconscious*.
(after 1945) Centre of psychoanalysis moves to USA, becomes		



biological.		
Critical rationality	**Rational spirituality**	**Mystical spirituality**
(1949) Donald **Hebb** – behavior & neural function perfectly correlated.		
(1953) **Crick** & **Watson** – DNA . Life as bio-chemical machinery. **Skinner**'s *Science & Human Behavioiur*.		
		(1963) **Kuhn**'s *Structure of Scientific Revolutions*.
		(1966) **Bell**'s Theorem of nonlocality.
		(1971) **Maslow's** *The Farther Reaches of Human Nature.*
	(1980's-now). Re-emergence of strong **fundamentalist movement** in US. (esp. after 911 incident)	(1980) **Bohm**'s *Wholeness & the Implicate Order.*
		(1981) **Sheldrake**'s *A New Science of Life.*
		(1982) **Aspect** experiment validates **Bell**'s Theorem.
		(1991) **Pribram**'s *Brain & Perception.*
(1994). **Cricks**'s *Astonishing Hypothesis*		
(1994) **Hernstein** & **Murry**'s *The Bell Curve*.		
(1998) **Jensen**'s *The "g" Factor.*		

Chapter 4: The Paradigmatic Perspective (1)—The Mechanistic Paradigm, Mystical spirituality and Ways of Knowing

4.1 Introduction

> Shortly after that dream, I was still frustrated that I had not yet found the core message of *Anatomy*, but as I was lecturing to a group of twenty-eight students, I turned to write something on a white flip chart and instantly "**downloaded**" an image that **merged** three great mystical traditions and their biological implications: the seven charkas of the East, the seven Christian sacraments, and the ten sefirot of the Tree of Life from the Jewish Kabbalah. In less than a second, I **received**, I **understood**, I **accepted**, and I started the book over again (Myss 1994 p 35).

The previous chapter took a greatly distanced view of the interplay of critical rationality and textual and mystical spirituality. In particular I outlined how the Western rationalist hegemony established critical rationality as the dominant worldview, including its critical/rational ways of knowing.

In this chapter there is a slightly narrower focus—relevant debates and issues emerging primarily at the paradigmatic level. Figure 4.1 below, indicates the movement of the argument a step closer to a full contextualisation of the thesis problematique. This paradigmatic focus prepares the ground for the in-field debates and issues regarding consciousness and evolution (Chapter Five) and intelligence itself (Chapter Six)—and ultimately to an analysis of individual texts and theorists (in Chapter Seven).

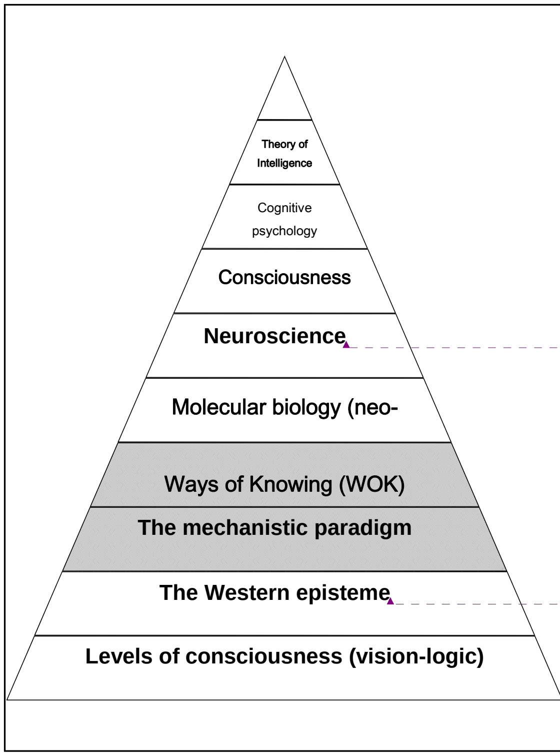


Figure 4.1: The focus of Chapter Four

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Figure 4.1 shows that these are out-of-field debates. They tend to remain obfuscated, excluded, or at the periphery of consciousness theory, and even further removed from intelligence theory. Nonetheless the issues and debates that are covered here can be seen to be seminal in the establishment and structuring of the mechanistic paradigm, and, in turn, the suppression of mystical/spiritual worldview and integrated intelligence. There are various layers to each of these issues, spanning CLA's social/system, worldview and paradigm, and myth/metaphor levels.

Section 4.2 examines the role of patriarchy in Western knowledge systems, and explores how this affects concepts of mind and ways of knowing. In 4.3, this is developed further, and how particular ways of knowing have been incorporated and/or excluded from patriarchal knowledge systems of the West is discussed. In section 4.4, I indicate how the materialism of the mechanistic paradigm has exacerbated the mind-body problem. This leads on to the issue of the individualistic and egoic nature of Western society, which is traced in section 4.5. It will be shown that such a social system is largely incompatible with the transpersonal foundations of mystical spirituality, the extended mind and integrated intelligence.

All four of these defining facets of the mechanistic paradigm—and their opposites within the spiritual mystical worldview—have been referred to in Chapter Two, and are listed in Table 2.1. They represent the most significant of the issues and debates regarding these two worldviews. They assist in understanding why the extended mind and integrated intelligence have been largely excluded from mainstream discourses on intelligence and mind at the field level.

While the structure of this chapter suggests a tangible binary, in accordance with poststructuralist thought the attempt here is not to establish an either/or dichotomy, with one domain depicted as the greater and the other as lesser (Belsey 2002). Rather it is to identify some important differences between the two and to highlight the power plays which underpin the current dominant position of mechanistic science over mystical spirituality.

I now begin the analysis with a theme that shall continue throughout this chapter—the patriarchal basis of mechanistic science.

4.2 The patriarchal basis of mechanistic science

Mechanistic science is patriarchal science (Carter & Smith 2003). Consistent with various theorists influenced by feminist theory—such as Eisler (2004), McClintock (1995) and Milojević (2005)—Ross (1993) writes that "it was our fathers' energy which was the driving force behind the whole exploratory and exploitative **thrust** of the scientific era" (Ross 1993 p 32). Ross finds a correlation between the patriarchy of Western culture and the attributes of the phallus—externalised, specific, active and rigid (ibid.). The key verb is "to thrust". These masculine qualities can be contrasted with the qualities of the female organ—internal, warm, and most notably, “receptive” (ibid. p 34). Similarly, Sardar (2000) argues that the very nature of science is inherently patriarchal and that “the focus upon quantitative **measures, analysis** of variation, impersonal and excessively **abstract conceptual** schemes, is both a distinctively masculine tendency and also one that serves to hide its own gendered character” (Sardar 2000 p 50.). The verbs of knowing are definitive of the cognitive character and limits of Western patriarchy and in turn the mechanistic paradigm.

The ‘feminine’ nature of mysticism

The mystical spirituality in which we most often find integrated intelligence has a decidedly ‘feminine’ character. The idea that mystical insight and inspiration has feminine properties is not new. Chinese mystic Lao Tzu asked some 2600 years ago: “When the Heavenly Gate opens and closes, / Can you play the part of the female?” (quoted in Ross 1993 p 174). Lao Tzu’s “Tao” (Jiyu 1998; Zhengkun 1995) is described as receptive, soft, yielding, and spontaneous (Ross 1993 pp 175-176). Other traditions and writers have also noted the feminine aspects of intuition (Broomfield 1997; Jung 1989; Nisker 1998; Pearsall 1999; Radin 2006; Rowan 1991; Wilber 2000c; Wilde 2002 pp 180-181). Radin (2006) argues that females are more open to psi experiences. In a survey conducted at the Institute of Noetic Sciences in 2003 involving 465 people, it was found that women were “less skeptical than men and reported more unusual experiences” (Radin 2006 p 44). Of the respondents who identified themselves as frequently experiencing telepathic experiences, 85% were female (ibid. p 45). Parapsychologist Susan Blackmore also claims that skeptics of psi phenomena are vastly over-represented by male and patriarchal attitudes (Blackmore 2001). This further suggests that males are somehow less attuned or open to mystical and subtle phenomena. Terrence McKenna sees the spiritual receptivity of women as bringing them closer to the chaotic, the creative, and the intuitive. This is because the lives of women involve more “boundary dissolving”, and feminine sexuality “involves the **acceptance** of penetration… (creating) an entirely different relationship to boundary than does the male need to fulfil the potential to penetrate" (Sheldrake et al. 2001 pp 46-47).

Further, it has been well noted that a childlike sense of playfulness and novelty—more akin to feminine ways of knowing than patriarchal—is correlated with an individual's receptivity to psi phenomena (Radin 2006; Ritchie 1992; Pearsall 1999). This contrasts significantly with the carefully controlled, analytic, meticulous processes of experimentation, analysis and classification that define the ways of knowing of the 'hard' sciences (Pickstone 2000).

Thus, a Western science which predicates its methods and ways of knowing upon a patriarchal need for control and power is a science clearly at odds with the feminine and receptive nature of integrated intelligence. A civilisation which rejects or undervalues the feminine, the yielding, insight, and connection is a civilisation which will undervalue or reject integrated intelligence. This is because all four factors are central to the latter concept's cognitive modalities—as shall be discussed further in the next section (4.3).

Patriarchy obscures insight and relationship

Patriarchy and the colonial/military mind which often accompanies it, is incompatible with chaos and uncertainty, and thus with the feminine nature of integrated intelligence. Biologist Rupert Sheldrake (Sheldrake et al. 1998 pp 43-45) sees a profound connection with patriarchy's suppression of chaos, and the feminine and the imaginative. Sheldrake suggests that: "chaos is feminine, and creation out of chaos is like creation out of the womb, an all-containing potentiality emerging out of darkness" (Sheldrake et al. 2001 p 40). Sheldrake's colleague Ralph Abraham (ibid.) states that:

> Chaos is **intuition**al. Chaos has a very **flirtatious relationship** with language. The process of **creating** a culture has to do with how we **relate** to the **seduction** of chaos (which is) **beyond prediction**, and **beyond full, rational comprehension** (Sheldrake et al. p 45).

The metaphor of love is extended with the terms "relate", "flirtatious", and "seduction". It suggests not only a strongly affective dimension, but a bonding, an integration that is the antithesis of detachment, the observer and subject/object split within patriarchal/empirical science. Notably the process of creation (of culture), intertwined with chaos, is "beyond prediction" and "beyond full, rational comprehension". It is thus beyond control by the knowing, colonisation and possession that are central to mechanistic science (Milojević 2005; Sardar 1998).

Mechanistic science's need for power and control

Employing the terms of the IFM model, the development of mechanistic science can be viewed as a direct function of the fragmented mind's need to control and dominate. McKenna (Sheldrake et al. 2001) states that:

> Between the ego and the full understanding of reality is a barrier: the fear of the ego to **surrender** to the fact of chaos… we have lost **touch** with chaos because it is feared by *the dominant archetype of our world, the ego*. The ego's existence is defined in terms of **control**. The endless **modelling** process that the ego carries out is an effort to **fight** the absence of closure. The ego wants closure. It wants a complete **explanation** (ibid. pp 46-47. Italics added).

In McKenna's view, the ego wants certainty and control; it wants knowing, "complete explanation" by possession, while refusing to surrender control. It "fights" for "closure"; for a universe of walls and boundaries—a concrete, specific, measurable (mathematical) world, a fortress world of "I" and "other", observer and subject/object. Wilber's (2000a) interior transpersonal subjective domain (see Chapter Two, Figure 2.5, upper left quadrant, upper triangle) is pushed away.

Eisler (2004) writes that science and technology are not the key problems of the modern age; rather:

> [i]t is modern science and technology within the system maintenance requirements of a dominator-orientated social organisation, with its cognitive cultural maps that present a rigidly hierarchic, chronically violent, exploitative, and inherently unjust social organisation as natural, and even moral (Eisler 2004 p 85).

Goerner (2004) follows Eisler's argument, pointing to the "control" oriented, "exploitative" nature of the "war-based, coercive hierarchies" that have been a feature of the dominator model (Goerner 2004 p 180).

Yet here my concern is with the ways in which this control fixation has affected our ways of knowing and representations of mind and intelligence. Rowan (1986) points out that analysis is attractive to those who desire control, because it creates the illusion of control (Rowan 1991). Conversely intuition requires a 'receptive' state of mind, as argued below (4.3).

Inspiration—a key component of integrated intelligence's core operations of innovation and creativity (Chapter Two, Table 1.2)—requires ways of knowing that reflect this feminine nature of the mystical. It necessitates "openness", "trust", "letting go", and "listening" (Hart 2000 pp 34, 46). Likewise, integrated intelligence entails a trust in something that is not within immediate control, and perhaps not in immediate awareness. Thus intuition is sometimes seen as "slippery and elusive" (Rowan 1991 p 11). To the human control-orientated ego, the conception of consciousness as unbound and integrated is the perception of consciousness as uncontrollable, immeasurable, and unknowable via the intellect—a potential threat to the ego. McKenna (Sheldrake et al. 2001) compares the awareness of such an integrated intelligence to the experience of a lone fisherman journeying over sea at night, his net in the water.

> Sometimes, something tears through your nets and leaves them in shreds, so you just row for shore and put your head under your bed and pray. Other times what slips through the nets are minutiae, the minnows of this icthyological metaphor of idea chasing. Sometimes you actually bring home something that is food for the human community, from which we can sustain ourselves and go forward (Sheldrake et al. 2001 p 47).

McKenna's metaphor implies a terrified, vulnerable and 'little' self, afloat in a sea of forces that are largely beyond control. It stands as the precise antithesis of the mechanistic paradigm's patriarchal imperative of control and power—an insentient invulnerable automaton in a machine-universe.

Further, there are parallels between the military mind and mechanistic consciousness. Various characteristics of the military mind have been linked to modern science: death avoidance (Grof 1996, 2000; Reanney 1991); rigidity or hardness (de Bono 1986; Dossey 1999; Ross 1993; Tart 1993); patriarchy (Capra 2001; Eisler 2004; Milojević 2005; Ross 1993); need for power and control (Eisler 2004; Sahtouris 1999; Sardar 1998); and fear of "the other" (Sardar 1998). This militaristic and mechanistic nature of Western science and civilisation is inherently incompatible with 'receptivity' (4.3, below) and integrated intelligence.

Measurement fixation

The mechanistic paradigm and Western culture's emphasis upon the measurable and empirical can be viewed as an aspect of the need for control and certainty (Murinbata & Whitehead 2001; Sahtouris 1999; Sardar 1998 p 205; Wilber 2000c, 2001). Measurement—here a key validation process and way of knowing—can be seen as a projection of patriarchy. Former indigenous hunter Murinbata (Murinbata & Whitehead 2001) finds that Western cultures have an obsession with the empirical—notably at the expense of relationship, feeling, playfulness, and becoming 'conscious'. He writes that Western sciences:

> …value object intelligence over social intelligence and technology over the arts; you teach your children the three R's much too young when they should be playing and learning to be conscious and you do not believe anything you cannot see, touch or measure (Murinbata & Whitehead 2001. www.imprint.co.uk).

Similarly, Sardar (1998) states that one of the most notable developments in Enlightenment science was:

> …the notion that only that which could be measured is real. While **experimentation** and **measurement** were crucial parts of the sciences of

> many non-Western cultures…in Europe they *defined* what was real and what was unscientific or literally *unintelligible* (Sardar 1998 p 205. Italics added).

In the wake of the seemingly ineluctable hegemony of patriarchy and its colonising ethos, the subtle, spiritual and non-measurable phenomena within the universe have tended to be excluded from mechanistic representations of both consciousness and phenomena in general. The mystical—and in turn integrated intelligence—effectively became 'unintelligible'.

My analysis in this section has been at the worldview level. I have described the mechanistic paradigm as patriarchal, and outlined its control-fixated ways of knowing. It is these which suppress and obfuscate the essentially immeasurable and invisible world of intuitive and mystical experience. Using the terminology of Wilber's Integral Theory, in patriarchal science the interior worlds of "I" and "we" are reduced to "it" and "its" (Wilber, 2000a). As "its" they are "colonised", and the ego's illusion of control maintained. The issue is a paradigmatic one, and paradigmatic analyses are by definition out-of field analyses. In the dominant discourses of modernist science, the patriarchal biases and epistemic obfuscations typically remain invisible and unconscious.

The need for the conscious mind and ego to be in control has engendered a further problem in terms of the acknowledgement of integrated intelligence—the object/subject dichotomy of modernist science. This split has stultified the greater development of the cognitive process I call "receptivity".

4.3 Dualism and receptivity

Science and the observer and subject/object split

The split of observer and object/subject is a fundamental premise of modern science and the scientific method. Sardar (1998) writes that Enlightenment science worked with:

> … the 'ontological' assumption of separateness: separability of observer from the observed; parts from the whole; organism from the environment; man from nature; mind from matter; science from religion—separateness from one

> another of the 'fundamental particles' which are presumed to compromise ultimate reality (1998 p 205).

The dualism inherent in this ontological stance of observer and object/subject split has stultified the civilisational development of receptivity and in turn integrated intelligence. This problematic is also quintessentially reflective of the patriarchal nature of Western science and a prominent part of the mechanistic paradigm, as Table 2.1 H (Chapter Two) indicates.

The concept of receptivity

The idea of receptivity is central to mystical experience. Receptivity is the open state of mind that allows for the possibility of receiving thoughts or ideas from subtle levels of the mind and, in accordance with IFM model, from 'external' sources beyond the brain. Related concepts occur throughout the literature. German mystic Meister Eckhart (Lang 2004) stated that one has to empty the mind of all concepts to allow divine intelligence to enter (ibid.). This, according to Lang (2004), entails "a **letting go** into a mystery" (Lang 2004). Lao Tzu stated that: "one should gain an insight/into the beginning of the Tao/by constantly observing the Nothingness" (Zhengkun 1995 p 59). Such mystics suggest that a relaxed openness to the most subtle levels of mind is required to perceive mystical insights.

The terms "receptive", "receptivity" and "receiving" often appear in texts which discuss the extended mind or integrated intelligence. Examples include: Braud (2003 p xxi); Chandler (2001); Clarke (1989 p 140); Fox and Sheldrake (1996 p 43); Hart (2000 pp 35-38); Myss (2001 pp 34, 244); Ross (1993 p 34); Rothberg (2000 p 166); Stanford (1977); Steinkamp (2002 p 416); and Storm (1999 p 251).[21]

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[21] The idea of receptivity does not necessarily entail that information is being 'sent' and 'received'. While this is consistent with the 'transmission' model of distant mental influence, there are other models where there is no sending or receiving of information. These include the 'reorganisation' model, where nothing is sent but information is reorganised in the distant target. In 'holonomic' or 'correspondence' models there is also no transmission or reception—all information is already

One of the most lucid descriptions and explanations of receptivity in the literature is given by optometrist Jacob Liberman (1995), in his concept of "open knowing".[22] Liberman argues that there are other ways of knowing that incorporate receptivity:

> When our (consciousness) field is open we never have to **think** to know. The *spontaneous flow* of receptivity and response requires *no linear processing*. In fact, **thinking hard** *will instantly cut it off*. In comparison, *linear* thought appears *shallow and almost mechanical* (Liberman 1995 p 178. Italics added).

The contrasts with critical/rational ways of knowing of Western science are notable. "Open thinking" is not a conscious, controlled, 'linear' and 'hard' thinking process, but a "spontaneous flow", suggesting the surrender of control by the conscious mind. Liberman sees typical human thinking as "shallow and almost mechanical", suggesting that receptivity requires access to the depths of the human psyche beyond the conscious ego and the rational mind.

Critical/rational representations of intelligence tend to be linear and sequential, but integrated intelligence is often not (Table 2.1 D). Carolyn Myss (2001), a "medical intuitive", demonstrates this immediacy of integrated intelligence in the personal anecdote quoted at the beginning of this chapter. She recounts that before the writing of her book *Anatomy of the Spirit*, she was struggling to come to terms with certain aspects of the proposed text. Some time after experiencing a confusing dream, she recalls how the insight came to her, as indicated in the quote.

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present within the system in an implicate or potential form. All models have their strengths and weaknesses (Braud 2003 pp xxxvii-xxxviii). The concept of receptivity as presented here is not predicated upon any of these models in particular.

[22] Liberman's is a 'New Age' text, as is Myss' (2001). Like all such texts their 'research' cannot be considered empirical, being highly anecdotal and based upon personal mystical experience. Yet they are worthy of cautious inclusion as it typifies many of the components of idea of receptivity I develop here.

Myss's anecdote not only demonstrates the immediacy of integrated intelligence, but shows the importance of several other relevant aspects of that intelligence. The information was "received", suggesting that the source was not her conscious mind, but something beyond it. Secondly she "understood it". Without this step, the following steps could not have been taken. Thirdly, Myss "accepted" the experience. Without the acceptance of the mystical experience and its knowledge, no learning could have taken place.

One can compare this with Jaynes' (1982) rejection of an auditory didacticism, where he hears a voice tell him: "Include the knower in the known!" Jaynes dismisses this as an "auditory hallucination" (Jaynes 1982). Notable also is neuroscientist Austen's dismissal of his mystical experience of universal 'oneness' (referred to in Chapter Five, section 5.3) as mere "proof of the existence of the brain" (Begley 2001 p 41) For Jaynes, the auditory and extrasensory are not valid ways of knowing, and for Austen only a reductionist analysis of an experience provides an explanation of its content. Here method has become the explanation itself. The receptivity exemplified by Myss is incompatible with the analytical ways of knowing preferred by Jaynes and Austen. Myss's experience exemplifies receptivity and the open mind that is required for its facilitation. Myss's way of knowing is representative of mystical spirituality, and Jaynes' and Austen's ways of knowing are consistent with both the critical/rational worldview and the mechanistic paradigm.

This highlights the relationship between the paradigm, ways of knowing and the litany (or data). The paradigm delimits permissible ways of knowing, which in turn mediate the validity of the perceptual data. That data is incorporated or excluded according to this implicit paradigmatic schema. Therefore the litany is not merely objective data collection, but greatly reflective of the paradigmatic structures which underpin that compilation of data.

Of further relevance is the evidence from parapsychology that “excessive cognitive and mental activity” (including logical and analytical thinking) retards accuracy in telepathic and clairvoyant tasks (Braud 2003 p xx). This is yet another means by which paradigmatically determined ways of knowing implicitly delimit perception. Braud finds that excessive “bodily, emotional, and mental distractions” may inhibit psychic functioning (ibid.). In parapsychology this is known as “noise”, and the “noise-reduction” hypothesis is that reducing “noise” optimises psychic functioning (ibid. pp xx-xxi). “Lability”, rather than analysis and focused intention, is required for optimal psychic functioning. As Braud writes: “A system possesses lability when it can freely change” (ibid. p xxi). Thus, to use Braud’s metaphors, a mind possessing lability is most like incense smoke wafting in the air, and most unlike a structured computer program (ibid.). Lability is essential to optimise receptivity. However, the linear and sequential processing of someone involved in a consuming mental task—presumably using critical/rational ways of knowing—establishes what Braud calls “inertia”, or a strong tendency to continue along the same thought path and to resist change (ibid.). Thus too much deliberate organising of bodily and mental channels, structures thoughts, feelings, images and bodily states can “freeze” them into habitual forms, stultifying fluid and efficient psychic functioning (Braud 2003).

The paradigmatic exclusion of receptivity from Western science (and thus integrated intelligence) helps us to appreciate its exclusion at system and litany levels of the system. This is seen in Figure 4.1 (above), where the field of intelligence lies at the top of the triangle, and is mediated several levels below by the mechanistic paradigm.

It can be appreciated that obfuscation or exclusion of certain ways of knowing at an epistemic and civilisational level will result in the exclusion of certain data at the readily observable levels—in specific fields and texts. Myss, coming from a New Age profession/discourse and its ‘othered’ mystical/spiritual worldview, has no such problem in acknowledging and employing the receptivity that I am arguing is a vital way of knowing in the facilitation of integrated intelligence. Yet this is not so for those in dominant mainstream cognitive discourses, such as Austen and Jaynes.

Aggressive science and fluid mysticism

Here I further explore the aggressive and patriarchal nature of modernist science. Level four of CLA is prominent here, especially the metaphors involved.

The scientific method—and one of its founding values, communal verification (Huff 2003 p 24)—sets up a process whereby scientists 'attack' whatever findings are brought forward. Metaphors of battle and war are often used. Sheldrake writes of his tenure at Cambridge in the following terms:

> …it was oppressive. New ideas were treated as guilty until proven innocent, and as soon as I or anyone **took off** on a flight of **speculation**, the others opened fire. Shooting people down is a favorite sport of academics, and Cambridge is a free-fire zone (Sheldrake et al. 2001 p xix).

The idea of attack, defence and threat are central to the nature of logic and modern academia. de Bono (1986) describes the confrontational nature of Western "old style" thinking, where "two opposing ideas grow ever more rigid and fierce until they meet in a head-on clash" (de Bono 1986 p 36). At the field level, in intelligence theory theoretical differences have led to the situation where some researchers "stake their ground and then **battle** it out in a perceived **fight** for truth" (Sternberg et al. 2003 p 11).

Mechanistic representations of the universe, life and consciousness tend to be rigid and inflexible, much like a machine itself. Yet it should be noted that non-mechanistic metaphors have been used by others to represent the universe, life and mind. These include a "cosmic egg" (Pearce 1988); a green dragon (Swimme 1985); a hologram (Bohm 1973); an organism (Sheldrake,2005a, 2005b); a web (Goerner 2004 p 155); "a gigantic bowl of clear jello" (Radin 2006 p 263); and a glass of wine (Feynman 1998 p 66).

The aggressive culture and rigid ways of knowing of mechanistic science are incompatible with both the mystical/spiritual worldview and the receptive cognitive processes associated with integrated intelligence. The latter features a fluidity of boundaries and concepts, a tolerance for ambiguity and complementarity (Bohm 1995), and a surrender of control to a force greater than the individual self. Jacobson (1999) and Hawkins (2002) relate deeply mystical states whereby all conscious decision making is surrendered to a greater-than-conscious universal intelligence; while Hanna (2000) describes her experience of a mystical unity consciousness where the 'self' is 'dismantled' and there is no individual 'will'.

Water metaphors are used extensively in metaphysical literature. Lao Tzu wrote that "he who knows the masculine but keeps to the feminine is ready to be *the ravine* under Heaven./ Being *the ravine* under Heaven, he is not parted from constant "De" (virtue)" (Jiyu 1998 p 44. Italics added). Riverine metaphors are appropriate to describe the imaginative flow of spirit into the world, suggests McKenna (Sheldrake et al. 2001), because they "represent the flowing of forces over landscapes, the pressure of chaos on the imagination to create creativity" (Sheldrake et al. 1998 p 49). Fox also uses a water metaphor to describe the perception of knowledge during the experience of "theophany"—"the beholding of the divine all around us" (Fox & Sheldrake 1996 p 51). He compares this process to that of a fish in water, writing that: "The water's in the fish and the fish is in the water…", and includes "the idea that everything is somehow bathed in the divine and the divine is washing through everything" (ibid. p 50. Italics added).

The prevalence of water metaphors suggests the fluid and receptive nature of integrated intelligence, and contrasts sharply with the rigid metaphors which dominate modern mind science. In the latter the computer, 'hard-wiring' and 'information processing' are the dominant metaphors—as will be discussed in the next chapter. In short the contrast between the dualism and aggressive nature of the mechanistic paradigm and the receptivity and fluidity of mystical/spiritual worldviews reflects their respective patriarchal and feminine natures.

So far in this chapter I have focused upon patriarchy, its preferred ways of knowing and the relationship with the mechanistic paradigm—and in turn the mystical/spiritual worldview. The argument I have posited is depicted in Figure 4.2. In the following section I examine the materialism of the mechanistic paradigm via the one of the most contested debates in Western philosophy—the mind-body problem.

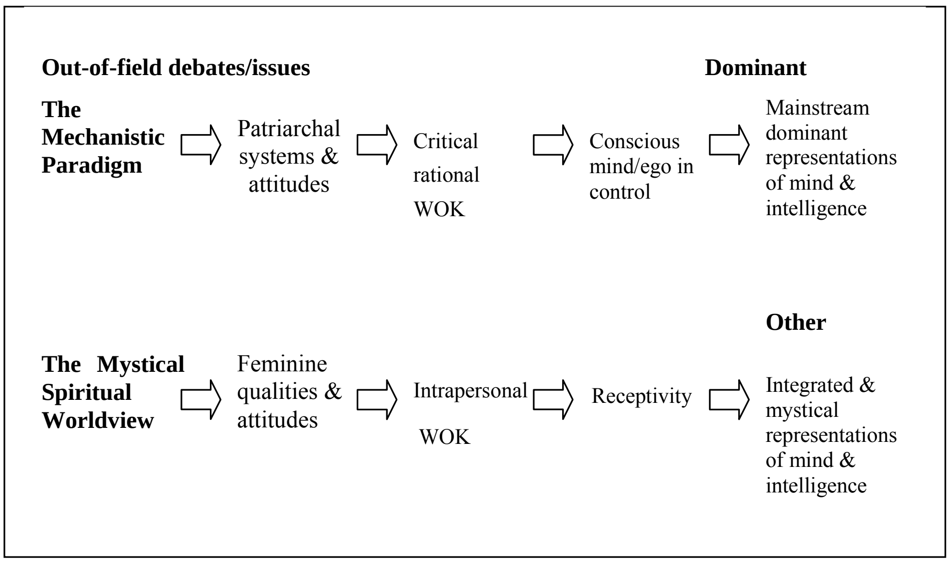

Figure 4.2: The relationship between patriarchal and feminine knowledge structures, ways of knowing and representations of mind

4.4 Materialism and the mind-body problem

The issue of integrated intelligence invites questions about how the mind and brain relate to each other, which is also the central issue with the mind-body problem. I argue here that this debate is immersed in paradigmatic presuppositions and issues.

Generally speaking there are three broad schools of thought in relation to the mind-body problem: dualism, materialism, and idealism (de Quincey, 1999).

According to modernist cosmology—following Bacon, Descartes and Galileo—matter is non-experiential, having no consciousness, subjectivity, feeling, or intentionality; and by implication no intrinsic purpose, value, or meaning (de Quincey 1999). This in turn engenders the first two philosophical positions.

The first is the dualist position—sometimes called substance dualism—which is that matter (sentience) and mind (subjectivity) are completely disparate phenomena. There are several variants on this position (de Quincey 1999). These include John Eccles' and Karl Popper's "dualist interactionism" (Popper & Eccles 1977); Chalmers' (1997) "property dualism"—where consciousness is given neural correlates, but forms a distinct phenomenon in its own right; and Stapp's (2005) "quantum interactive dualism" where conscious choice affects the brain/matter according to von Neumann's formulation of quantum mechanics.

According to Damasio, substance dualism is "probably the view that most human beings today would regard as their own" (Damasio 2004 p 187). In common with Blackmore (2003), Damasio points out that this is "no longer mainstream in science or philosophy", because it is based upon "uninformed reflections" (ibid.).

The second position—and the most pervasive attitude in modern science—is the materialist position, which states that consciousness is an emergent property produced by the physical brain (de Quincey 1999). Examples include Blackmore (2003), Pinker (1999a, 1999b); Greenfield (BBC, 2001—discussed further in Chapter Seven) and Crick's (1994) "astonishing hypothesis". For the materialists all aspects of cognition have origins in their neural correlates, and do not have influence beyond the matter of the brain. By definition materialism is a position which emerges from, and reinforces the materialism of the mechanistic paradigm (Grof 1985) (Table 2.1 A).

Yet from the perspective of transpersonal theory and the IFM model, both the dualist and materialist positions emerge from the fragmented mind. They are philosophical positions, employing analysis as the prime way of knowing, and are not based upon the experiential/intuitive ways of knowing of mystical spirituality.[23] There are two important points to emerge from this. Firstly, the positions of dualism and materialism, when developed via philosophical enquiry, implicitly privilege and reinforce the critical rational ways of knowing of the Western episteme. Secondly, according to transpersonal theory such as that of Wilber (2000c) and Hawkins (2002), the ways of knowing these dualists and materialists (and their critics) employ are inherently inadequate to comprehend the deeper nature of the problem, as Wilber (2000b) indicates.

The third major ontological position in the mind-body debate is known as “idealism” or “the perennial philosophy” (de Quincey 1999; e.g., Huxley 1945; Nisargadatta 2001; Wilber 2000c). This is represented in various Eastern philosophies and to a lesser degree in the West (Huxley 1945). With absolute idealism, mind, reality and cosmos are represented as pure spirit or consciousness, while matter is depicted as an illusion (de Quincey 1999). With consequent idealism, it is assumed that the universe is hierarchically structured, consisting of ontological levels, ranging from matter, body, mind, and soul, to spirit. An evolutionary process is inherent within this system whereby higher levels emerge from and incorporate the preceding levels, with matter at the lower end of the spectrum (ibid.).

Idealism generally emerges from intuitive space, where the ways of knowing are mystical/spiritual. It therefore implicitly privileges the mystical/spiritual worldview.

There are philosophical problems with all of three positions (de Quincey 1999). With dualism, the issue is how mind and matter could ever interact, given that they are depicted as fundamentally different. With materialism the problem is how sentience and subjectivity could emerge from insentient matter, or how objectivity could give rise to sentience and mind (ibid.). There are also problems with idealism. Firstly there is the issue of how to explain the sense of the material world being ‘real’ if the material world is

[23] Of course this is not true if the position is developed via intuitive introspection. Conversely, an idealist position may also be reasoned rather than intuited directly.

simply an illusion or manifestation of spirit. Implicit within absolute idealism is the denial of the reality of matter and physical energy. Thus, there is the inversion of materialist science: absolute idealism renders the material as epiphenomena (ibid.). Further, absolute idealism potentially reduces spirit to physics, for if matter emanates from spirit, and matter is in any way real, spirit must also contain physical properties. This is because producing matter from non-material spirit would be miraculous—a position no better than materialism's miraculous production of mind from matter (ibid.).

Wilber's 'solution' to the mind-body problem

Wilber (2000b) is adamant that there is yet to be a satisfactory solution to the mind-body problem (Wilber 2000b pp 174-175). The problem cannot be solved at a 'rational' level, but only at a transrational one (ibid.):

> …the reason that both sides of the argument have generally agreed that the mind-body problem is irresolvable, is not that they aren't smart enough to figure it out, but that it is only solved in postrational stages of development… (Wilber 2000b p 181).

According to Wilber, the resolution of the problem requires direct intuition of the understanding that:

> …consciousnesses and matter, interior and exterior, self and world, are of One Taste. Subject and object are both distinct realities and aspects of the same thing (ibid.).

Wilber finds both mind and body/brain are manifestations of "Spirit" (Wilber 2000b p 176-177). The means to understanding the mind-body problem is through the systematic development of one's own consciousness (Wilber 2000b p 184). This is a strictly internal process. In terms of his own model, Wilber's approach privileges the transpersonal subjective interior, both at a philosophical level and in terms of ways of knowing. It elevates the status of mystical knowledge to a position above that of critical rational science. Wilber is quite specific regarding this, finding that only those trained in meditative and transrational ways of knowing are qualified to assess the knowledge claims of the mystics (Wilber 2001).

Thus it can be seen that there is a paradigmatic clash which underpins the mystics' and rationalists' preferred positions on the mind-body problem. Nonetheless, if there is ever a convincing physical or reductionist account for consciousness, it potentially undermines the idealist position. Conversely, if there is ever to be an accepted validation of brain-transcendent consciousness, then the entire mechanistic paradigm which underpins Western science may be undermined (Grof 1985, 2000).

In the four sections thus far outlined in this chapter, I have addressed the nature of the mechanistic paradigm, described its clash with mystical spirituality and outlined the general effect upon ways of knowing and representations of mind in dominant contemporary discourses. Yet there is the need to address why the mechanistic paradigm has had such a long and pervasive grip on modern science.

4.5 Ego, science and mind

Turning the tables and invoking transpersonal theory and the IFM model, it may be asked what it is about the mechanistic paradigm which made its prevalence in Western culture so marked for so long? I argue that it is because the mechanistic paradigm is perfectly compatible with the typical egoic level of consciousness of the present age of humanity, as Table 2.1 G indicates.

There will be an intermingling of levels of analysis here, as indicated in Figure 4.3, below. Though the focus is ostensibly at Inayatullah's social/systems level (level two), the problematique is reflective of a level four (myth/metaphor) factor—consciousness evolution. Finally, there is the overriding fact that the problem about to be analysed manifests itself as a foundation which both underpins and reinforces the mechanistic paradigm and its dominant discourses on mind and intelligence. It is thus a crucial out-of-field debate/issue, one which has to be acknowledged in order to fully appreciate the exclusion of integrated intelligence in dominant discourse mind science.

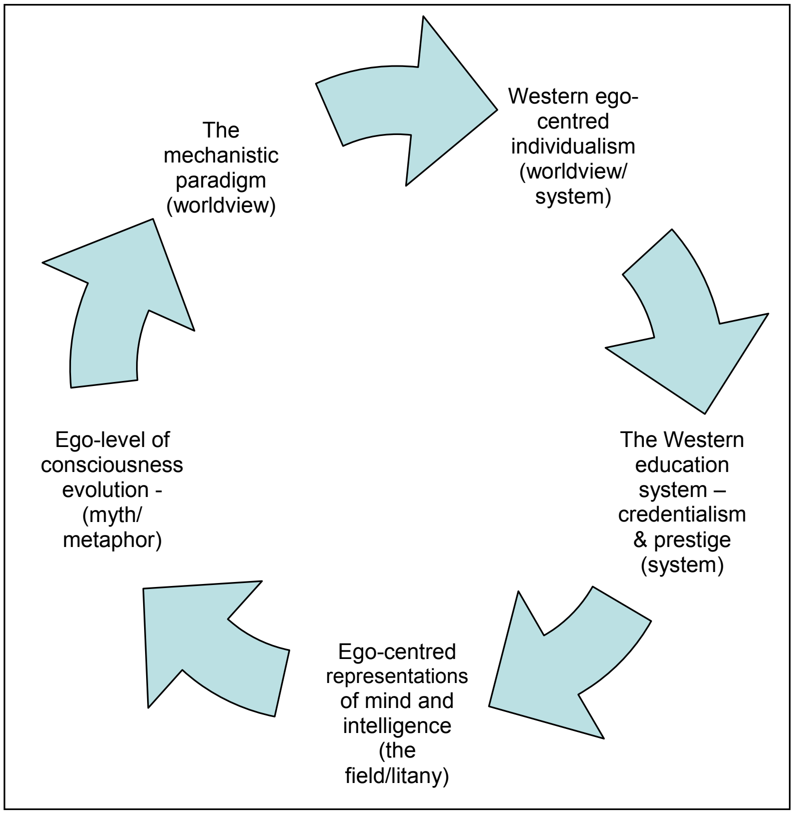

Figure 4.3: The manifestation of ego at all levels in the problem regarding representations of mind in the Western world

Modern science and the individual ego

The issue of the human 'ego' is of vital importance to the conception of integrated intelligence, as the IFM model is predicated upon transpersonal theory, which in turn is predicated upon the idea that there are levels of human consciousness which transcend the purely egoic and rational. Integrated intelligence is dependent upon the extended mind, and is only possible with a model of mind that expands beyond individual human egos. A society which valorises and adulates the individual and ego-boundaries is likely to be unreceptive to transpersonal representations of mind.

Evidence of the ego's grip in the contemporary world comes from its common theme within mystical insight and transpersonal psychology (Hawkins 1995 p 75; Jung 1989;

Reanney 1991; Sheldrake et al. 1998; Wilde 1993, 2000). This egoic focus is reflective of greater Western society. Reanney (1991) writes:

> The present chaotic state of Western society is a direct result of the proliferation of these personal, ego-self boundaries. This is why life in the affluent West is full of limits and littlenesses, of barriers and of greed. Our religious life is full of sect, our social life of class distinctions, our psychological life of prejudice. Each of these things is a limitation, a narrowing of vision… (Reanney 1991 p 171).

With the narrowing of vision a narrowing of ways of knowing is likely to follow.

Western ‘egoic’ consciousness, argues Ross (1993), set itself up to be separate and better than all other civilisations and ways of knowing. Within “the iron cage of materialism” people have become mere objects, losing touch with their feelings (Ross 1993 p 42). They have “become blind to the subtle levels of personal interactions” (ibid.). Further, Ferrer (2002)—echoing the argument posited in Chapter Three—argues that since the time of Descartes’ “I think therefore I am”, the Western mind has existed in a state of “Cartesian egoism”, where the spiritual became “experiential” rather than participatory, confined “to the innermost depths of individual subjectivity” (Ferrer 2002 p xviii).

The modern state education system mirrors this ego-focus, where school students develop little awareness of their inner worlds, and rarely engage in meditative self-reflection (Targ & Katra 1999). Meanwhile, tertiary education has become increasingly about credentialism (Guile 2003), prestige and impressing others (Loye 2004b). de Bono (1986 p 16) finds that universities are “irrelevant centres of mental masturbation”. Such developments cater for an ego-centred and individualistic society.

Modern science has mirrored this social-level problematic. The connection between the development of a controlling and mechanistic science and the human ego has been commented upon by various critics (Clarke 1989; Grof 1985, 1995, 2000; Loye 2004a, b; Murinbata & Whitehead 2001; Ross 1993; Sahtouris 1999; Wilber 1999, 2000a, 2000b, 2000c, 2001). Sardar (1998) argues that European science, reflecting the imperatives of the ego, “had to be shown to be separate from all other sciences and traditions—unique to Europe and a law unto itself” (Sardar 1998 p 205). Loye is even more damning, finding that “science dazzles with complexity and obscurity” with the ultimate end being “to gain doctorates, grants and book contracts” (Loye 2004b p 254).

Notably in terms of mind science, Owusu-Bempah and Howitt (2000) find that the entire field of Western psychology has been built upon Western civilisation’s ontological premise of the primacy of the individual and the separate nature of ‘self’.

There is a strong relationship here with the mechanistic paradigm, which has a strong ego-centric focus (Table 2.1 G). Ego-fixated consciousness, individualistic Western culture, and the mechanistic paradigm exist in a dynamic interplay, reinforcing each others’ existence. The mechanistic paradigm owes much of its success to its having satisfied “ego-centered patriarchal optimism” (Ross 1993 p 42). Ross writes that its “technological successes have blinded us to its limitations and provided substitute gratifications for the emotional and spiritual deprivation which it engendered” (ibid. p 33). By defining consciousness and self within the individual/exterior domain and denying the interior/individual (Wilber 2000a), scientists, researchers, and theorists can remain confident that humankind exists only as discrete entities, knowable via codification of the material and sensory.

Therefore, mechanistic science, education, and modern society in general tend to encourage a culture of self-importance and arrogance. This is antithetical to the mystical/spiritual worldview and ego-transcending integrated intelligence. The latter is founded on selflessness, and often the surrender of power to something greater than the ego, as was argued in 4.3, above.

4.6 Final remarks on the relationship of the mechanistic paradigm and the mystical/spiritual worldview

I now make some final remarks regarding the paradigmatic problematique I have outlined above—namely the seeming incompatibility between these two contrasting epistemic structures, and the possibility of a paradigmatic shift which may synthesise the two.

From the argument presented in the preceding sections, and the binaries listed in Table 2.1 (chapter two), it is clear that the concepts of the extended mind and integrated intelligence are incompatible with the Newtonian/mechanistic paradigm. Therefore a science which acknowledges the information gleaned from 'non-ordinary' states of consciousness has no alternative but "to free itself from the narrow confines" of mechanistic science (Grof 1985 p 52, 2000). Grof writes that transpersonal experience:

> …disregards the linear continuum between the microcosmic world and the macrocosm that appears to be absolutely mandatory in the everyday state of consciousness… From the experiential point of view, the distinction between the microcosm and the macrocosm is arbitrary… (the) subject can experience himself or herself as a single cell, as a fetus, and as a galaxy… The linear temporal distance that dominates everyday experience is disregarded, and events from different historical contexts appear in clusters…time appears to slow down or accelerate enormously, to flow backwards, or to be entirely transcended and cease to exist… past, present, and future are essentially juxtaposed and coexist in the present moment… there is transcendence of the sharp distinction between matter, energy and consciousness…The world of separate individuals and objects is replaced by an undifferentiated pool of energy patterns or consciousness in which various kinds and levels of boundaries are playful and arbitrary (Grof 1985 pp 33-34).

Grof's comparison highlights the problem of these cognitive modalities and their 'other' ways of knowing finding acceptance within the dominant paradigm. Most telling here is Grof's employment of the term "non-ordinary" to describe transpersonal experience. The mystical has implicitly become 'the other' of contemporary Western mind science and ways of knowing.

However, a paradigm which permits both mystical/spiritual and critical/rational ways of knowing in equal measure is perfectly possible—and may be emerging.

Although the mechanistic paradigm is still dominant in biological science (Sheldrake 1981), medicine, psychiatry and psychology (Grof 1985 p 17), there is evidence of a shift in other fields and disciplines. Grof identifies physics, parapsychology, alternative medicine, psychedelic research, and thanatology as examples of this (ibid.). Sahtouris (1999) argues that various disciplines are beginning to widen their scope and become more holistic and less mechanistic. She points to the creative mathematics of Ralph Abraham and his dynamics theory, which can be understood by ordinary people; and chaos theory and its self-organising living systems. Others to agree that there is an emerging paradigm shift include: Eisler (2004); Ferguson (1986); Goerner (2004); Hawkins (2002); Laszlo (2004); Loye (2004a, b); and Wilber (2001). Nonetheless, these theorists and their ideas still remain largely outside mainstream discourse, as they typically address deeper social, paradigmatic and epistemological issues. In mind science, the mechanistic paradigm remains dominant.

4.7 Conclusion

Figure 4.4, below, summarises the essential characteristics of the mechanistic paradigm as addressed in this chapter, and their less visible 'shadow' equivalents within the mystical/spiritual worldview.

It has been argued in this chapter that the mechanistic paradigm exists at an implicit level, underpinning mainstream dominant mind science. Its influence is pervasive. I began by describing the patriarchal nature of Western science and then outlined how this obfuscates 'feminine' mystical ways of knowing, including receptivity. The mind-body debate was then outlined, and it was argued that the dominant materialist position of Western mind science stems from the materialism of the mechanistic paradigm. I indicated that philosophical ways of knowing underpin the materialist and dualist positions, with idealism often being intuited from mystical/spiritual ways of knowing. I then posited an interrelated dynamic which manifests ostensibly at the social level—the egoic and individualistic basis of Western science and society—and how this is incompatible with the transpersonal knowledge and ways of knowing which underpin mystical experience. Finally I suggested that despite the entrenchment of the mechanistic paradigm, a paradigm shift may be imminent in Western science.

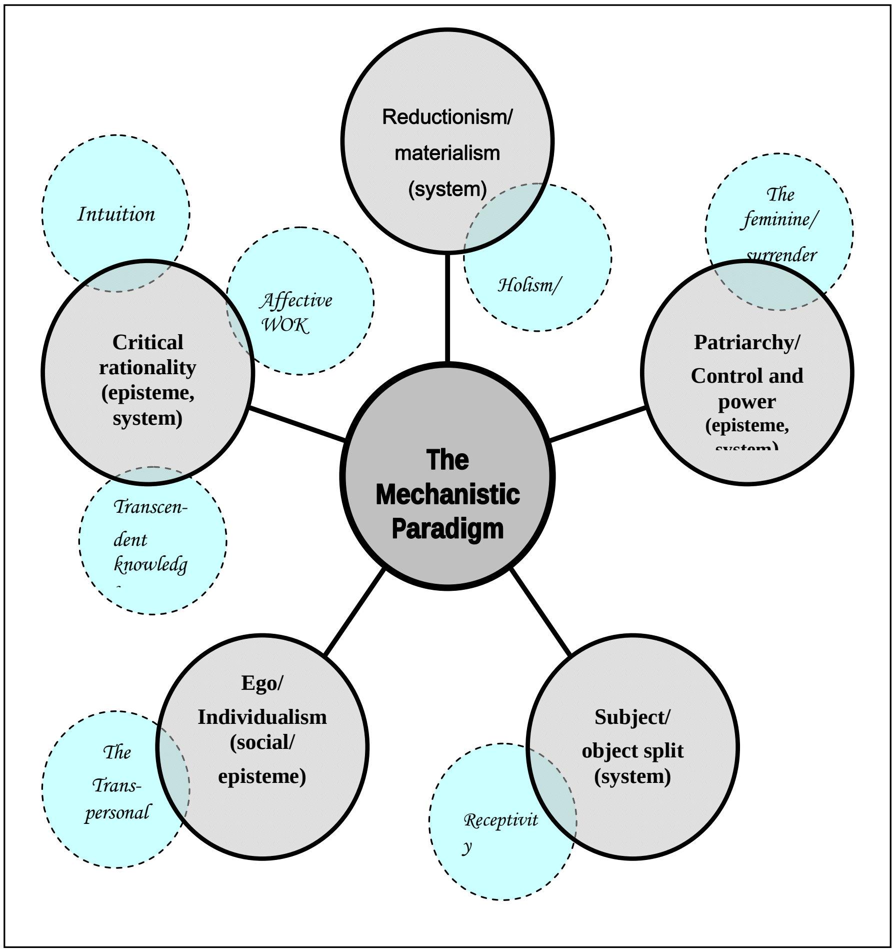

Figure 4.4: The defining tenets of the mechanistic paradigm, and their shadow equivalents in mystical spirituality

The issue of the paradigmatic foundations of Western knowledge systems exists well beyond the field level of intelligence theory. In the following chapter, attention is focused upon the next level of the problematique—the broader fields of neuroscience science, consciousness theory and evolution.

Chapter 5: The Paradigmatic Perspective (2)—Neo-Darwinism and Debates and Issues Regarding Intelligence, Consciousness and Cosmos

5.1 Introduction

> It is only with the heart that one can see rightly; what is essential is invisible to the eye (Antoine de Saint-Exupery, quoted in Ross 1993 p 272).

> Equipped with our five senses—along with telescopes and microscopes and mass spectrometers and seismographs and magnetometers and particle accelerators and detectors sensitive to the entire electromagnetic spectrum—we explore the universe around us and call the adventure science (de Grasse Tyson 2001).

The focus now moves beyond the mechanistic paradigm to another paradigm—neo-Darwinism—which although more field-specific, is nonetheless pervasive in its influence in modern mind science. Figure 5.1, below, indicates the focus levels. Part One outlines the relationship of neo-Darwinism to mainstream consciousness theory, neuroscience, and cognitive science in general. Conceptions within mystical representations of mind and cosmos will be brought forward both to reveal the contestations of power, and to act as the disruptors of the dominant discourses.

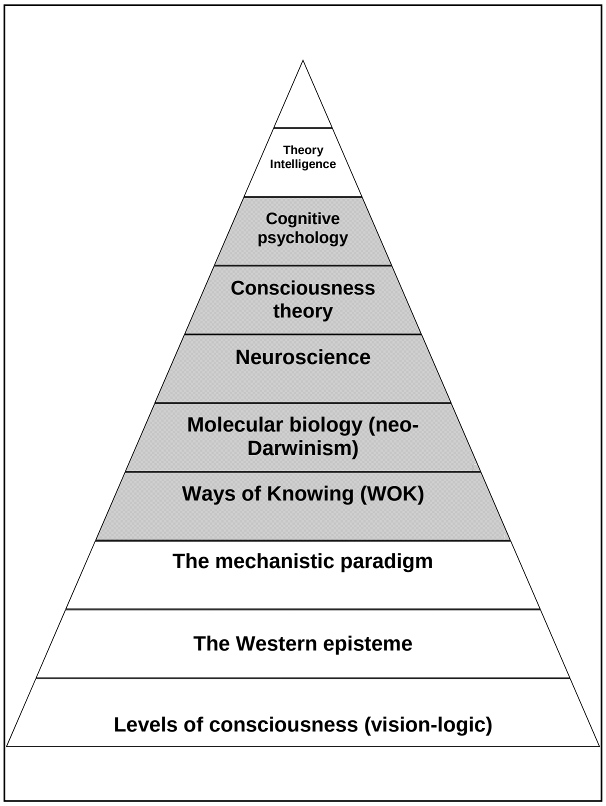

Figure 5.1: The focus of Chapter 5

Inayatullah's CLA will again be used to unpack the texts, concepts and discourses. Wilber's Integral Theory will also come into play both as a tool of analysis, and as part of transpersonal theory—as part of a disruptive narrative.

I begin by outlining the neo-Darwinian paradigm and its explicit and implicit effects on mainstream dominant representations of mind.

Part One: The Relationship of Neo-Darwinism to Mainstream Consciousness Theory, Neuroscience, and Cognitive Science in General

5.2 Neo-Darwinism and mainstream mind science

The litany—the visible argument

The dominant position in mainstream science is that evolutionary processes are driven by the random mutation of DNA at a cellular level (Bloom 2001; Dawkins 1976, 1998; de Quincey 1999; Loye 2004a; Monad 1972). The significance in terms of the representation of integrated intelligence is that this is essentially an atheistic theory, and requires no concept of an alternative agency (Dawkins 1998). This reflects a tenet of the mechanistic paradigm—its atheism and rejection of numinous experience, as shown in Table 2.1 J. Bloom finds that “Neo-Darwinism attempts to explicate the workings of biological systems within a completely materialistic framework” (Bloom 2001 p 170). Neo-Darwinism is “overwhelmingly hostile to any nonmaterial guiding principle, accepting only the raw, undirected working of chance events channelled by the sieving action of natural selection” (Bloom 2001 p 179). Similarly, Larsen and Witam argue that:

> Only natural selection comes close to omnipotence, but even here no intelligence, foresight, ultimate purpose or morality is involved. Natural selection is merely an amoral force, as inevitable and uncaring as gravity (quoted in Bloom 2001 p 159).

This puts it at odds with much of the literature related to integrated intelligence, as outlined in Table 5.1. Here there is an essential clash at the worldview/paradigm level.

In terms of mind science, the influence of evolutionary theory has resulted in the increasing predominance of evolutionary psychology in recent years (Gross 2005). Evolutionary psychology posits that much of the human brain, mind and behaviour are products of evolution and natural selection (ibid.). This field tends to reinforce the mind-as-epiphenomena predilections of the mechanistic paradigm, as the random forces of natural selection and the adaptive processes of evolution are seen as the only driving force in the development of both brain and mind.

Yet in contradiction to the empiricist nature of modern science, evolutionary psychology stands upon unstable foundations. As Stephen Jay Gould indicates, it is a pan-adaptionist theory which is totally reliant upon the adaptionist conceptions within Darwinism (quoted in King 1999). Such theory is not testable (ibid. p 143).

Neo-Darwinist theory is materialistic. This can be seen as the basis of the litany, where only observable and reducible matter is taken as legitimate evidence. Yet materialism itself has become a kind of myth (Davies & Gribbin 1991), a pervasive motif which underpins the Western episteme, the mechanistic paradigm and in turn dominant mainstream evolutionary theory. This is the foundation of a secondary mythology within biological science—natural selection.

The new mythology—natural selection and blind chance

Beyond the immediate and explicit discourse lie the mythologies implicit within neo-Darwinism. Loye (2004b) points out that the mindsets of most scientists have been seized so thoroughly by the concepts of natural selection and "blind chance" that anyone challenging this idea with suggestions of "normative or developmental goals and ideals as well as standards and benchmarks for what constitutes evolution" is told that "this is not only heresy but naïve and stupid" (Loye 2004b p 281). Individuals who hold religious, spiritual or metaphysical perspectives on the problem of evolution or agency are often mocked and derided (ibid.). Loye's use of the term "heresy" indicates that natural selection has become an incontestable, mythological dogma within dominant scientific discourses.

Bloom (2001) and Sheldrake (1981) find that within the neo-Darwinist paradigm, DNA has been attributed vitalistic properties. Bloom calls this the "gene is God" doctrine, writing that: "The very expression 'natural selection' has become a mantra, a sacred utterance for the materialist, with the power to coax the mutation-battered gene into performing ever new and wondrous feats of biological innovation" (Bloom 2001 p 147).

Finding room within this discourse for the conception of cosmic mind or intelligent design is highly problematic.

Neo-Darwinist mythology posits the recurring story that life originated in the primeval ocean as a result of random chemical reactions (Maddox 1999); life developed mechanistically into ever more complex forms, according to random genetic mutation and without any intelligent or divine guidance (Dawkins 1977). Ironically, it is at the empirical level that this hypothesis is most questionable, for the emergence of life from inert matter remains an untested hypothesis, despite repeated attempts to replicate the conditions where life is assumed to have begun (Maddox 1999). This is an implicit mythology of neo-Darwinian science, often remaining hidden and unquestioned (ibid.).

Alternatives

There are alternative thinkers (including futurists) willing to critique the limitations of a purely biological and mathematical depiction of evolution. This is commonly referred to as the theory of intelligent design (Bloom 2001, Dembski 1998). For the purposes of this discussion I will also discuss here similar or related concepts that may not employ that precise term. I begin by examining the litany—the explicit components of this discourse.

The conception of a universal mind/ intelligence and/or agency is commonly depicted in texts which incorporate integrated intelligence. Within such discourses integrated intelligence is seen—implicitly or explicitly—as dynamically operating as part of this larger system/intelligence. It is often depicted as a "participatory" system (Wheeler 1983) where the whole sends messages to the parts (Broomfield 1997). In this sense human intelligence is integrated into the whole, into the intelligent cosmos.

Table 5.1 (below) lists groups of terms related to the concept of agency which are commonly employed in the literature. Once again the definitions provided are referenced where they have been taken from the literature. Otherwise the definitions/classifications are my own.

Table 5.1: Representations of intelligent agency in the literature

Representation of agency	Related exemplars
The holographic mind/universe. This theory, originally developed by neurophysiologist Karl Pribram, depicts a cosmos predicated upon holistic principles where the part contains the whole, & the overriding metaphor is the hologram.	Includes: Bradley, 2004; Pribram, 1991; Talbot, 1992.
Kosmos. This is Wilber's particular term for a representation of cosmos which incorporates all four quadrants of his Integral Theory, including consciousness. It embraces cosmological intelligence of the Buddhist tradition.	Wilber, 2000a,b,c, 2001.
The implicate order. This is Bohm's term for a subtle generative order within universe; implicit, hidden dimensions of cosmos which lay behind the explicate or observable order.	Bohm, 1973.
The conscious universe. Universe is seen as having an overriding intelligence & teleological propensities.	Includes: "conscious universe" Kafatos & Nadeau, (2000); Raden, (1997); & also Elgin's "living universe" (quoted in Phipps, 2004).
Field theories of transpersonal consciousness, including: All these theorists posit various field theories, drawing heavily upon systems theory to explicate interaction of consciousness & matter in universe, & workings of universe as whole.	Includes: "morphogenetic fields" (Sheldrake, 1981, 1988, 2005a.b); "the socioaffective field" & "collective agency" (Bradley, 2004); consciousness "attractor fields" (Hawkins, 2002); & "fields of consciousness" (Tiller et al., 2001).
God, or divine intelligence/guidance. These theorists employ the word "God" or "agency" in an impersonal sense, using it to describe teleological & intelligent properties of the greater cosmos, suggesting that an overriding consciousness is responsible for cosmic & human evolution.	Includes: "God" (Aldworth, 2001; Russell, 2004); also "spiritual higher power" & "the creator" (Newton: 2000: 122); "Creator" (Bentov, 1988); "Divine Ground of Being" (Ross, 1993: 9, 294); & "agentic capacities" (Coole, 2005).
Cosmic consciousness. This term, as employed by these thinkers, differs from the way it was used in Chapter One (Table 1.1), under "enlightenment experiences". Here it is not a perceptual experience, but a descriptive term for a universal guiding intelligence.	Includes "cosmic consciousness" (Bucke, 1991: Kubler-Ross, 1997; Sheldrake et al., 2001); & Sarkar's "Supreme Consciousness" as discussed in Gauthier (1999); & Inayatullah (2002b).
Co-evolution, including: "intelligent design". Post-Darwinian conceptions of evolution which incorporate a teleological, transpersonal &/or participative component.	Includes: "intelligent design" Bloom, (2001); Dembski (1998, 2004); "the participatory universe" (Eisler, 2004; Folger, 2002; Wheeler, 1983) & "dynamic evolution" (Goerner, 2004).
Synchronicity. Meaningful coincidences which represent an interface between human consciousness & a greater universal intelligence. Usually, as with Jung's (1973) original theory, complete comprehension of the process is depicted as being beyond full human cognition, although synchronicity's "meaning" may be intuited.	Includes: Dossey, (2000, 2002b); Hawkins (2002); Jung (1973; 1989); Peat (1988); Redfield (1997); Storm (1999); & Wilde (2002); & "serendipity" (Radde, 2005).

These conceptions contain clear differences, highlighting the divergent nature the of literature. The diversity of these conceptions, along with those in Chapter One and Table 5.1, lend support to Ferrer's (2002) criticism that transpersonal theory is a "free for all" where almost any idea is acceptable.

Critiques of mainstream evolutionary theory

Sahtouris (1999) finds that life is much too intelligent to have evolved by accident, and suggests that genetic errors are "probably **repaired**" (Sahtouris 1999). She writes:

> Now the geneticists are becoming aware of this at a microscopic level. We can look at what is happening with the relationship of proteins and genes and cell membranes and all that, and it looks very much as if life does not proceed by accident but by **design** (Sahtouris 1999: www.scottlondon.com/insight/scripts/sahtouris.html).

The verb "repaired" suggests intelligent, purposeful action—while the term "design" makes this explicit.

As Loye points out, conceptions of "ideal goals" are routine in futures studies (Loye 2004b p 281). In futures there is often an implicit representation of development and evolution which incorporates conceptions beyond the merely physical and biological. The range of concepts cited include: brain science and psychology, as well as cultural, social, economic, political, technological, educational, moral, spiritual, and consciousness evolution (Loye 2004b p 277); "love" (Bausch & Christakis 2004; Bradley 2004; Broomfield 1997; Eisler 2004; Goerner 2004; Loye 2004b; Sheldrake et al. 2001; Wilber 2000c); "partnership" (Eisler 2004; Goerner 2004); communication and creativity (Goerner 2004; Montuori, Combs & Richards 2004); human agency (Bradley 2004; Loye 2004a; Wheeler 1983); "creative action" (Eisler 2004; Goerner 2004; Loye 2004b); spiritual and consciousness evolution (Bausch & Christakis 2004; Eisler 2004; Goerner 2004; Loye 2004b); and "desire and intentionality" (Bloom 2001). It should be noted that data (explicit litany) are being drawn from a much wider range of fields and disciplines than is the case with neo-Darwinist models, and thus the parameters of the discourse are much wider.

The overriding explicit theme in the literature outlined in Table 5.1 (Tables & Figures) is that there is an intelligence which underpins the creation of the cosmos and of life itself. Loye (2004b) finds that “Pure chance—which requires the complete absence of causal links—does not appear to be a significant factor in the evolution of life” (Loye 2004b p 253). Darwin himself rejected the idea of blind chance, writing that “The understanding… revolts at such a conclusion” (quoted in Loye, 2004a p 31). Meanwhile Bausch and Christakis (2004) argue that “all self-organising systems **maintain themselves** by means of *expectations*” (Bausch & Christakis 2004 p 253. Italics added). Meanwhile Montuori, Combs & Richards (2004) state that “Ideal systems represent our highest goals, and aspirations; they form a vitally important image of the future which we are drawn to and which elicits the best we can possibly give” (Montuori et al. 2004 p 254). Further, Bloom (2001) sees desire and intentionality as the attributes that separate life from non-life, a distinction obfuscated by the systems-level reductionism of mainstream evolutionary science—as shall be discussed in the next section.

The latter thinkers see a place in evolutionary theory for “ideal-seeking systems guided by images of the future they create themselves” (Montuori et al. 2004 p 254). These images are “both open and adaptive to the environment and are shapers of the environment” (ibid.). Clearly such theorists find a place for intelligent agency, and creativity, in their conceptions of evolution, and in their conceptions of consciousness. This stands in dramatic contrast to the litany of mainstream dominant representations of evolution, as Table 5.2 at the end of this section shows.

These are mystical/spiritual conceptions which move beyond reductionist methods of mainstream evolutionary discourse. They are also predominantly unable to be tested and non-empirical in nature—with the possible exception of those drawing evidence from physics such as Sheldrake, Bradley and Broomfield. All these theorists listed here have been heavily influenced by Eastern philosophy, which has its foundations of knowledge in first-person intuitive mystical/spiritual ways of knowing.

Evolutionary theory thus reveals a contentious discourse, where “so much is unknown and unknowable” (King 1999 p 140). As Loye indicates, it “requires a massive updating, integrating and streamlining if it is to meet the needs of the twenty-first century, if not our survival itself over the long run” (Loye 2004a p 21).

The debates on universal mind, agency and evolution are thus significant because in Western mind science, the human mind and consciousness are represented as epiphenomena, products of blind ‘evolution’ and the random forces of natural selection. Yet mystical and spiritual depictions of mind and agency stand in great contrast to this. This creates an essential paradigmatic divergence.

Intelligent design

A related debate is that of intelligent design. The issue here is whether the universe has come to be via a greater intelligent agency directing its development, or whether no such agency exists and by implication the cosmos is purposeless.

Of relevance here is the notion of the anthropic principle, that the universe in some way was created so that human life might exist. As Maddox states, there is “no doubt that the anthropic principle lends support to religious opinions that the universe we inhabit embodies divine design” (Maddox, 1999 p 119).

Critics of intelligent design commonly accuse proponents of having religious and political agendas (Dawkins 1998). Other critics refuse to enter the debate, dismissing the argument as irrelevant, and taking the conception of atheism and a purposeless universe as a given. For example Hellman (1998) simply dismisses the arguments regarding intelligent design as “lies” and “pseudoscience” (Hellman 1998 pp 99, 101). The stakes are high. Shermer (1997) writes that:

> …as soon as the creation of even one species is attributed to supernatural intervention, natural laws and inferences about the workings of nature become void. In each case, all science becomes meaningless (Shermer 1997 p 143).

Yet such an extreme position may not be necessary, and may only reinforce the perception that mainstream theorists are dogmatists (Truzzi 2001).

Table 5.2: The debate on evolution and agency analysed via CLA

	Neo-Darwinism	**Intelligent Design & Mystical/spiritual Evolution**
The Litany	**Materialism**: matter is the litany. **Predicates**; Natural selection: purposeless, uncaring, blind chance (Dawkins; Larsen & Witman). Materialism—matter is primary. Evolutionary psychology—mind evolved according to natural selection. Rejects the numinous, is atheistic (a given). **Critique** Misconstrues Darwin's original thesis (Loye, 2000a, b, c). Evolutionary psychology predicated upon pan-adaptionist claims which are not testable (Gould, in King 1999).	**Idealism:** consciousness is the litany. **Predicates**: Brain science and psychology, as well as cultural, social, economic, political, technological, educational, moral, spiritual, consciousness evolution, love partnership, communication and creativity, human agency, creative action, spiritual and consciousness evolution, and desire and intentionality. **Critique** Mostly not testable, non-empirical conceptions drawn from intuitively founded knowledge in Eastern and spiritual/mystical literature.
Social/ System	The scientific method. Empiricism. Reductionism. Critical rational ways of knowing.	Trans-disciplinary. Biology, psychology, spirituality, religion, cosmology, mythology, anthropology. Other ways of knowing—non-ordinary states of consciousness, intuitive and transcendent knowledge.
Worldview	Emerges from the Western episteme and mechanistic paradigm.	Mystical and spiritual worldviews influential—Eastern philosophy, pan-psychism, indigenous, Romantic, New Age.
Myth/ Metaphor	The machine. Natural selection a "mantra" (Bloom), Blind chance, the blind watchmaker (Dawkins). Life emerging from a warm pool of amino acids. DNA attributed vitalistic properties (Bloom, Sheldrake) Gene is God doctrine (Bloom) Darwin's story itself a mythology, but a misrepresented one (Loye)	Life is pervasive—the proto-consciousness, pan-psychic view. Spiritual & cosmic evolution (Loye) God or creator designed universe.

Notably, various theorists espousing ideas akin to integrated intelligence find that other ways of knowing are necessary to perceive deeper evolutionary forces. Examples include Bentov (1988), Braud (2003); Broomfield (1997), Grof (1985, 2000), Hannah (2000), Hawkins (2002), and Newton (2002). They typically incorporate classical intuition, non-ordinary states of consciousness and transrational levels of cognitive development into their arguments and methods. These are ways of knowing that are paradigmatically alien to Western mainstream science—emerging from mystical spirituality. The debate on intelligent design is therefore paradigmatically bound.

The analysis of mainstream scientific and the alternative mystical discourses (including intelligent design) outlined in this section is summarised in Table 5.2.

In the next section, I continue the analysis with an issue closely related to neo-Darwinism—reductionism.

5.3 Reductionism and neuroscience

One of the essential ways in which mechanistic science and mainstream evolutionary theory differ from mystical approaches to knowledge is in the focus which they take to comprehend the cosmos. For Western science it has come to be the microscale; in mysticism the whole in the form of 'spirit' is seen as predominant (de Quincey 1999). In this section I examine the strengths and limitations of these approaches to knowledge. It will be argued that the predominance of reductionism obfuscates the very knowledge base of mystical spirituality and integrated intelligence.

The reduction of consciousness to micro-processes in the brain

Reductionism reveals the depth of mechanistic science's materialism. A fundamental presupposition of such science at the litany level is that the microscale is primary, while the macroscale is merely a function of the machinations of micro-processes (Bloom 2001; Kafatos & Kafatou 1991; Ross 1993). The significance of this is that mechanistic science underpins neo-Darwinism, neo-Darwinism underpins neuroscience, and neuroscience in turn underpins cognitive psychology—as depicted in Figure 5.1 above. Thus in this section the focus will be upon reductionism, neuroscience and cognitive psychology, which exist in close relationship with each other (Maddox 1999).

The effective rejection of first-person experiential data and inner worlds in modern science—Wilber's (2000c) upper-left hand quadrant—has contributed to the reduction of mystical experiences to micro-processes in the brain (ibid.). This is often uncritically represented in both academic and popular science. This is apparent in cognitive psychology's main function of attempting:

> …to explain consciousness in terms of simpler, non-conscious subsystems, to reduce it to information processing procedures in a physical system, whether that system be digital computer or biological computer (Tart 1993: www.paradigm-sys.com/cttart/sci-docs/ctt93-capta.html).

Tart identifies the problem at the system level—modern scientific culture. I have suggested that this system level emerges from the deeper paradigmatic problematique involving the neo-Darwinian paradigm and mechanistic science. The key is that reductionism has a dismissive effect upon first person experience, including the mystical. While the first person data constitutes an aspect of the litany in mystical discourse, it tends to be rejected in modernist science. Here the litany is mediated via the system level.

This is quintessentially depicted by the case of neuroscientist D. James Austen, who has a "mystical experience" as he waits for a train in London:

> ..he glanced away from the tracks towards the river Thames. …suddenly (he) felt a sense of enlightenment unlike anything he had ever experienced. His sense of individual existence, of separateness from the physical world around him, evaporated like morning mist on a bright dawn. He saw things "as they really are," he recalls. The sense of "I, me, mine" disappeared. "Time was not present," he says. "I had a sense of eternity. My old yearnings, fear of death and insinuations of self-hood vanished. I had been graced by a comprehension of the ultimate nature of things (Begley 2001 p 41).

Yet rather than interpret the experience as evidence of transcendent perception, Austen finds that it was merely “proof of the existence of the brain” (Begley 2001 p 41). Austen bases this view on the belief that “all we see, hear, and think is mediated or created by the brain” (ibid.). The experience is ‘reasoned’ in reductionist and mechanistic terms. Austen interprets the experience in the language of neurophysiology: it is an illusion created by the cessation of “certain brain circuits”—the amygdale, the “parietal lobe circuits”, and the “frontal and temporal lobe circuits” (ibid.). There is an implicit valorisation of reductionist knowledge and analysis as the key way of knowing—and with it comes a complete rejection of the data/knowledge of the mystical experience. The microscale neural activity has become more real than the experience itself, with its perception of cosmic wholeness. The litany is defined in terms of the data gleaned from the reductionist approach, with the data at the first person level effectively obscured. From the poststructuralist perspective, the mystical is denied, while the reductionist and ‘scientific’ achieve privileged status within the system.

The case of neuroscientist and skeptic Persinger (2001) sheds further light here. Persinger consistently argues for a reductionist and brain-based explanation for paranormal phenomena:

> From the perspective of modern neuroscience, *all experiences are generated by brain activity*, or at the very least strongly correlated with brain activity. As the complexity of this *brain activity is* ***mapped*** *and* ***described*** *mathematically*, the *nuances* of thought and *the idiosyncratic noise that* ***define*** *us as individuals* will be ***quantified***. To date *there has not been a single type of paranormal experience that is not understandable in terms of known brain functions*. The consideration of these experiences as *predictable (control*) components of brain activity will allow the differentiation between *the illusions of intrinsic stimulation* and *the validity of information obtained through mechanisms yet to be explained* (Persinger 2001 p 524. Italics added).

Persinger (2001) posits a materialistic conception of mind, mirroring neo-Darwinian presuppositions. It is the epitome of mainstream discourse in psychiatry and cognitive psychology, where the brain and consciousness are depicted as essentially synonymous (Grof 2000). Internal choice (which is difficult to reduce to micro-components) is depicted as an illusion, and all unknowns are explained in terms of “mechanisms” that—even if unknown at present—will be identified in due course. Again, first person data is eliminated at the litany level, reflecting deeper paradigmatic presuppositions—most notably the reductionist privileging of micro-processes over higher-order processes.

The verbs of knowing reveal much. Mathematical description is the ultimate validation process—consciousness is defined in terms of “quantified” “idiosyncratic noise”. The microscale neuronal activity is “described” and “defined”—where visual and verbal linguistic intelligences are key. The verb “mapped” suggests the concretisation of subtle phenomena to the hard page, in abstract form. In short, the five key ways of knowing of critical rationality which I outlined in Chapter Two are privileged: experimentation, analysis, classification, mathematical/logical and verbal/linguistic intelligences.

With this approach, Persinger renders the material substrate dominant over the mystical experience itself. Persinger makes no attempt to introduce a systems or worldview level analysis to proceedings—consistent with empirical science’s oftentimes reluctance to submit its own worldview to scrutiny (Sardar 2000; Inayatullah 2002a). The mythology of the detached and impartial scientist—untouched by the unreliable/ uncontrollable world of the human psyche and its affectivity—is implicitly perpetuated.

Limitations of genetic/reductionist approaches to the understanding of life and mind

A reductionist and materialistic approach to science—and especially mind science—has limitations. Micro-systems may not be able to be fully understood without reference to the nature of the entire system. Developments in chaos and systems theory are suggestive of this (Bloom 2001; Bradley 2004; Capra 2000; Grof 1985, 1992, 2000; Laszlo 2004). Further, Schlitz (2001) points out that a “purely physicalist” and reductionist representation of reality is highly problematic:

> As we have **cultivated** this remarkable set of knowledge-based and reason-based skills, there are questions we are not answering. What does it **mean** to be human? What does it **mean** to have emotion? What does it **mean** to have motivation, intention, and attention? All of these first-person experiences that we think of as uniquely our own are not addressed within the strictly physical dimensions of reality (Schlitz 1999 p 336).

The verb "cultivated" relays the organic worldview which underpins Schlitz's arguments. These are essentially issues of meaning and purpose, as notable with the verb to "mean". Hermeneutics can be seen to embrace both the mental and spiritual domains, Wilber's (2001) eyes of reason and spirit. It cannot be reduced purely to the "eye of flesh" (ibid.).

Nature editor John Maddox raises an important issue in the field of microbiology and genetic biology (which underpin neuroscience):

> There is a separate and more teasing obstacle facing those with the ambition to understand why cells behave as they do: accounts of how some molecules interact with others are simply fairy stories. What happens can be **described**; *why* it happens remains a mystery. Ask a yeast geneticist *why* the molecular targets of cyclin molecules (known as "cdk" molecules) are more effective at activating others when they are coupled. "Something to do with the structure," he or she will say, before inviting the next question (Maddox 1999 p 189 Italics added).

Maddox's account suggests that reductionist science is capable of precise *description* of the processes and *machinations* of the micro-components of biological systems. However it is poor at explaining *why* they occur. It is a fundamental issue whether in any given system a description of the machinations of the micro-components can ever be ascribed as its purpose. Thus at the level of the litany, issues of meaning and purpose are implicitly obscured via a purely physicalist, reductionist approach.

Microbiology—and genetic biology and the neo-Darwinism which drives it at the paradigmatic level—is failing to account for the way that the components that are being examined fit together (Bloom 2001). According to Maddox the result is that molecular biology is adept at *identifying* genes in large numbers, yet this is "merely the **naming** of the parts of living organisms" (Maddox 1999 p 369). It can be seen that in neuroscience the key way of knowing is classification—one of the key ways of knowing of Western critical rationality (Pickstone 2000).

Reductionist approaches to cellular biology may obscure holistic properties of systems. Maddox finds:

> The engineers **taking cells apart**, mechanism by mechanism, are understandably so excited by the marvelous delicacy of what they find that they have little inclination for the systems analysis that engineers in other fields insist upon. The big picture is in danger of being hidden by the detail (Maddox 1999 p 168).

Thus at the genetic and cellular levels in molecular biology, there are as many questions as there are answers. This is vitally important to the understanding of present dominant discourses in consciousness, psychology and intelligence, as cognitive science has become a handmaiden to neuroscience—which in turn is structured according to the tenets of neo-Darwinism (Maddox 1999). This is indicated in Figure 5.1, above.

Conversely there are limitations to mystical ways of knowing. Wilber (2001) refers to category error, which occurs when mystics attempt to employ the "eye of spirit" to comprehend problems best understood via the eyes of "flesh" (experimentation) or "reason" (philosophy). Mathematical equations cannot be understood through contemplation alone. Attempting to "calculate" how many angels fit on the head of a pin is an example of such category error (Wilber 2001). Further, it is readily apparent that reductionist science and evolutionary theory have delivered intricate understandings of natural processes that contemplative ways of knowing are simply incapable of delivering.

The infancy of neuroscience

It is important to appreciate that understanding of the human mind—even within neuroscience—is still quite limited:

> Yet the cruel truth is that the central objective of the now majestic research program in neuroscience remains beyond reach: there is only the most shaky

> understanding of how the brain, and the human brain particularly, engenders mind—the capacity to **reflect on** past events, **to think** and **to imagine** (Maddox 1999 p 276).

The verbs of knowing collectively equate to the idea of consciousness itself and the human will; the most problematic aspects of mind within reductionist and mechanistic science (Dossey 1999a; Grof 1985, 2000; Stapp 2005). Maddox finds that even the simplest brain is too complex to be fully comprehended via its constituents. A human infant's nervous system probably has more neurons than our galaxy has stars—one hundred billion (Maddox 1999 p 191). Cells of the cortex may be able to signal as many as 10,000 other cells in the head or body. The "combinational possibilities are immense, as can be told by multiplying 10 billion by itself 10,000 times" (ibid. p 291).

Further, Maddox relates that neurons:

> …appear to have the function simply of telling downstream neurons with which they communicate whether or not they are active, and to what degree. How can the exchange of such simple messages between neurons yield the sophisticated images that we are all familiar with in our heads—the recollection of Beethoven symphony or the remembered spectacle of the Grand Canyon? (ibid. p 290-291).

Maddox's account raises further questions regarding the limits of reductionism as a means to fully explain consciousness. His general conclusion about contemporary brain science is notable.

> How the brain functions both in the everyday world and as the human attribute of mind is hardly clearer now than at the beginning of the century (Maddox 1999 p 21).

Reductionist neuroscience thus perpetrates the Western rationalist hegemony. This dominant mind science creates experts (scientists and academics, university graduates) who are expert in taking things apart—analysing, classifying, and experimenting. Yet in lieu of the deficit of other ways of knowing in contemporary scientific/academic training (Broomfield 1997; Wiseman 1996), those same experts are unlikely to be able to relate, intuit, feel, and synthesise at the same level of acuity. This is exacerbated by the restrictions of mainstream science, which does not permit reference to such methods as legitimate components of the discourse.

The argument in this section is summarised in Table 5.3 below.

Table 5.3: Reductionist versus mystical approaches to understanding mind

	Neuroscience and Cognitive Psychology	**Mystical/spiritual Discourse**
The Litany	First person experience downplayed or rejected. Efficient at naming, identifying and describing—classification. Issues/questions of meaning & purpose—the big picture—obscured. Human will and consciousness itself obscured.	First person experience valorised. Issues of meaning and purpose valorised. Whole systems perspectives permitted or privileged. Microscale effects/causes may be glossed over or obfuscated.
Social/ System	Reductionism—the scientific method. Neuroscience in its infancy. Brains too complex to be fully understood via micro-processes (Maddox). Other ways of knowing—incl. relational, intuitive, affective—downplayed or excluded.	Meditation. Other ways of knowing, non-ordinary states of consciousness permitted or privileged. Category error (Wilber)—mystical approaches employed where reductionist methods more suitable.
Worldview	Mechanistic paradigm, critical rationality, the Western episteme. Systems and worldview analysis often ignored—especially of science and The West itself.	Mystical spirituality, Eastern mysticism idealism privileged.
Myth/ Metaphor	Myth: the detached and impartial scientist. Metaphors: the gene, the cell, the neuron, the bit, the atom, the cell, the computer.	Myth: the enlightenment experience. Metaphors: God, The Creator, Nature.

The argument indicates that the reductionist focus of contemporary science and neuroscience has established another problematical position for mystical and spiritual worldviews in modern science and society: the rejection of inner and affective space.

5.4 The obfuscation of the intrapersonal: the rejection of feeling, intuition and the transcendent

Evolutionary biologist Stephen Jay Gould stated in interview that: “I believe in intellectuality, none of this California touchy feely stuff” (quoted in King 1999 p 139). Gould’s rejection of affective and kinaesthetic ways of knowing in preference to “intellectuality” is consistent with dominant mainstream Western scientific discourse—at the litany level. Yet underpinning the valorisation of critical rationality in Western culture and science there is a deeper paradigmatic rejection of affective, inner and transcendent cognitive modes. Crucially, these are the cognitive modalities which underpin mystical/spiritual experience.

Such a rejection of inner, spiritual, and affective worlds moves beyond simple personal choice. It is argued here that those working within Western science and its educational institutions have been unconsciously constructed as subjects of the mechanistic paradigm and the reductionist mind science that has followed it. This paradigm obfuscates these intrapersonal spaces.

Various analyses can be posited at different levels of the problematique. Dossey (2001a) presents a systems level analysis. He points out that as behaviourism lost credibility in the mid twentieth century, the computer replaced rats as the primary life-and-humanity-denying metaphor of psychology. The common characteristic of the two metaphors is that they permitted feelings and “the joys and pains of being human” to be ignored (Dossey 2001a p 51). Ross (1993) finds a psycho-spiritual cause, and writes that twentieth century psychology is “a dogma of feeling avoidance for oedipally frustrated male academics to hide behind” (Ross 1993 p 116).

A civilisational perspective (CLA, level 3) permits a more distanced analytical position here. While the development of science in the West focused more and more on rationality and externalities—the “surfaces” of the right-hand quadrants of Wilber’s (2000a, 2000c) Integral Theory—other civilisations have developed epistemologies which acknowledge inner worlds. These include China (Jiyu 1998); Buddhist and Zen traditions (Cleary 1999); the Hindu and Tantric traditions (Inayatullah 2002b; Ross 1993 pp 150-151); early Christian mysticism such as St Teresa of Avila; the Hebrew Kaballah; and the cultures the ancient Romans and Egyptians (Kafatos & Kafatou 1991 p 193). Indigenous cultures have also featured well-developed inner worlds, including the dreaming of the Australian Aborigines (Lawlor 1991; Wildman 1996); the shamanic and spiritual traditions of the Native Americans, Siberians, and Polynesians (Broomfield 1997 p 56); and Japan's Seiki-Jutsu (Osumi & Ritchie 1988).

While such spiritual traditions display profound differences, they have specific and shared contrasts in their civilisational ways of knowing relative to the Western episteme. These include the withdrawal of attention from the senses; union with the transcendent, divine or nature; and acknowledgement of subtle intuitive feelings and strong emotions such as cosmic bliss (Bucke 1991; Inayatullah 2002b). Conversely, the scientific method focuses upon sensory knowledge gleaned via the separation of observer and object/subject, and rejects the idea of the divine or transcendent consciousness—as indicated in section 4.3, above.

The quintessential case of Damasio

When emotion and feeling are incorporated into modern cognitive science, the tendency is to represent them in mechanistic terms, according to the tenets of the mechanistic paradigm. At the field and individual level, this is even true of perhaps the most prominent mainstream contemporary proponent arguing for the reintroduction of the affective into mainstream mind science—neuroscientist Antonio Damasio (2004). Ironically, Damasio constructs his argument with mechanistic and neo-Darwinist presuppositions:

> Evolution appears to have **assembled** the brain *machinery* of emotion and feeling in installments. First came the *machinery* for producing reactions to an *object* or event, directed by the *object* or at the circumstances—*the machinery of emotions*. Second came the *machinery* for producing a brain map and then a mental image, an idea, for the reactions and or the resulting state of the organism—*the machinery of feeling* (Damasio 2004 p 80. Italics added).

The pervasive employment of the machine metaphor and the obvious object/subject split, situate Damasio's thesis quintessentially within the mechanistic paradigm. It is a stimulus and response model reminiscent of behaviourism.

When a prominent advocate of the affective in neuroscience states flatly that "nature used the machinery of emotion as a start and **tinkered** a few more components" (ibid.), it can be seen that modernist discourse is replete with materialist and reductionist givens. The verb "to tinker" is suggestive of a masculine mechanic working with the workings of a machine. Within this paradigm, emotions and the intrapersonal are as much epiphenomena as consciousness itself.

The function of feelings in Damasio's model is "tied to their life-monitoring function" (ibid. p 165). This is made explicit:

> The machinery behind feelings enables the biological corrections necessary for survival by offering the explicit and highlighted information as to the state of different components of the organism at each given moment (ibid. p 178).

Such a neo-Darwinian "survival of the fittest" model leaves little room for evolutionary imperatives that might transcend mere survival. This includes the transrational components of integrated intelligence; akin to Maslow's (1971) "farther reaches of human nature". It also fails to address the issue of emotions beyond the systems level. Damasio's explanation focuses upon the litany—the observable machinations of mind/brain and the givens of neo-Darwinist theory. Thus Damasio's thesis is readily explicable in reference to Figure 5.1 above, mediated by neuroscience, neo-Darwinism and the mechanistic paradigm.

Feelings and the intuitive

Logically, the paradigmatic reduction of the affective cognitive domains retards personal intuitive acuity, as intuitions and numinous experience often involve a subtle or strong sense of feeling. Storm (1999) points out that one of the prime factors required for a psi-conducive environment is an "increased awareness of internal processes, feelings, and images" (Storm 1999 p 264). Jung (1973) also realised that an "affective" component was required for the meaningful integration of numinous experiences. Cambray (2002) writes that the interpretation of Jungian-type synchronicities and mental images becomes meaningful “when these symbols are accessed by consciousness and experienced affectively” (Cambray 2002 p 418). The spiritual, the numinous and the meaningful are closely connected with the affective cognition, and thus with integrated intelligence.

It can be seen here that intuitions—including classical intuitions—are at least in part ‘affective’ and reliant upon feelings. Mystical experiences are “characterized by the *feeling* that… everything forms a unity” (quoted in White 1998 p 132. Italics added). It is the verb of knowing “to feel” which occurs repeatedly in deep spiritual and numinous experiences. Kubler Ross (1997) “**felt**” the pain of all those she had helped to die in her experience of “cosmic consciousness” (Kubler-Ross 1997 pp 217-224). Neurophysiologist Austen “**felt** a sense of enlightenment unlike anything he had ever experienced” during his transcendent experience (Begley 2001 p 41). Hawkins “would **feel** an exquisite energy” within himself, as his consciousness was being gradually transformed (Hawkins 1995 p 297). Talbot “**felt** a sudden compulsion” to reach out and grab a book, which launched his life-long passion for researching physics and mysticism (Talbot 1992 pp 137-138). Muriel had a “**feeling** of … something that isn’t normal, something that upset, a warning… something is happening” even as her home was burning many kilometers away (Petitmengin-Peugeot 2003a p 70). A self-described psychic stated that “I just said what I **felt** about the case” when asked how he helped solve the case of murder victim Rose Swartwood for American police (CNN 2005).

In summation there is a strong paradigmatic dimension to the rejection and obfuscation of the intrapersonal dimensions of consciousness in contemporary Western science—including affectivity, classical intuition, and the transcendent. This in turn can be traced back to the reductionist and materialistic predilections of neo-Darwinism and the mechanistic paradigm.

Having established this paradigmatic and field-level perspective in the first three sections of this chapter, I now focus upon a distinctive level four (metaphorical) manifestation of this general problematic—the predominance of the computer metaphor in contemporary mind science.

5.5 The mind-as-computer metaphor

The suitability of the computer metaphor is one of the primary debates of modern cognitive science (Maddox 1999). Tart (1993) writes that:

> Cognitive psychology was inspired by digital computers, and its primary function is to explain consciousness in terms of simpler, non-conscious subsystems, to reduce it to information processing procedures in a physical system, whether that system be digital computer or biological computer (Tart 1993: www.paradigm-sys.com/cttart/sci-docs/ctt93-capta.html).

The prevalence of the computer metaphor is a chicken and egg situation. While contemporary consciousness theory and especially artificial intelligence theory (Dossey 2001 p 51) is dominated by the concept, philosophers and scientists of pre-computer generations held views which were perfectly compatible with the computer analogy. The 'tabula rasa' conceptions of the British empiricists and ancient Greeks also assumed the mind to be a blank slate, a receptor of information, programmed by external sources. In these models the environment is the software, and wiring the hardware of the brain (Ross 1993 p 115-116). Previous dominant metaphors in mind science have included the telephone switchboard, a telegraph system, a water pump, and a steam engine (Dossey 2001 p 51; Searle 1991). Significantly, all these previous metaphors are mechanistic, further suggesting that modernist discourses on mind reside firmly within the mechanistic paradigm. Within any given paradigm, only metaphors which reflect the givens of the dominant discourse are likely to flourish.

The strengths of the metaphor

Metaphor is an unavoidable tool for explication of the human mind. Maddox (1999) argues that:

> ...it is difficult to see how it will be possible to make sense of the information now being gathered in the laboratory about the properties of neurons and

> their interconnections without using the language originally devised for the description of computer components and the elements of communication networks. Moreover, exactly similar language will be necessary to account for what is the central question about the working of animal brains in general—making decisions about the appropriate response to sensory input and then executing that response (ibid. p 296).

Maddox finds that present data is not enough to determine whether the brain actually functions as a computer, but concludes that the metaphor has deservedly come to stay (Maddox 1999 p 300). This is because it is “partly true” and it has already proved to be of great practical and theoretical value (ibid.). He adds that the brain does not resemble a modern PC, but is more like a parallel and asynchronous computer. The fact that the main function of neurons is to signal to others whether they are “off” or “on”, suggests the workings of a computer (ibid. p 294). However the complexity with which cells are linked together is far more complex than any computer yet devised (ibid. p 296).

It must be noted that Maddox’s worldview is that of a Western academic, and his finding that the mind is rather like a computer may be a self-reinforcing and self-stultifying expectation. For the computer metaphor (a machine) is itself perfectly representative of the mechanistic paradigm, which I have argued unconsciously underpins the perceptions of the Western mind.

The limits of the computer metaphor

Critics note the limitations of the brain-equals-computer metaphor. John Searle argues that it is no better or worse than the previous dominant metaphors of consciousness theory listed above (Dossey 2001 p 51; Searle 1991). Edelman (2004) is more critical, finding that computer/machine models of consciousness are untenable, and that cognitive psychology is predicated upon a self-limiting presupposition. Edelman’s argument is litany level—and is founded upon the absence of functional states in human brains that are comparable to defined or coded states in computer operations.

Penrose's (1990) idea of non-algorithmic intelligence is relevant, as it suggests that various aspects of consciousness are not reducible to computerisation. Notable in terms of mechanistic science's linear temporality, Penrose finds that the perception of qualia (e.g., the redness of red) does not require a series of linear steps. This undermines the possibility of artificial intelligence, because if not all aspects of consciousness can be computerised, then translating consciousness into machines may be impossible (Penrose 1990). Edelman (2004) goes further and finds that there are no neuronal functions that are equivalent to the execution of algorithms. Edelman's and Penrose's arguments suggest the limitations of the computer metaphor, in terms of its application to the non-algorithmic components of consciousness and intelligence.

Grof (1985) writes that a predominant characteristic of the history of science is for scientists to develop models of phenomena, and then to confuse "the map for the territory". He argues that instead of being taken too literally, scientific models should be seen as "a convenient approximation" (Grof 1985 p 5). In light of the limitations of the computer metaphor mentioned here, the predominance of that metaphor can be seen as a form of pathetic fallacy. This occurs where the individual transfers personal conceptions and conditionings onto an object or person. As development and proliferation of machinery has been one of the dominant themes of Western social and technological development, consciousness theorists might easily transfer such motifs onto the subject of their investigations.

The effect of the pervasive computer analogy in mind science has been the perpetuation of the machine metaphor, and the denial of life and humanness (Dossey 2001 pp 50-51). Tart (1993) argues that the metaphor discourages a deeper exploration of consciousness, and has encouraged a perception of the human psyche as being animalistic, dangerous, and best avoided (Tart 1993). Further, according to Wilber's transpersonal theory, both the transcendent and the primal are—under normal circumstances—unconscious (Wilber 2000c). The computer metaphor's tendency to obfuscate the human psyche may thus obscure not only the ‘shadow’, but also the transpersonal, including integrated intelligence.

Given the strengths and weaknesses of the computer metaphor, an ideal approach to the problem necessitates a deeper appreciation for the metaphorical predicates of the analogies being used within mind science. This appreciation would allow for a greater realisation of Fritjof Capra and Stan Grof’s (Capra 1993) insistence upon recognising that our scientific models are ultimately approximations of reality, and not the reality itself. A greater appreciation of epistemic and paradigmatic factors within mainstream discourses on consciousness and mind would also allow greater scope for an expansion of those discourses. Thereafter the extended mind and integrated intelligence might be discussed as viable theory and phenomena.

Having developed a structure for a critique of the overt and subtle influences regulating mainstream dominant representations of mind in the modern West, I now enter the broader field level—the debate on consciousness and the extended mind.

Part Two: Consciousness Theory and the Extended Mind

Table 5.1, above, indicates that consciousness theory is an implicit foundation of intelligence discourse; any theory of intelligence is bound to be constructed upon the givens of dominant theories of consciousness. The first goal is to make its givens more problematic via CLA, again employing transpersonal theory as a disruptor. The second aim is to determine in what ways integrated intelligence has been excluded from the dominant discourse within current consciousness theory. This section represents the culmination of the debates and issues outlined in Part One of this chapter.

5.6 The extended mind

As indicated in Chapter One, the concept of integrated intelligence is predicated upon the idea of “the extended mind” (Dossey 2001b; Sheldrake 2003a, 2003b). The concept of the extended mind is a highly controversial subject and has its advocates, and detractors. Most significantly it is not adequately addressed in the mainstream literature in consciousness and intelligence.

Consciousness in mainstream discourses

The localised and brain-based foundation of consciousness theory—where human consciousness is depicted as “a causally inert witness to the mindless dance of atoms” (Stapp 2005 p 58)—is a generally uncontested given within mainstream intelligence and consciousness theory (Dossey 2001a; Grof 2000). The paradigmatic influence of the mechanistic paradigm and neo-Darwinism is implicit but pervasive: life is materialistic, with organisms seen as separate entities which communicate only via sensory perception. Mental processes are viewed as reactions to the environment and/or a synthesis of experiential/sensory data (Grof 1985 p 23). Although the precise machinations of consciousness remain elusive, it is assumed that the brain makes consciousness, “much like the liver secretes bile or the pancreas produces insulin” (Dossey 2003 p xi). In such a materialist system, consciousness is depicted as an emergent property produced by the physical brain (de Quincey 1999).

In interview, neuroscientist Steven Pinker epitomised this. Mind is:

> A system of organs of **computation**, designed by natural selection to **solve** the kinds of **problems** our (Stone Age) ancestors faced in their foraging way of life… (quoted in Swain 1999 p 192).

The neo-Darwinist presuppositions and the mind-as-computer metaphor are readily apparent here. The explicit verbs of knowing reflect the presuppositions of critical rationality—the brain is depicted as computation and problem-solving machine.

Similar positions are common. Edelman (2004) employs a litany-focused analysis, citing research into damaged brains as evidence that the neuron gives rise to consciousness. Dennet (1991) reduces mind in strict materialistic fashion, employing the extensive use of the computer metaphor. Dennet’s ‘zombie’ thesis posits that there is no self, merely cognitive machinations and the illusion of consciousness. The materialist and reductive basis of these two theorists is apparent. Meanwhile Searle (1997) argues that consciousness is a case of “biological naturalism”. He attempts to circumvent the mind-body problem by depicting consciousness as irreducible but nonetheless an emergent property of the brain.

Advocates of purely materialist positions tend to expect that unresolved issues of consciousness will soon be explicated in materialist terms. This is sometimes referred to as “promissory materialism” after the original term coined by Karl Popper (quoted in Stapp 2005 p 56). For example, Richard Dawkins sees the elimination of all non-material representations of mind (which he sees as one of “the last vestiges of vitalism”) as an inevitable outcome of scientific research in the future (Dawkins 1999 p 63). Pinker is similarly confident, positing his “consilience” hypothesis, incorporating the notion that the “matter versus mind” issue will evaporate as the neural foundations of consciousness are revealed (Pinker 1999 pp 197-198). Likewise, Maddox (1999) is confident that the brain will eventually be comprehensible in terms of “neurons and their connections” (Maddox 1999 p 300). However, he concedes that “this will take a long time” (ibid. p 301).

Promissory materialism is paradigmatically driven. In line with Kuhn’s (1970) original concept of paradigmatic knowledge, it is assumed that current knowledge will continue to accumulate in a linear fashion, with the end being the ineluctable validation of the present epistemic givens.

Not everyone is so confident. Paul Davies finds human consciousness “a tougher nut to crack… (because) nobody knows what it is or how it is caused...” (Davies 1999 p 53). While Davies believes that there will soon be a greater understanding of the so-called “easy problem” (“the neural correlates of consciousness”), “the hard problem” of “qualia” (the subjective nature of personal experience/consciousness) will be much more difficult to resolve. Dossey goes further, stating that “in the whole of neuroscience there is no evidence whatever that neural tissue is capable of producing what we experience as conscious awareness" (Dossey 2003 p xi). Similarly, Sheldrake (2003a) criticises the mainstream conception that thoughts, images and feelings are all in the brain. This 'taken for granted' representation of mind, epitomised by Crick's (1994) "astonishing hypothesis", is ultimately not testable. Sheldrake finds that the mind-equals-brain theory has "very little evidence in its favour" (2003a pp 282-283). The Dalai Lama (2005), after decades of discussions with many leading scientists, philosophers and theologians, sees the mind-equals-brain theory as a metaphysical assumption without physical evidence. Most crucially, Stapp finds that there is no currently valid materialist theory which explains how "knowing", "understanding", and "feeling" arise out of the atomic structure of the brain. The dominant materialist paradigm offers no explanation of how these cognitive processes transform into the conscious effort "which determines whether the limbic or frontal regions of the brain will be activated" (Stapp 2005 p 56). It thus fails to account for human will (ibid.).

This represents a challenge to the dominant paradigm at the litany level: the problematic lack of data regarding the neural predicates of consciousness. Yet there are other multi-level critiques which invoke the concept of the extended mind or similar ideas.

Grof's alternative integrated representation of mind, including the extended mind

The major contemporary academic discourses which attempt to problematise the materialistic givens of mainstream mind science are transpersonal theory, new age and various mystical/spiritual discourses, and parapsychology. Notably these are all out-of-field discourses.

Transpersonal researcher Stan Grof (1985, 1995, 2000) is a prime exemplar here. He finds that humanity contains a deep collective unconscious, incorporating transpersonal potentials:

> …each individual psyche is **intimately connected with** the rest of the cosmos and, in a certain sense, is actually commensurate with it. In this way, modern consciousness research has confirmed the basic thesis of the

> ancient Indian Upanishads that each of us, in the last analysis, is *identical with* the totality of existence and with the **creative** principle of the universe. An individual is not just a body-ego, but also the supreme cosmic principle… (Grof 1996. Italics added).

The term “identical with”, and the verbs of knowing—to connect intimately with and to create—suggest the collapse of subject and object that lies at the heart of integrated intelligence. Echoing the tenets of Eastern and indigenous worldviews, Grof attacks the belief that consciousness is limited to living organisms, and that it necessitates a highly developed central nervous system (ibid.). While there is a strong connection between the brain and consciousness, there is no proof that the brain produces consciousness (Grof 1985 p 21).

Grof points to the existence of domain two integrated intelligence finding: “an individual can gain experiential access to events occurring in other countries, cultures, and historical periods and even to the mythological realms and archetypal beings of the Jungian collective unconscious” (Grof 1996 www.primalspirit.com/Grof_Planetary Survival_art.htm). The key here is the extreme contrast in Grof’s research methods and ways of knowing compared to those in mainstream mind science. Grof’s thesis is based upon research into ancient and shamanic cultures, comparative religion, psychedelics and non-ordinary states of consciousness (Grof 1985, 1994, 1995, 2000). His is a multi-level analysis, a great contrast to the litany-focused materialists in mainstream discourses.

Further examples of theorists positing models of mind that are non-localised will appear in Chapter Seven of this thesis, namely Ken Wilber, Danah Zohar, and John Broomfield. Each of these theorists invokes the concept of brain-transcendent consciousness.

Physics and mind

Another fertile area for theorists espousing concepts akin to the extended mind and integrated intelligence is the discourse on consciousness centered upon quantum physics and systems theory. This discourse allows theorists to speculate and extrapolate further; it is also presenting a problem for materialists to contend with.

Some discussion and research has addressed the issue of whether consciousness has a quantum mechanical basis (Haldine 1934; Hammeroff & Penrose 1996; Marshal 1989; Stapp 2005; Schwartz et al. 2004; Zohar 2000). These views include relatively conservative assertions such as Hammeroff and Penrose's (1996) insistence that consciousness incorporates holistic properties, to the radical claims that humans have omniscient capacity for knowing (Targ & Katra 2001), and that the act of observation itself participates in the creation of the universe (Folger 2002; Talbot 1992; Stapp 2005; Wheeler 1983). Other texts referring to quantum physics and systems theories include: Bohm (1973); Bradley (2004); de Quincey (1999); Capra (2000); Carter & Smith (2004); Clarke (1995); Dossey (1999b); Fox & Sheldrake (1996); Grof (2000); Hawkins (2002); Kafatos & Kafatou (1991); Kafatos & Nadeau (2000); Nisker (1998); Peat (1988); Penrose (1990); Pribram & Bradley (1998); Ross (1993); Russell (2004); Sahtouris 1999); Sheldrake (2001); Talbot (1992); Targ & Katra (1999, 2001); and Tart (1999, 2003). Common to the arguments is the principal of non-locality (or quantum entanglement/interconnectedness), where at the sub-atomic level particles may exchange information instantly with other particles regardless of the distance between them (Targ & Katra 1999 p 275).

While the quantum entanglement issue in itself can be seen as litany-level, the theorists above tend to refer to quantum physics as part of a broader multi-level analysis. Critiques of the neo-Darwinian (Broomfield, Loye, Sheldrake) and mechanistic paradigms (Capra, Grof, Ross, Sheldrake) are common.

A notable exemplar is Stapp's (2005) conception of "quantum interactive dualism", which contests the foundations of the materialism. Stapp argues that the materialist position since Newton has never accounted for developments in modern quantum physics. Quantum theory contradicts the materialism of classical physics is two ways.

Firstly, it inputs random elements into the process. Secondly, it both allows and requires "psycho-physical events" that directly affect the supposedly materialist systems (Stapp 2005 p 43). It is the choices of conscious agents that are thought to underpin these in orthodox quantum theory (ibid.), notable because individual will tends to be neglected in materialist accounts of mind. Thus Stapp situates his analysis within a paradigmatic analysis of mechanistic physics.

Stapp elaborates his thesis with strong litany (brain science) and systems level (the methods of quantum theory) analysis. He finds that brains are controlled by ionic processes within nerves, and therefore classical physics is insufficient to explain their workings. The critical brain process of exocytosis—which features the insertion of neurotransmitter molecules into the synaptic clefts that separate communicating neurons—indicates that quantum physics must be employed in the comprehension brain dynamics (Stapp 2005 p 44). The conceptions of quantum mechanics necessitate the introduction of an "active consciousness… that… injects conscious intentions efficaciously into the physically described world" (ibid. p 45). Orthodox quantum mechanics can thus be used to explain all levels of human consciousness and causal connections between humans and cosmos (ibid.).

Research is presently inconclusive (Zohar 2000), but if consciousness does feature quantum mechanical processes, the case for the extended mind would be greatly enhanced. Yet this validation would itself rest upon the empirical foundations of mainstream discourse—the litany level. For mystics, no such wait for empirical validation is required, as first person experience is trusted as a means to knowledge (Dalai Lama 2005).

There are many critics of attempts to employ quantum physics as evidence for the extended mind. Maddox states that quantum entanglement "is now not seriously disputed" (Maddox 1999 p 96), yet adds that "it remains to be seen whether they (quantum processes) have a part in communication between nerve cells, or between relatively distant parts of biologically active molecules" (ibid.). Any genuine evidence for non-localised communications within the body is yet to emerge. Maddox also finds that personal subjectivity is an unnecessary consideration, because the measuring devices that cause the collapse of the wave function "are not people but measuring devices" (ibid.). Sheldrake (2003b) likewise finds that the quantum entanglement is not related to the conception of "the extended mind", although some link may be found in the future. Mole (1999 p 78) dismisses all links between consciousness and physics and derides populist attempts to correlate physics and spirituality as "flowery and inaccurate".

Notably, the critiques by Maddox and Mole are emergent of the Western episteme, and employ none of the 'non-ordinary' states of consciousness which form a definitive aspect of mystical spirituality (Table 2.1 E). However, the transpersonal perspective permits a deeper level of analysis. Wilber (2000a, 2001) finds that all analyses comparing physics and Eastern mysticism are predicated upon "category error"—the erroneous employment of the "eye of flesh" (sense perception) to validate insights gained by the "eye of contemplation" (mystical intuition). While such comparisons do reveal superficial correlations, the empirical foundations of physics can only reveal a limited aspect of the knowledge of the mystics. Wilber predicates this finding upon his claim that consciousness is developmental, and that the upper levels of the system/cosmos are perceptible only to those who have entered the transrational domains of consciousness development (Wilber 2000a, 2001).

Nonetheless, while attempts to correlate quantum physics, mind and/or mysticism remain problematic, the recent development of such discourses means that the worldview of the mystic is no longer completely incompatible with modern science and physics. These developments potentially undermine the dominant mechanistic paradigm notion that the universe is a collection of separated, discrete, randomly interacting parts (Capra 2000; Hawkins 1995 p 113; Tarnas 2000). In the new physics, the mystical traditions have regained attention.

Critics of the extended mind

Critics of mystical and paranormal modes of perception are widespread. Here I address these critiques, and use Inayatullah's CLA to indicate the level of the analyses and where appropriate the prime ways of knowing.

One group which defines its very existence through opposition to mystical and the paranormal phenomena is the 'skeptics'. These individuals argue for a mechanistic universe, and often condemn or ridicule proponents of psi, including concepts related to integrated intelligence (e.g. de Grasse Tyson 2001; Mole 1999; Park 2000; Randi 1991; Sherman 2003). Randi (1991) argues that psi phenomena simply do not exist, and are a delusion based upon wishful thinking. Park (2000) valorises reductionism whilst ridiculing popular spirituality. He writes that "in an age of science… irrationalism is raging out of control" (Park 2000 p 93). It may be noted here that the need for control and power in general is a defining attribute of the mechanistic paradigm (Table 2.1 H).

Mole (1999) attacks new age author James Redfield's (1997) claim of a holistic, synchronistic and intelligent universe, arguing instead in favour of a universe based on probability and random chance—another attribute of the mechanistic paradigm (Table 2.1 I). He critiques Redfield's "flowery and inaccurate renderings of quantum mechanics and relativity theory" (Mole 1999 p 78). Writes Mole, "This notion of a universe affected by consciousness stems from misunderstandings of the quantum mechanical phenomenon of wave function collapse" (ibid.). Mole states (ibid. p 79) that there is no supporting evidence for the belief that consciousness plays a role in the collapse of the wave function:

> Luckily, there is absolutely no scientific evidence that Redfield's philosophy is true. There is no mysterious non-locality in the world, and our consciousness has no influence on objective reality. We are, as physicist Victor J. Stenger says, just "temporary bits of organized matter" (Mole 1999 p 80).

The extreme reductionism of Mole's argument is readily apparent. Yet it must be noted that is not 'scientific' (defined within the givens of the mechanistic paradigm) evidence that constitutes the prime way of knowing for the mystic. Moles' critique privileges the scientist, critical rational ways of knowing and the Western episteme.

Another skeptic, de Grasses Tyson (quoted at the beginning of this chapter) limits expanded "ways of knowing" to the enhanced perception acquired via the instrumentations of science. He derides "fortune-tellers, mind readers, and mystics'' claims of extra-sensory perception as "nonsense rather than sixth sense" (de Grasse Tyson 2001). As with Mole, the empirical, litany-level validation process is notable; his conclusion is founded upon the paucity of physical, experimental evidence in parapsychology. Further, he suggests that such mystical individuals should be able to prove their abilities by "becoming insanely wealthy futures traders on Wall Street" (ibid.). His insistence is reflective of Western economic materialism—where power, money and ego-status are the defining ends of the quest for knowledge. This is not the case in many settings where mystical spirituality has flourished—such as with the Rhine mystics, Eastern sages and Romantics (Chapter Three).

Skeptics provide a considered appraisal of claims of the paranormal and mystical. Yet the discourse is paradigmatically delimited and inevitably obfuscates knowledge based upon other ways of knowing and alternative paradigms. To employ Wilber's (2000c) terminology, it produces a self-stultifying and mechanistic "Flatland" cosmos. The extent of this paradigmatic rejection of psi is evidenced by the fact that less than 1% of traditional colleges and universities throughout the world contain faculty who will publicly admit to an interest in psi research (Radin 2006 p 280).

The philosophical/empirical divide

The debate on the extended mind (and the mind-body problem) highlights the vast divide between philosophical and empirical approaches to the study of consciousness. This issue is a systems and worldview-level problem—Western science versus philosophy and mysticism. It also involves ways of knowing.

In mainstream scientific circles, philosophical approaches to mind science are losing ground. Neuroscientist Ramachandran reflects the disdain that many neuroscientists have for philosophers when he states that: “All of philosophy consists of **unlocking**, **exhuming**, and **recanting** what’s been said before, and then getting riled up about it” (Ramachandran 2005 p 83). There is a valid point here. The verbs of knowing cited by Ramachandran indicate the epistemological limitations of philosophical enquiry. Another neuroscientist—Churchland (2002)—argues that merely refuting the varied materialist views of the mind/brain does not in itself provide an understanding of consciousness. In her view, the dualists and idealists are required to formulate a workable theory, one which will also permit insight into mental dysfunction.

Yet Ramachandran and Churchland fail to address the limitations of empirical enquiry, nor do they distinguish between philosophical and mystical approaches to knowledge. There is also an implicit privileging of empirical ways of knowing. Insight as used by Churchland is not the same as mystical or intuitive insight, but instead refers to logical proof derived from empirical, sensory evidence. Further, her insistence that idealists formulate a workable theory invites a situation where Wilber’s (2001) “category error” is possible. For the idealist position is developed from mystical insight, not philosophical or empirical enquiry. As was indicated in Chapter Two, mystics have long claimed that mystical and transcendent knowledge is ineffable, and that direct, intuitive perception—not language—is the ultimate means of validation of truth claims in this realm (Inayatullah 2002b; Wilber 2001). Insisting that the idealists submit their insights to workable theory therefore privileges the philosophical and empirical approach. Yet the poststructuralist position, questioning the truth claims of all parties (Foucault 1984), might ask why the neuroscientist is not required to undergo meditative training in order to experience the knowledge structures of the mystics, and engage in the discourse at the level of the other.

Grof's (1985, 1992, 2000) work is the closest approximation to a transpersonal theory which provides an explication of the mental dysfunction Churchland demands. His "holotropic mind" (Grof 1992, 2000) is a transpersonal model mirroring the tenets of the extended mind. Grof's work provides a theoretical framework which addresses mental dysfunctions as psychospiritual crises. Grof also provides healing tools which have helped to alleviate the 'symptoms' of mental disorders such as neuroses, personality disorders, phobias, compulsive/addictive disorders, and even individual and collective human greed and aggression (Grof 1996, 2000). According to Grof's model, the roots of such dysfunction lie in biographical, perinatal and transpersonal issues within the psyche (ibid.).

The key to Grof's challenge to "the monastic materialistic worldview created by western science… particularly its belief in primacy of matter over consciousness" (Grof 2000 p 230) is his claim that: "in transpersonal experiences it is possible to transcend the usual limitations of the body-ego, three-dimensional space, and linear time" (ibid.). He writes:

> The disappearance of spatial boundaries can lead to authentic and convincing **identifications with** other people, animals of different species, and even organic materials and processes. One can also **transcend** the temporal boundaries and **experience** episodes from the lives of one's human and animal ancestors, as well as collective, racial, and karmic memories (ibid. pp 230-231).

Grof's verbs of knowing suggest the subject/object union of Romantic and mystical literature. Data gleaned from these experiences may irreversibly destabilise the foundational givens of neuroscience and materialist mind science; and offer further evidence for the validity of the extended mind and integrated intelligence.

Grof's model stands as a potential bridge between empirical and spiritual approaches to consciousness studies. Yet at present such a bridge is not likely to be crossed by many in mainstream consciousness discourses. Grof's "data" are gleaned from first person accounts, namely: “the study of transpersonal experiences and the observations associated with them” (ibid. p 230.). First person and introspective approaches currently hold little sway in the dominant discourse (Blackmore 2003).

Data at the litany level is obscured by the epistemological boundaries at the system/social, worldview and myth/metaphor levels of the problematique. To get a sense of the validation issue with Grof’s approach, his method can be contrasted with an established and accredited mainstream neuroscientist like Ramachandrin (2005), who begins with hypotheses, and then develops innovative experiments to validate his insights. What is not amenable to experimentation tends to remain obfuscated knowledge with scientists like Ramachandrin.

A further problem lies in addressing the issue of brain damage, and how first person experience and intelligence are dramatically altered after the physical brain has been damaged. Grof’s theory offers little assistance here.

Integrated conceptions of mind rejected and ridiculed

I now turn to a social and systems level factor which greatly affects the way that mystical spirituality and integrated intelligence are treated in mainstream consciousness discourses. Researchers, writers and professionals advocating conceptions related to integrated intelligence have recorded numerous instances of non-acceptance and even hostility, ridicule and persecution from mainstream theorists and skeptics. This factor helps to explicate the reluctance or extreme caution of theorists in mainstream discourses to discuss the idea of integrated intelligence.

Severe criticism and institutional prejudice is common. Capra (2000) writes that his attempt to postulate links between quantum physics and mysticism was greeted with hostility by physicists who: “would make rather insulting and often outright vicious comments” about his work (Capra 2000 p 336). When Kubler-Ross began to incorporate references to the numinous nature of near-death experiences into her lectures, she was told to discontinue such comments by the management of the university where she taught (Kubler-Ross 1997). Sheldrake (1981) met similar resistance when he published his theory of morphic resonance in *A New Science of Life*. Editor of *Nature* John Maddox condemned it as: “A good book for burning” (Sheldrake et al. 2001 p xviii).

Mainstream and conservative institutions are often reluctant to acknowledge psi phenomena. Braud (2002) writes that despite the repeated demonstration of psi phenomena in scientific laboratories since the 1940s, the scientific community has repressed this knowledge. Until recently, data from parapsychology was almost never published in reputable scientific journals (Braud 2002 p xxv-xxvi). Further, Grof (1985) finds that there has been “an avalanche of data” from experiential psychotherapies such as Jungian analysis, near death experiences and thanatology in general, trance states, psychedelic research, parapsychology and visionary anthropology, sensory isolation, and biofeedback which has been systematically ignored (Grof, 1985 p 25-28). That scientific research into the nature of integrated intelligence is often not published in mainstream journals testifies to the paradigmatic delimitations of mainstream dominant science of mind.

There are inevitable results from these prejudices against psi phenomena and the extended mind at the system/social level. Grof (1985) suggests that the prevailing models of consciousness within psychiatry and psychology subvert open-minded enquiry into experiences and observations that are incompatible with the mechanistic paradigm (Grof 1985 p 25-28). Again, data at the litany level is obfuscated by an issue at another level—in this instance a system.

Given the materialistic and reductionist nature of mainstream mind science, empirical enquiry is the preferred means of validation for the so-called ‘paranormal’ phenomena associated with integrated intelligence. This leads me onto an analysis of parapsychology, which reflects many of the delimitations of mainstream science.

Parapsychology

Parapsychology attempts empirical validation of many of the abilities that are constitutive of integrated intelligence, such as clairvoyance, telepathy, and precognition. Debates involving parapsychology reveal how controversial and difficult these domains are to conclusively ‘prove’. Despite a history dating back to the 1920s, researchers in parapsychology have failed to gain widespread acceptance for their field. Skeptics are numerous, regularly pour scorn upon any claims for the existence of the ‘paranormal’ (e.g., de Grasse Tyson 2001; Efremov 2002; Park 2000), and commonly accuse proponents of psi of being irrational (Hansen 2003; Park 2000).

The arguments against the validity of parapsychology and psi phenomena have some recurring criticisms. Firstly there is ‘file drawer’ effect, or the tendency of parapsychologists to report only data supporting psi and ignore the negative data (Stokes 2001). There is also the allegation of the paucity of the experimental methods used by parapsychologists in gathering their data (Blackmore 2001; Efremov 2002; de Grasse Tyson 2001). Allegation of deliberate fraud is also common (Blackmore 2001; Efremov 2002). For skeptics the ultimate pervasive dismissal is the argument that the naming of *potential* flaws in parapsychology experiments – as opposed to *actual* flaws - permits wholesale dismissal of the data (Radin 2006 p 119).

Skeptic Susan Blackmore (2003) concludes that: “There probably are no paranormal phenomena” (Blackmore 2003 p 302), and that mundane hypotheses are the preferred explanations for all psi experimental data and phenomena. She criticises parapsychologists for going against contemporary science and supporting the hypothesis that consciousness can manifest itself non-locally and beyond the brain (Blackmore 2001). Consistent with the general skeptical viewpoint, Blackmore’s prime means of legitimation is via statistical validation of experimental procedures. Blackmore’s critique is notably circular. Her argument is that psi proponents should be criticised because their conceptions challenge the givens of mainstream discourse. This is likely to create a cycle of paradigmatically delimited hypothesis formation, experiment and conclusions which exclude alternative conceptions.

Several parapsychologists concede that the evidence for psi is weak and/or highly problematic, and point to its elusiveness. Hansen (2001) argues that psi belongs to the "liminal" realm, and falls beyond the normal boundaries of rationality. Kennedy (2003) follows a long line of psychic researchers who decry the "capricious, actively evasive and unsustainable" nature of psi. These others include Batcheldor (1994); Beloff (1994); Braud (1985); Eisenbud (1992); Hansen (2001); and James (1960). Kennedy suggests that there may be a "higher consciousness" which influences or controls psi effects. This may incorporate a mechanism that actively hinders the reliable manifestation of psi (Kennedy 2003). Yet such hypotheses leave psi proponents open to obvious criticism, because the hypotheses are probably beyond empirical testing, rendering them paradigmatically incompatible with mainstream scientific discourse. The circularity is that psi has not been measured because it is immeasurable; extant but effectively metaphysical. This means that almost any claim can be made about its nature.

There are numerous proponents working within parapsychology—or employing its research findings—who conclude that there is little doubt remaining (Braud 2003; Broomfield 1997; Dossey 1999, 2001; Loye 1982; Parker 2003; Radin 1997, 2006; Sheldrake 2003a, 2003b; Targ & Katra 1999, 2001; Tart et al. 2002; Varvoglis 2003). Loye (1982) argues that the issue is beyond dispute, and only the unreasonable and dogmatic skepticism of critics can deny the reality of such phenomena. Sheldrake states that thorough scientific experiments have shown repeatedly and to massively significant levels of probability that psi phenomena are real (Sheldrake 2003a). Similarly, Tart et al. conclude that "the question of the existence of psi phenomena has been statistically settled for some time" (Tart et al. 2002 p xxiv). In just one example, 88% of Duke University studies and 61% of independent replication studies have indicated evidence at statistically significant levels for the existence of psi. This can be compared with a replication rate of less than one per cent for experiments of a conventional nature (Tart et al. 2002 p xxv). Radin (2006) finds that a century of controlled psi experiments have produced positive results with combined odds against chance of 10^{104} to one. These psi proponents thus find validation at the litany level.

Yet the weight of mainstream rejection means that the numbers are not the central issue in acceptance of psi. Evidence for this can be seen in the fact that a landmark 1994 publication of a successful ganzfield experiment in *Psychological Bulletin* produced not a single replication attempt by academic psychologists (Radin 2006 p 290). The skeptical attitude amongst mainstream psychologists is epitomised by the man considered the father of modern psychology, Helmholtz:

> I cannot believe it. Neither the testimony of all the Fellows of the Royal Society, nor even the evidence of my own senses would lead me to believe in the transmission of thought from one person to another independently of the recognised channels of sensation. It is clearly impossible (quoted in Murphy 1992 p 345).

This paradigmatically founded rejection reflects a non-objective intellectual position—as with Galileo's despair at his contemporaries' refusal to personally examine the evidence for existence of new planets (quoted at beginning of Chapter Four).

The lack of consensus even amongst parapsychologists about the nature of psi is summed up by Princeton's Jahn and Dunne (2001):

> At the end of the day, we are confronted with an archive of irregular, irrational, yet indismissible data that testifies, almost impishly, to our enduring lack of comprehension of the basic nature of these phenomena (quoted in Kennedy 2003 p 55).

Yet this confusion is not so apparent in texts employing or referring to mystical/spiritual ways of knowing. Wilber (2000c) finds the paranormal to be a lower level of transrational realms of mind and experience. Broomfield (1997) sees psi experiences as the whole communicating to the parts. Kubler-Ross (1997) finds them to be perfectly normal, culminating in her experience of cosmic consciousness. Thus when parapsychologists employing critical/rational ways of knowing refer to ‘our’ lack of knowing (as with Kennedy, above), they by implication render all those who do claim such knowledge as ‘other’, and their knowledge as lying beyond legitimate discourse.

The critics have also been criticised. Zingrone (1999) argues that there is a lack of critical thinking by psi critics, who often put forward conventional hypotheses to explain paranormal phenomena without producing adequate supporting evidence. Zingrone argues that skeptics lack self-reflection, maintaining the delusion of the complete objectivity of their worldview and claims. Psi critics are not open to communication, rarely listen to psi experiencers, cling to conventional explanations, and resort to ridicule and derision. Zingrone further argues that skeptics do not consider the implications of their criticisms. This means that those who experience psi phenomena are afraid to relate their experiences, and the resulting social climate for parapsychologists is threatening:

> The social costs of being a proponent are many, and known only too well to most of us. Many critics… regularly label us fools or frauds… Wider science sees us as deluded, willing distorters of objective truth because of our personal experiences, our tastes, our beliefs, our deepest psychological needs (Zingrone 1999 www.scepticalinvestigations.org/exam/Zingrone_critics.htm).

Thus Zingrone points to a social-level problem emerging from the paradigmatic restrictions she identifies.

Despite the controversies, many critics and parapsychologists agree that psi *is* an anomaly worth investigating. Parapsychology has gone as far as it can go with the question “Does psi exist?” (Parker 2003 p 130). Parker believes we should be asking: “Assuming ESP ability exists, can we make its occurrence more likely and thereby learn something about its nature?” (ibid.). The stance taken in this thesis is that despite the problematic nature of the debate regarding psi and the extended mind, the issue can move beyond mere empirical testing to broader questions regarding the implications of the extended mind and integrated intelligence. This is especially true in regard to the relationship of humanity to society, environment, and cosmos; and to the relationship between expanded human potentials and practical human intelligence.

The restrictive modalities of parapsychology

Ironically, parapsychology is—and has always been—dominated by statistical and experimental methodology and ways of knowing. Parapsychology came into existence at the height of the influence of the mechanistic paradigm and the hegemony of Western critical rationality. The work of J.B. Rhine and colleagues at Duke University in the early to mid twentieth century was highly influential in shaping parapsychology as it stands today (Tart et al. 2002 p xxv). Its methodology has remained largely contained within the parameters of critical/rational ways of knowing, and its focus has been predominantly upon statistical outcomes (Schlitz 2001).

Varvoglis (2003) points to the limitations of parapsychology as currently practiced, arguing that it focuses too much upon the detached, rationalist and empirical tools of science. This limits the valuable insights and knowledge that might be gleaned from other ways of knowing, including emotional, intuitive, metacognitive and creative forms of knowledge. He indicates the need to transcend the either/or logic of standard scientific enquiry, and to acknowledge the complexity of psi phenomena. Varvoglis calls for the era of "the shaman-investigator" who intuitively, emotively and experientially explores the domains of psi (Varvoglis 2003). Similarly, Schlitz (2001) urges parapsychologists to move beyond the "physicalist, materialist model" and parapsychology's "nearly exclusive focus on statistical outcomes" (Schlitz 2001 p 338).

Ironically, parapsychology attempts to gain legitimacy via the very self-limiting ways of knowing that have excluded psi phenomena from contemporary dominant mind science. This may represent a self-stultifying problematique for parapsychology, and for modernist science itself.

In this section I have shown that different levels of the discourses on consciousness produce different findings. Mainstream discourse is dominated by litany-level empiricism, with some social/systems analysis. The West's mechanistic paradigm tends to go unquestioned, and remains implicit and invisible. This is not the case with advocates of mystical/spiritual/models of consciousness and cosmos, who tend to incorporate more levels of analysis, including alternative worldview and paradigm perspectives.

5.7 Conclusion

In this chapter it has been shown that the idea of brain-transcendent consciousness and the extended mind is a highly problematic issue, as it challenges the fundamental givens of the mechanistic paradigm, especially materialism and consciousness as an emergent property of the brain. There is also considerable resistance at the systems level—within scientific culture and methodology. The diametrically entrenched science/philosophy divide in consciousness theory mirrors the skeptic/proponent divide in parapsychology—and this is a function of disparate worldviews and their incongruent ways of knowing. Figure 5.2, below, depicts the stranglehold that materialism has on current mainstream mind science.

Until such time as a tenable epistemological foundation is developed for the extended mind and mystical insight in general, integrated intelligence is likely to remain on the outer edges of the dominant discourse. This is despite (or perhaps because of) the paradigm-shaking possibilities of hypotheses and research regarding the extended mind, extra-sensory perception, the conscious universe, intelligent design, and developments in quantum physics and systems theories.

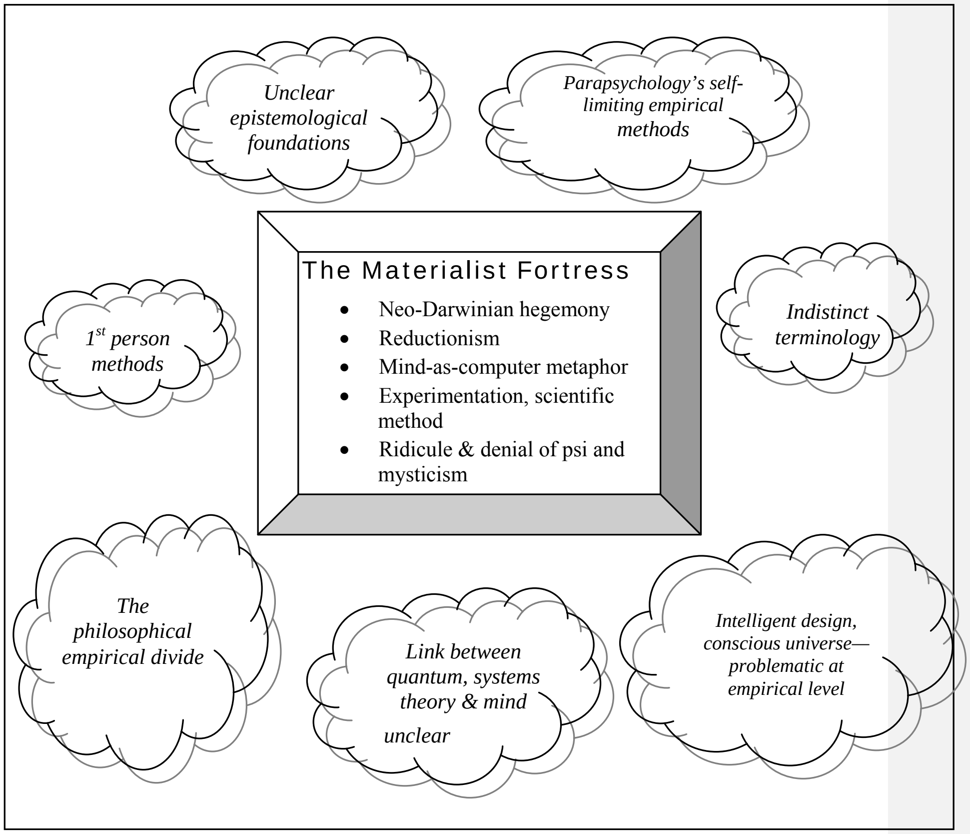

Figure 5.2: The exclusion of idealist and mystical conceptions from the materialist fortress of modern discourses on mind

This chapter has situated mainstream and alternative brain and consciousness research in deeper epistemic paradigmatic, and social/systems perspectives. In the next chapter, I will move a step closer to the top of the epistemic pyramid (Figure 5.1) and analyse some salient debates and issues in intelligence theory itself.

Chapter 6: Debates and Issues Regarding the Nature of Intelligence

6.1 Introduction

> The study of creativity has always been tinged—some might say tainted—with associations to mystical beliefs (Sternberg 2003b p 90).

> Now and in the future, the world needs people who can see the bigger picture, who can collaborate with others, consider multiple consequences, imagine alternative solutions, and solve problems in creative ways (Fromberg 2001 p 108).

In the previous three chapters I traced the epistemic, paradigmatic and systems level underpinnings of Western discourses on mind and consciousness, and outlined several important debates and issues. I now shift the focus to the field level of intelligence theory, as indicated in Figure 6.1, below. The rationale for this is that the concept of integrated intelligence is, by definition, a theory which pertains to intelligence theory. This was outlined in Part 2 of Chapter One, and the core operations of the theory were detailed in Tables 1.1, 1.2 and 1.3.

Few fields within psychology are as controversial or problematic as intelligence theory. As Sternberg et al. (2003) indicate, it is the “imperfect lenses” of the researchers which are the primary factor here (p 3). Ideological perspectives and definitions of intelligence vary enormously. For example, there is almost no overlap in the historical data cited by Carroll (1993) and Gardner (1983) to found their respective theories of intelligence (Sternberg et al. 2003). As in the previous chapters on mind science in general, I will show here that social, paradigmatic and civilisational factors are deeply influential in terms of what data is acknowledged at the litany level in intelligence theory.

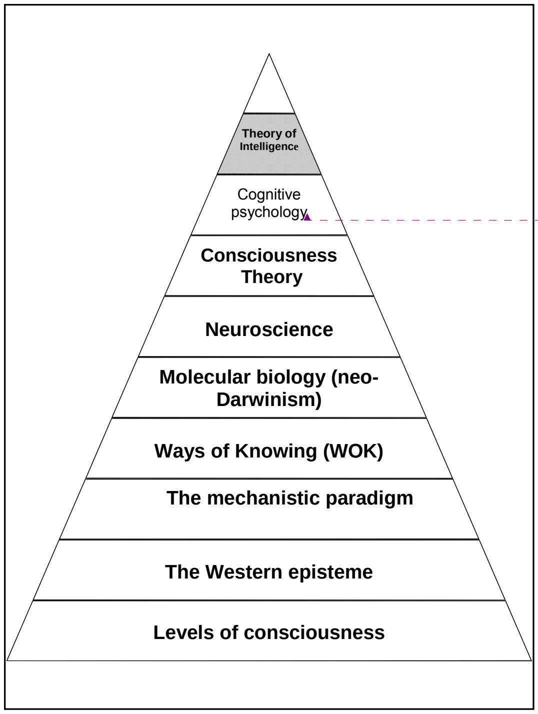

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Figure 6.1: The focus of Chapter Six

It is not possible to here represent more than a fraction of the numerous and varied theories and debates which constitute contemporary intelligence theory. An exploration of all debates and issues is beyond the scope of this thesis.

The two primary approaches to intelligence that I will deal with in this chapter emerge from distinct lineages within the field.[24]

Intelligence Quotient (IQ) theory and the concept of a general intelligence comprise a part of psychometric models of intelligence. Psychometric testing is heavily dependent upon factor analysis, and a major focus is the measurement of general intelligence. This field built upon the early work of Francis Galton, but was most deeply influenced by

[24] For a definitive map of the historical development of intelligence theory, see Plucker (2003: www.indiana.edu/%7Eintell/map.shtml). Plucker outlines the major developmental lines, and the relationships of the major theorists and lines to each other.

British psychologist Charles Spearman's two-factor theory of intelligence in the early part of the twentieth century (Sternberg 2003b). The more recent of these theorists, such as Jensen (1998), Eysenck (2002), and Murry and Hernstein (1994), all draw influence from Spearman (Plucker 2003).

Meanwhile, Gardner's (1993a, 1993b) intrapersonal intelligence, and Goleman's (1996, 1999) and Salovey and Pizarro's (2003) emotional intelligence are systems models of intelligence (Sternberg 2003b). These models attempt to understand intelligence from multiple points of view, and are relatively recent theories in the field (Sternberg 2003b). However, Gardner drew much influence from L. L. Thurstone's multiple-factors theory from the first half of the twentieth century (Plucker 2003). Kunzmann and Baltes' (2003) concept of wisdom and Lubart's (2003) creative intelligence can also be termed systems models, as their conceptions acknowledge and incorporate other theories and domains of intelligence. However, situating the models within the broader field of intelligence theory is a problematic task given the highly contiguous yet contentious nature of the field.

I have chosen to focus the following discussion upon just a few debates and issues in the field that have a significant relationship with the idea of integrated intelligence. Some broader inferences will be made about the field from this specific focus.

Firstly, in section 6.2 the idea of a general intelligence or "g" is addressed along with psychometric models of intelligence. Specifically the tendency of general ability—or what Gardner (1993a) calls "classical intelligence"—to be equated with critical rationality and the statistically verifiable will be the focus.

Secondly, as the systems models are introduced, the debate regarding domain-general versus domain-specific theories of intelligence will be addressed. This debate involves the juxtaposition of theories of intelligence which are predominantly critical/rational in nature (domain-general IQ theories), with those that incorporate more expansive cognitive modalities (the domain-specific theories). The debate highlights several limitations of both approaches. In section 6.3, integrated intelligence will be compared and contrasted with four systems theories. Finally, in section 6.4, I draw some final conclusions regarding integrated intelligence and current mainstream intelligence theory.

I begin with an analysis of the concept of IQ, part of the dominant discourse.[25]

6.2 IQ, “g” and multiple intelligences

The failure of integrated intelligence to be acknowledged within mainstream intelligence discourse can be traced in part to the influence of the concept of domain-general intelligence theory—IQ. As was indicated in Chapter Three (and also by Figure 6.1, above), the rational and abstract concept of IQ is ultimately embedded in a broader problematique—the Western rationalist hegemony.

Criticisms of “g” theory and domain-specific theories

There is strong evidence that the concept of IQ is fundamentally flawed. The primary evidence for a domain-general intelligence is the strong correlations for the cognitive abilities measured in intelligence tests (Jensen 1998; Deary 2001). For example, all categories in the WAIS-3[26] intelligence test have correlations which lead to evidence for the existence of “g”. People who show marked acuity in any one of the thirteen test components, tend to show similar acuity in the other twelve (Deary 2000 p 8).

The strong link between intelligence and genetics is further evidence for the idea of “g”. Studies of identical twins reared apart and together have found only minimal differences in IQ test scores, an indication that environment has only a partial role in determining scores in IQ tests (Deary 2001). For example, The Minnesota Study of

[25] Here I consider that the dominant discourse features both IQ theory and systems theories. IQ theory cannot be considered dominant by itself, as it has been widely challenged for several decades, as I shall discuss.

[26] The WAIS-3 is discussed further later in this section.

Twins Reared Apart found that environment contributes only about 30 per cent of IQ score (Deary 2001 p 72). Deary himself concludes that "about 50%" of intelligence is attributable to environmental factors, and thus also to genetic factors (ibid. p 74).

Notably, the evidential process used by these theorists discussing psychometric approaches to intelligence is systemically and paradigmatically bound. Mathematical/logical and experimental ways of knowing predominate—a characteristic of the field.

There are many who argue against the validity of "g". Neisser (1976) finds that intelligence tests measure academic aptitudes as opposed to a more practical intelligence. Nash (2005) argues that IQ has been widely discredited in modern test and measurement psychology, being no better than "a taken for granted professional 'folk' theory of 'ability'" (Nash 2005 p 4). Nash's renunciation is based upon legal challenges successfully brought against "the bolder claims" of IQ theory in US courts more than two decades ago (ibid.). Meanwhile, Sternberg offers a litany level analysis, and concludes that the general factor of intelligence is "an artefact of limitations in populations of individuals tested, types of materials with which they are tested, and types of methods used in testing" (Sternberg 2003a p 73).

In the mid twentieth century, various researchers undermined the "reified" concept of a hard and measurable intelligence (Gardner et al. 1996 p 55). In 1931, Lionel Penrose, after an extensive study, found that there were varied causes for mental impairment in individuals. Only 25 per cent of his subjects' mental impairment could be explained by heredity alone (ibid.). Other researchers have posited that IQ can be enhanced given a stimulating environment. In the 1940s and 1950s, D.O. Hebb found that the link between acting and planning intelligently is not straightforward. Patients with damage to the brain's frontal lobes have inhibited capacity for planning in regard to space and time, and in initiating novel approaches to problem solving. Yet these same patients commonly show no corresponding reduction in IQ (ibid.). Thus researchers have shown that there is an intricate interrelationship between intelligence, heredity and environment (ibid.). Most significantly, such research shows that “measured intelligence is not a readily interpretable quality” (ibid.).

These criticisms of IQ focus upon the social level (nurture), disputing the generally litany-level analyses (nature or heredity) of IQ proponents.

Despite this criticism of IQ theory, at the social level the educational practices that have created the classed distribution of academic achievement have effectively been maintained (Nash 2005). The concept of IQ has overtly achieved longevity in the concept of “ability”. Nash attributes this continuation to entrenched theories of intelligence and ability in sociological theories regarding the causes of inequality of educational opportunity (ibid). In Nash’s conception, IQ theory thus constitutes a “declining and non-approved psychological paradigm” (ibid.). It may be assumed therefore that the conceptualisation of intelligence as primarily consisting of rational, linguistic, and mathematical capacities accompanies this retention of the idea of a domain-general concept of “ability”. This is indicated by the fact that current ability tests are very similar to traditional IQ tests (Nash 2005).

Yet in apparent contradiction to this it must be noted that Gardner’s multiple intelligences theory (outlined below) has possibly had more impact on education than any other prior theory of intelligence (Sternberg et al. 2003 intro.). The perpetuation of the ability concept amidst a growing support for Gardner’s thesis amongst educationalists represents a notable split in the education community. Nonetheless, the popularity of Gardner’s more compatible (to integrated intelligence) thesis suggests a possible window of opportunity for more radical ideas such as integrated intelligence to make some impact in contemporary education.

Domain-general intelligence, IQ and the critical rationality

Having outlined this general debate regarding IQ, I now undertake a deeper analysis of the issue. For as indicated, the debate regarding IQ theory tends to remain locked at litany and social levels, and the goal here is to develop a deeper analysis by incorporating levels three and four of CLA.

As Gardner (1993a, 1999, 2003) indicates, IQ testing primarily measures rational, mathematical, and linguistic cognitive processes, and thus tends to define intelligence within those terms. Examples include Terman (1921 p 128): “An individual is intelligent in proportion as he is able to carry on abstract thinking”; Eysenck (2002): IQ as statistically reified measure of intelligence; Jensen (1998 p 15): IQ tests measure “higher mental processes”; and Hernstein and Murry (1994): IQ rendered in rational, linguistic and logical terms and reified in “the bell curve”. Such representations of intelligence are notably critical/rational in nature, reflecting the mechanistic paradigm.

A typical example of contemporary intelligence tests is the Wechsler Adult Intelligence Scale, version 111—or WAIS-3 (Deary 2001). The test contains four general domains, and a total of thirteen sub-components, as follows (adapted from Deary 2001 pp 4-5):

Verbal Comprehension

- Vocabulary (word meanings)
- Similarities (commonalities between two words)
- Information (general knowledge)
- Comprehension (solving everyday life, and social problems; and questions about proverbs)

Perceptual Organisation

- Picture Completion (spotting the missing element in a series of colour drawings)
- Block Design (reproducing two-dimensional patterns with blocks of varying colours)
- Picture Arrangement (putting cartoon images in an order that tells a story)

- Matrix Reasoning (finding the missing element in a pattern that is constructed in a logical manner)

Processing Speed

- Symbol Search (identifying from a list of abstract symbols which symbol in a given pair is contained in the list)
- Digit-symbol Coding (writing down the number that corresponds to a given symbol)

Working Memory

- Letter-number Sequencing (repeating a series of alternate letters and numbers, placing them in alphabetical/numerical order)
- Digit Span (repeating a sequence of numbers)
- Arithmetic

The WAIS-3 reflects the tenets of the critical/rational worldview and its ways of knowing. Verbal comprehension is a verbal/linguistic process by definition. The processing speed component requires finding the solution to mathematical and linguistic tasks (linear, verbal, mathematical cognitive processes), as does the working memory series of tasks. Perceptual organisation is suggestive of Newtonian, Euclidian physics (using blocks, and picture arrangement valorises temporal linearity, while matrix reasoning reinforces logical reasoning). Notably, there is an absence of any apparent reflective or intrapersonal cognitive modalities. Any such cognitive process which may be used in the WAIS-3 thus occurs at an unacknowledged and invisible level. Finally at the social level of analysis, the WAIS-3—like many standard IQ tests—is a pen and paper test, with an examiner and a student, reflective of the Western education system.

IQ valorises the measurable, integrated intelligence the subtle

There is a further important distinction between IQ theory and integrated intelligence theory. Mainstream theory (especially "g" theory) is founded upon statistical analyses—amongst the most complicated in the field of psychology (Deary 2001). This obfuscates certain knowledge:

> In psychology we tend to measure that which can be measured. Therefore, when we discuss the mental abilities and their relations, it must be kept firmly in mind that, if there are some qualities that we value but we feel cannot easily be measured, then our account of intelligence will be limited (Deary 2001 pp 1-2).

Once again it is a critical/rational way of knowing—mathematical/logical intelligence—which is implicitly privileged. The subtle modalities of the intrapersonal are rendered invisible in such a system.

Ironically, despite the mechanistic predilections of the concept of "g", IQ is itself an immaterial construct and a social invention (Owusu-Bempah & Howitt 2000 p 132). Haraway, for example, writes that IQ is:

> … a materialized fiction. It is an example of an apparatus for **materializing** the world, and these forms are themselves modes of **domination**. These apparatuses produce subjects with various adjectives attached them who can be **measured**, for example a student with a particular score or a pregnant teenager with a specific profile that puts her at risk of further surveillance… What we lose track of, institutionally, is that there is an *apparatus* for the **producing** and **sorting** of people, as distinct from a natural object which can be **measured** (quoted in Owuso-Bempah & Howitt 2000 p 132).

The verbs of knowing indicate the prevalence of critical/rational ways of knowing—to materialise, measure, and dominate—reflective of patriarchy and the mechanistic paradigm. Owuso-Bempah and Howitt (2000) further argue that the Western concept of self-identity is used in a similar way "as an apparatus for **coding** and **categorizing**" (ibid..). The IQ concept is therefore a Western episteme construct which reinforces the conceptualisation of a separated, dissociated self, operating within critical/rational ways of knowing—the fragmented mind. The paradigmatic and socially determined parameters of the West have created the concept of IQ. Ultimately, integrated intelligence—emerging from the mystical/spiritual worldview—is incompatible with this construction of self and mind.

IQ theory is thus derivative of the mechanistic paradigm—a singular, measurable, mathematical, codified representation of the size of a solitary mind; where the atomistic, individualised, and fragmented intellect can be measured, assigned a number and thus reified. The focus of theorists such as Jensen, Eysenck, and Hernstein and Murry upon measuring intelligence locks the debate into the litany level. In-field debate finds critics employing challenges predominantly at the social level (nature versus nurture).

This study's analysis of IQ theory and the highlighting of several important debates have provided some important distinctions between IQ and integrated intelligence. Figure 6.2 (below) summarises these, and indicates that there is little overlap between the concepts. Intuitive impressions may manifest as linguistic or even numeric images (Sheldrake 2003a), with minimal other confluence. It can be appreciated that where IQ dominates, the intuitive and the spiritual are downplayed or completely ignored.

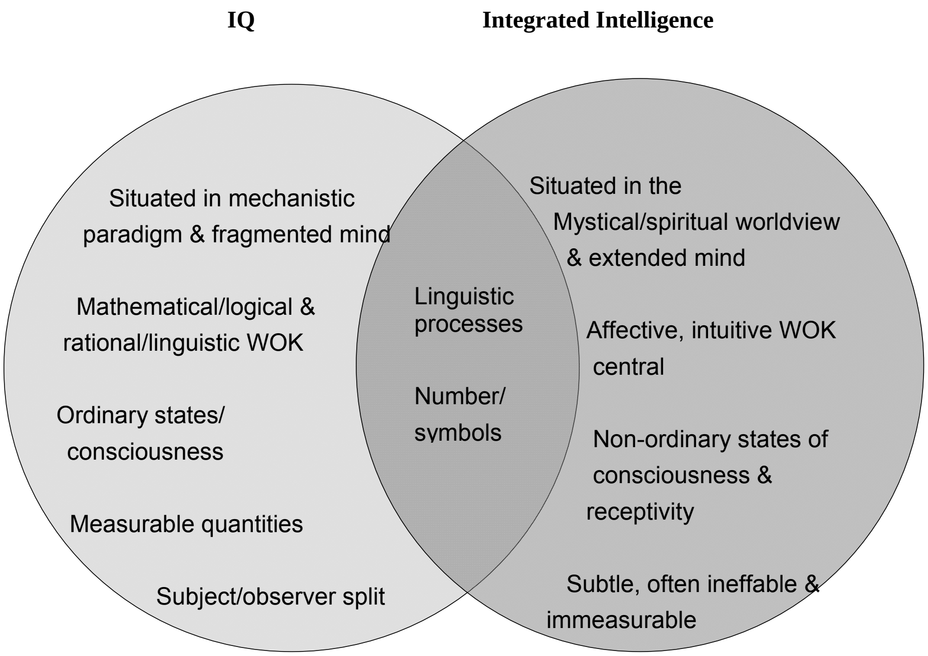

Figure 6.2: IQ and integrated intelligence juxtaposed

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The focus now turns to a description and analysis of several other relevant constructs of intelligence. There is greater overlap between these and integrated intelligence.

6.3 Systems theories of intelligence and integrated intelligence

One of the most prominent voices in intelligence discourse, Sternberg finds that it is now time to "move beyond conventional theories of intelligence." (Sternberg 2003a p 73). This is because conventional theories are incomplete: "The greatest obstacle to moving on is in vested interests, both in academia and the world of tests. Psychologists now have ways to move beyond conventional notions of intelligence; they need only the **will"** (ibid.).

It is significant that a realm so inadequately addressed in mechanistic mind science—the human will (Stapp 2005)—should be identified by Sternberg as being seminal. Human will is consciousness at a first person level: the personal subjective interior.

Sternberg's recommendation brings to attention a shift in mainstream intelligence theory towards acknowledging this intentional realm of human cognition.

Yet will is not enough, and this is where this thesis' two methods shall be most useful. Sternberg's analysis remains at level two of CLA, restricting him to a discussion of social and institutional factors. Like many theorists moving beyond the IQ paradigm, Sternberg does not challenge the civilisational and paradigmatic presuppositions of scientific materialism and the fragmented mind. In terms of transpersonal theory, he does not address the upper triangle of Wilber's (modified) integral model—the transpersonal interior subjective. The CLA perspective permits examination of the deeper levels implicit within the discourse which often remain unconscious to researchers, and therefore invisible to the "will".

In this section, some of the new theories which are challenging the conventional are addressed. It will be shown that these systems theorists are positing theories of intelligence that fundamentally challenge the rationally-defined conception of mental ability, or "g" (Jensen 1998). Their theories are not necessarily domain-specific, and may cover more than one domain of cognitive functioning. The systems theories are "emotional intelligence" (Goleman 1996, 1999; Salovey & Pizarro 2003); "intrapersonal intelligence" (Gardner 1993, 1999); "creative intelligence" (Lubart 2003); and "wisdom" (Kunzmann & Baltes 2003).

Before I outline these theories, I shall detail Gardner's (1993a) theory of multiple intelligences. This is the systems theory which has popularized and driven the newer wave of intelligence theories.

Gardner's theory of multiple intelligences

Gardner (1993a, 1993b; Gardner et al. 1996) argues that intelligence is not a single domain-general phenomenon. Instead, he finds that there are eight kinds of autonomous intelligences. These are logical/mathematical, verbal/linguistic, musical, bodily/

kinesthetic, interpersonal, intrapersonal, spatial and naturalistic intelligences (Gardner 1993a, 1993b, 2003).

Gardner's theory is posited in challenge to the classical idea that intelligence is a general ability which equates with abstract and logical reasoning, such as used by mathematicians, scientists, and logicians (Gardner et al. 1996 pp 202-203). He is concerned with understanding and acknowledging several diverse adult roles that span different cultures (ibid. p 203). For Gardner, intelligence is the "ability to solve problems or fashion products that are of consequence in a particular cultural setting or community" (ibid.). Like most critics of IQ theory within dominant discourse, Gardner's thesis expands into social and cultural contexts—level two of Inayatullah's CLA.

There are critics of Gardner's theory. One criticism is that multiple intelligences theory confuses intelligence with other general abilities (Hernstein & Murry 1994; Scarr 1989). Secondly, psychometric tests indicate mental abilities are positively correlated. Yet Gardner counters that these correlations reflect the tests' tendency to measure test-taking ability, more so than the specified constructs being tested (Gardner et al. 1996 p 213). Finally, Jensen (1998) rejects Gardner's idea of multiple intelligences as an unsound theory which has gained a merely temporary popularity because it makes people feel good (Jensen 1998 pp 128-30). Once again, the issues here are contested at litany (data) and social/systems levels (the way data is collected/interpreted).

The analysis below incorporates systems theories, of which Gardner's intrapersonal intelligence is one. Each explicitly or implicitly develops a critique of IQ theory. It should be noted, however, that the legitimacy of these theories (and integrated intelligence) does not depend on the validity of Gardner's theory. Rather, Gardner's work can be seen as the initiator of the general discourse, one possible way of situating the theories, and as a means for framing future research. Further, the three intelligence constructs (other than Gardner's) listed here are not based upon Gardner's thesis.

The four theories

Figure 6.3, below, depicts four systems theories. The goal here is to determine to what degree these theories—which effectively represent part of the frontier of mainstream intelligence theory—overlap with the concept of integrated intelligence. The second aim is to attempt to identify the civilisational and paradigmatic predilections of the four theories/concepts. The final goal is then is to determine whether these four representations of intelligence collectively suggest an emerging space within mainstream discourse which might permit the incorporation of mystical representations like integrated intelligence.

The analysis begins with intrapersonal intelligence, a component of Gardner's (1993) influential theory of multiple intelligences.

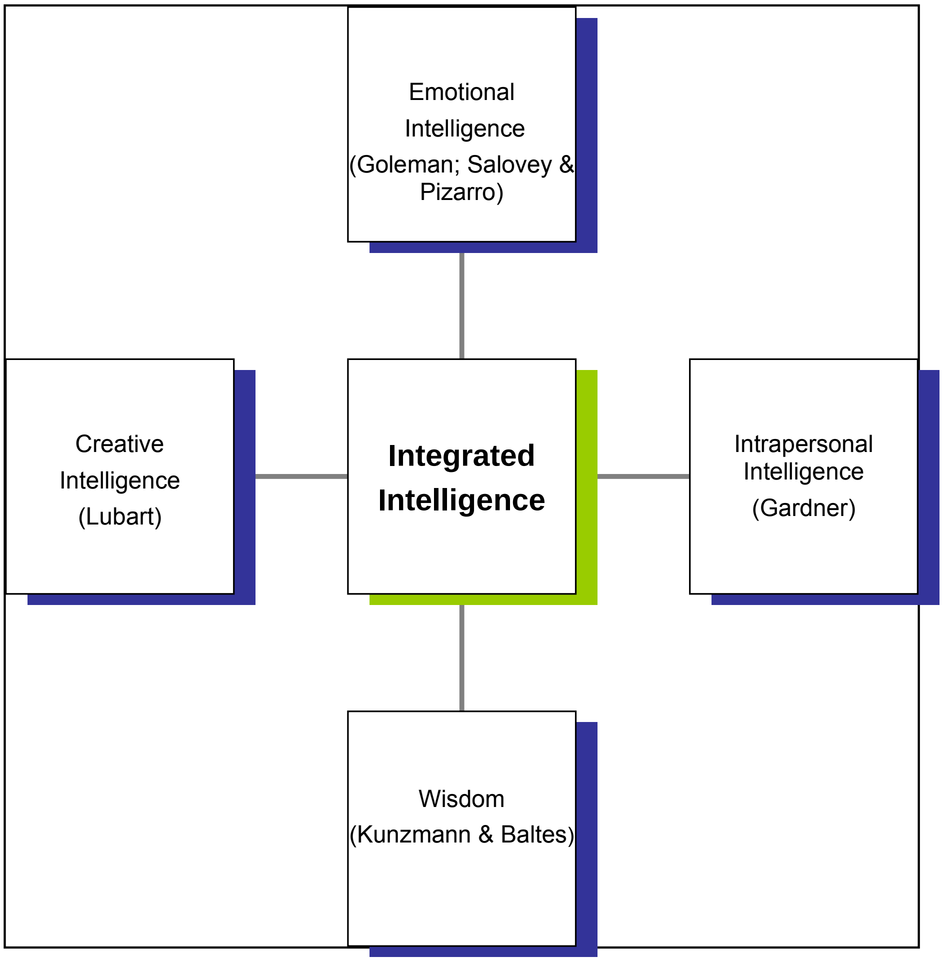

Figure 6.3: Systems theories of intelligence which are related to integrated intelligence

Intrapersonal intelligence (Gardner)

Intrapersonal intelligence is "a capacity to **form** an accurate, veridical **model of oneself** and to be able to **use** that model to **operate effectively** in life" (Gardner 1993b p 9). It may be noted that the verbs of knowing implicitly locate Gardner's theory in the critical/rational worldview; it is clearly critical/rational ways of knowing that are placed above the actual inner cognitive modes in importance. It is the conscious mind which "forms" the controlled model of self—"accurate, veridical"—with the goal of operating effectively in life. Modelling is typically a scientific, analytical, intellectual endeavor. As with Salovey and Pizarro's emotional intelligence (below), the inner world and its affective or intuitive perceptions are placed in a vertically lower realm, at the behest of the ego. In terms of Wilber's (expanded) four quadrant model, the personal subjective interior controls the transpersonal subjective interior—the reverse of transpersonal theory such as Wilber's and Hawkins (2002). Thus, integrated intelligence (mystical spirituality) and Gardner's intrapersonal intelligence (critical rationality) emerge from different worldviews.

Nonetheless, the links between intrapersonal intelligence and integrated intelligence are obvious—both require inner processes and incorporate intuitive, affective and spiritual components. For Gardner's concept, this includes a brief acknowledgement that "spiritual intelligence" may be a "reasonable candidate for an eighth intelligence", despite the problem of cultural divergence in constructs of the spiritual and moral (1993b p 46). However, in his original theory, Gardner (1993a) makes no explicit reference to the extended mind, the extrasensory, or mystical experience. This mundane perspective continues to be a common interpretation of the theory, as evidenced by Shearer (2004) in his review of multiple intelligence theory more than twenty years after its inception:

> Vital functions of intrapersonal intelligence include accurate **self-appraisal**, **goal setting**, **self-monitoring/correction**, and **emotional self-management**... Intrapersonal intelligence is not the same as self-esteem, but it may be a strong factor in promoting self-confidence and effective stress management. Well-developed intrapersonal intelligence may well be essential to an individual's sense of satisfaction and success. A core function of this intelligence is **guiding a person's life-course decisions** (Shearer 2004 http://www.tcrecord.org/content.asp?contentid=11504).

While it is clear that Shearer is referring to internally focused cognitive modalities, there is no suggestion of integrated intelligence. The repeated use of the prefix "self" refers to the conscious ego regulating its internal impressions. In contrast, the phrase "guiding a person's life-course decisions" suggests the sublimation of conscious will to something wiser than the conscious mind. Thus Shearer's interpretation of intrapersonal intelligence moves beyond Gardner's original thesis, but without expanding upon this matter.

A synthesis of the concepts of integrated intelligence and intrapersonal intelligence might be possible if in the future integrated intelligence theory gains some degree of academic credibility and greater epistemological sophistication. Thus where Gardner (1993b) and his followers (Shearer 2004) posit tools and methods that facilitate intrapersonal intelligence, the process might potentially be augmented by deliberately incorporating the concept of the extended mind and methods which enhance non-ordinary states of consciousness and receptivity. For example, Shearer writes that a core function of intrapersonal intelligence is: "… guiding a person's life-course decisions. Careers that require skills in intrapersonal self-management include pilots, police officers, writers, and teachers" (Shearer 2004 http://www.tcrecord.org/content.asp?contentid=11504). The added informational input of the extended mind might be of tremendous benefit in these careers, and in life-course decision making, as indicated in integrated intelligence's core operations—listed in Tables 1.1 and 1.2.

Figure 6.4 (below) indicates a great deal of commonality between Gardner's intrapersonal intelligence and integrated intelligence. The main distinction lies in Gardner's lack of exploration of the transpersonal, mystical and numinous components of the intrapersonal. This omission is most likely because of the paradigmatic delimitations of contemporary academia—which emerges from the critical/rational worldview and the Western episteme.

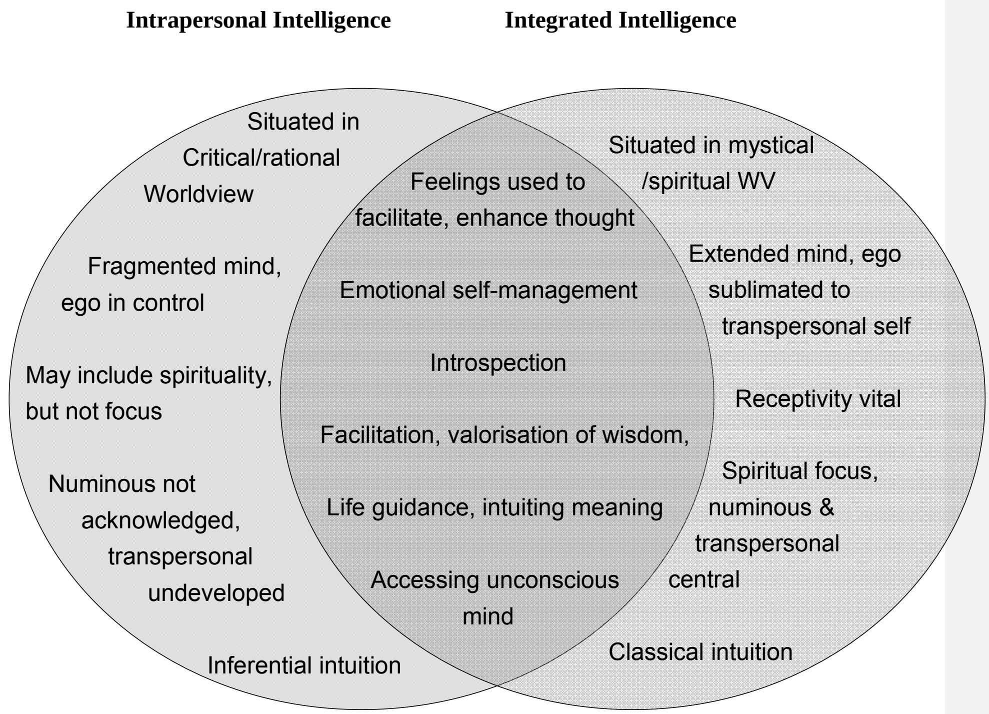

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Figure 6.4: Intrapersonal intelligence & integrated intelligence juxtaposed

I now move onto the next theory of intelligence—Salovey and Pizarro's (2003) emotional intelligence.

Emotional intelligence (Salovey & Pizarro)

The debate on emotional intelligence is gaining attention, at both academic and popular levels. The discussion here will focus mostly on Salovey and Pizarro's (2003) academic representation, while Goleman's (1996, 1999) populist thesis will be of secondary consideration. Goleman's thesis will be the subject of a more detailed analysis in Chapter Seven.

As defined by Salovey and Pizarro (2003), emotional intelligence is:

> … the ability to perceive and express emotion accurately and adaptively, the ability to understand emotion and emotional knowledge, the ability to use

feelings to facilitate thought, and the ability to regulate emotions in oneself and others (Salovey & Pizarro 2003 p 263).

Firstly, the verbal phrases of knowing indicate that the emotional is dominated by the intellectual. The phrase “to perceive and express emotion accurately and adaptively” privileges the verbalising of the emotion (“express”)—a critical/rational way of knowing. The adverb “accurately” suggests the controlled conscious mind—the ego—is in command. The process is employed “adaptively”, suggesting the goal is a conscious manipulation of the emotion. This does not necessarily acknowledge any inherent ‘meaning’ in the original emotion itself. Importantly, classical intuitions incorporate subtle feelings, contain ‘feminine’ qualities, and sometimes metaphysical meanings (see section 5.4). In Salovey and Pizarro’s model, there is no indication that the conscious mind is required to listen to the ‘message’ of the emotion, but simply to employ the emotion according to desired outcomes (“regulate emotions” and “use feelings to facilitate thought”). Most notably, there is no distinction offered between emotion and intuition.

Clearly the human ego is in control here. From the transpersonal perspective, this is significant, as in transpersonal discourse the ego is seen as being less wise and developed than the transrational mind (Hawkins 2003; Wilber 2000c). Thus, Salovey and Pizarro’s model implicitly inverts the hierarchy of ways of knowing represented in much transpersonal theory, placing the intellectual above the emotional/intuitional. It therefore remains part of the critical/rational worldview.

There are other particular areas of overlap between emotional intelligence and integrated intelligence. The following can be noted, taking Salovey and Pizarro’s characteristics of emotional intelligence.

Perceiving emotion. Integrated intelligence comprises a conscious awareness of the affective and the intuitive. Emotional intelligence similarly involves an awareness of the affective domains of cognition.

Specifically, as argued in Chapter Four (section 4.3), receptivity entails a process of identifying and decoding affective cognitions, as intuitive processes often incorporate the affective domain. It may be speculated that an individual with a high emotional intelligence would be more adept at this phase. Secondly, any training done to facilitate receptivity is likely to bring about improved emotional/affective awareness and therefore emotional intelligence.

Using emotion to facilitate thought. This includes “a person’s ability to take feelings into account when reasoning and problem solving” (Salovey & Pizarro 2003 p 264). Further, it incorporates “how emotions can be harnessed for more effective decision making and creative endeavors… (and) emotions also can prioritize the cognitive system to attend to what is important…” (ibid.). There are obvious overlaps here with the core operations of integrated intelligence (Tables 1.1 and especially 1.2): evaluation and choice, diagnosis, foresight, and creativity and innovation. With emotional intelligence, emotions may be used to facilitate thinking, while affective intuitions may be activated within the core operations of integrated intelligence.

The increased acknowledgement of—and attention to—affective and intuitive thoughts in the use of integrated intelligence require emotional intelligence. Such acknowledgement and attention might also help facilitate it. Becoming increasingly sensitive to feelings also enables a greater array of cognitive data to emerge.

Understanding emotion. Salovey and Pizarro define this as the “ability to understand emotional information and how emotions combine and progress through relationship transitions and to appreciate such emotional meanings” (Salovey & Pizarro 2003 p 264). As indicated, integrated intelligence facilitation may potentially assist in understanding emotions. The subtleties of this process are likely to come more into awareness in an individual attempting to employ integrated intelligence.

Managing emotion. This is the “ability to open to feelings” and “modulate them in oneself” such that “personal understanding and growth” are facilitated (ibid.). With integrated intelligence, receptivity will potentially assist in the opening to feelings. Self-modulation of feelings and emotions within oneself may be a consequence of this, although as envisaged in this thesis this is not a direct goal of integrated intelligence facilitation; personal understanding and growth are, however—as stated in Tables 1.1.and 1.3.

A further strong link between emotional intelligence and integrated intelligence is implied in Salovey and Mayer's (1990) first article on emotional intelligence, where they state that emotional intelligence theory attempts to provide a model for the way emotions and reason interact. This is also an implicit function of integrated intelligence. In Wilber's (2000c) transpersonal theory, the transrational transcends and includes the 'lower' cognitive domains, including the rational/egoic domains. This implies that transrational levels of consciousness require a mastery of the rational. As the affective is an important part of the transrational (as argued in integrated intelligence theory), it may be assumed that transrational and integrated intelligence include a greater appreciation for the affective domains of awareness and how these relate to the rational.

Finally, despite their expanded nomenclature regarding feelings, emotions and intuitions, at a paradigmatic level both Salovey and Pizarro's and Goleman's models remain physicalist, and are predicated upon localised brain functions—although Goleman's thesis is far more reductionist, as Chapter Seven will reveal. The idea of intuition is not developed, and the extended mind does not feature. The idea of emotional intelligence thus remains firmly grounded in mainstream materialist conceptions of mind.

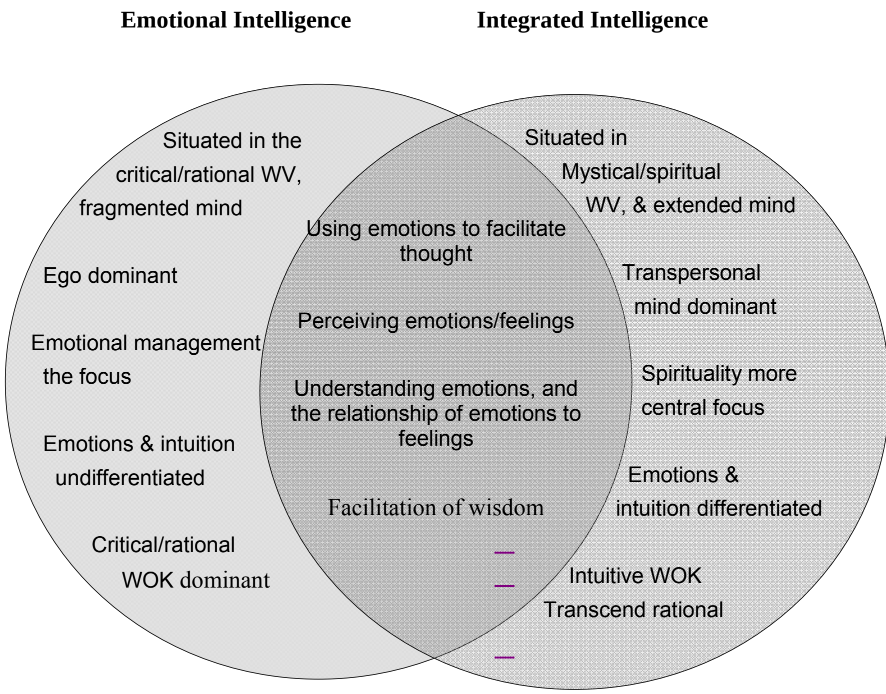

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Figure 6.5: Emotional intelligence & integrated intelligence juxtaposed

Despite the differences, there exist strong actual and potential links between emotional intelligence and integrated intelligence—as shown in Figure 6.5. Affective domains of cognition span both the spiritual/mystical discourses and Salovey and Pizarro's concept of emotional intelligence.

I now move onto a consideration of Lubart's (2003) creative intelligence.

Creative intelligence (Lubart)

Lubart (2003) posits the concept of creative intelligence, a representation of intelligence that has commonalities with integrated intelligence—especially in regard to the core operation of creativity and innovation (Table 1.2). The idea of a creative intelligence has come to the fore in recent years, being previously downplayed due to the dominance of verbal, numeric and spatial cognitive modalities in intelligence research (Lubart 2003). An essential debate is whether creative intelligence is an independent intelligence or an aspect of general intelligence (ibid.). Lubart finds that creative intelligence plays a part “in each major theory of intelligence” (Lubart 2003 p 288).

The definition and use of the concept varies enormously in the literature. Often it is not clearly defined, and may be an implicit concept within broader discussions on creativity or intelligence (Lubart 2003). Lubart therefore refrains from giving a definition which covers all contexts, but finds that in terms of the intellectual abilities that assist creativity, it is “those cognitive abilities that are particularly involved in producing original, valuable work” (Lubart 2003 p 284). Those abilities which help facilitate creativity include metaphorical thinking, the capacity for synthesis, creative task performance, using mental imagery, and exercises involving divergent thinking (ibid). From Lubart’s definition, the crux of creative intelligence is a concrete outcome: the ‘work’ produced.

Yet the possibility of the extended mind’s influence on creativity is absent, consistent with mainstream discourse. While the abilities that Lubart identifies may conceivably all involve the extended mind, Lubart makes no suggestion of this. Instead Lubart finds that:

> … understanding creative intelligence involves more than simply specifying a subset of relevant intellectual abilities. Creative intelligence draws on metacapacities or knowledge about how or when to use to best use one’s cognitive abilities during task performance (ibid. p 289).

The term “metacapacities” suggests the capacity to reflect on the ideal means to employ for any given creative task. It is akin to Cartesian self-reflection at an intellectual level (personal interior subjective), rather than a transpersonal mode of cognition (transpersonal interior subjective). The lack of a mystical aspect is the major divergence between Lubart’s creative intelligence and integrated intelligence.

However there are overlaps and integrated intelligence is potentially relevant to creative intelligence in general. The link between transpersonal/mystical modes of consciousness and creativity has been well considered (Radin 2006; Sheldrake et al. 2001), but generally only by theorists outside mainstream discourse. Radin points out that creative people report more psychic experiences. He finds that this is because they have less “latent inhibition” – they do not unconsciously screen out as much mental information as less creative people (Radin, 2006 p51). Traditionally, the idea of muses and daemons (Hillman 1996), spirit guides (Broomfield 1997; Kubler-Ross 1997), one’s ancestors (Lawler 1991; Murinbata & Whitehead 2002) and angelic intelligences (Fox & Sheldrake 1996) has held strong sway in ancient and medieval cultures. The concept of the integrated mind opens the possibility of receiving input from such sources as morphogenetic fields (Sheldrake), collective fields of intelligence (Grof 1985, 2000), and spiritual/numinous sources (Broomfield 1997). For example, author Richard Bach claims that he did not write his best-selling novel *Jonathan Livingston Seagull*—he suggests that it “came ‘through’ him” (Rowan 1991 p 103). While it is not necessary to invoke such elements to explain creativity, they are compatible with the theory of integrated intelligence.

At the periphery of mainstream discourse, Csikszentmihalyi’s concept of “flow” has strong links to creativity. Flow’s “merging of action and awareness” (Csikszentmihalyi 1994 p 183) represents a non-ordinary state of consciousness that has similarities with the concept of receptivity, and its collapse of observer and observed.

These theorists tend to be writing outside of mainstream intelligence theory, which generally rejects mystical concepts. Indeed, an empiricist such as Sternberg (2003b) suggests references to mysticism have tainted the field, as the opening quote of this chapter indicates.

Such spiritual, intuitive, and creative conceptions of mind often suggest the limitations of the mere accumulation of data and knowledge as means to deep understanding (Lubart 2003; Zohar 2000). Ancient Chinese mystic Lao Tzu’s well known aphorism: “He who speaks does not know” (Jiyu 1998) expresses this. Expertise in a given domain may lead to mental rigidity in the employment of knowledge and “set effects and fixation on readily available but inappropriate knowledge” (Lubart 2003 p 285). As with the benefits of creative thinking, integrated intelligence may assist in circumventing this limitation of linear approaches to problem solving.

Lubart's creative intelligence and integrated intelligence have much overlap, as Figure 6.6, indicates. Yet Lubart's model is reflective of the Western episteme—with mystical components and the extended mind ignored. This is not the case in out-of-field discussions of the idea. The concepts of the extended mind and the numinous realm may potentially expand the idea of creativity in general via the tool of receptivity and non-ordinary states of consciousness.

Creative Intelligence (Lubart) **Integrated Intelligence**

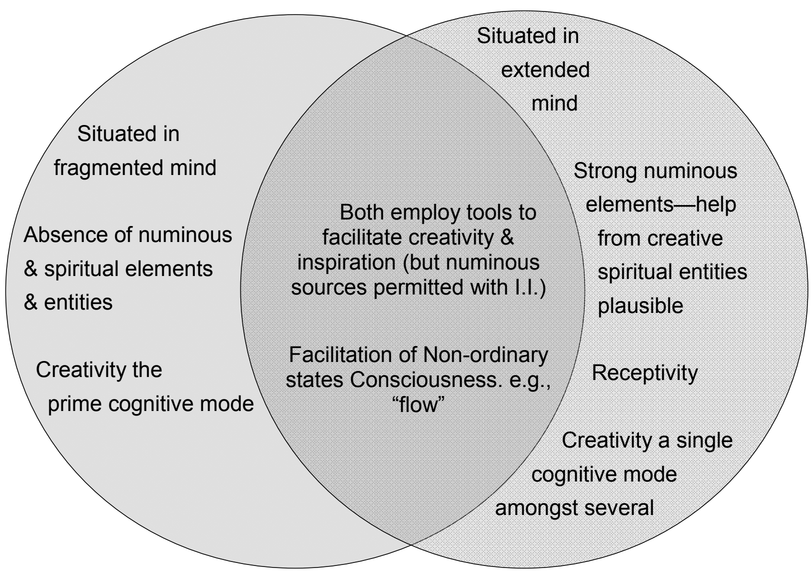

Figure 6.6: Creative Intelligence & Integrated Intelligence juxtaposed

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I now move onto a related concept—wisdom.

Wisdom (Kunzmann & Baltes)

As indicated in Tables 1.1, 1.2 and especially Table 1.3, and as will be further outlined in Chapter Eight, wisdom is an end-state of the effective employment of integrated intelligence. Wisdom and intelligence are often seen as closely related (Sternberg 2003b). The concept of wisdom as an aspect of intelligence has begun to take hold in recent decades, as intelligence theory has widened its cope (Kunzmann & Baltes 2003; Sternberg 2003b). As posited by Kunzmann and Baltes, wisdom is “an expert knowledge about the fundamental pragmatics of life” (ibid. p 332). It is one of the “many faces” of intelligence (ibid. p 329).

These fundamental pragmatics include:

> … knowledge about the important and difficult aspects of life meaning and conduct and includes knowledge about life planning (e.g., Who should pursue which goals in what situation?), life management (e.g., How can we deal with social problems such as suicide?), and life review (e.g., How can we make sense of our past experiences?). Wisdom involves both general knowledge about human nature that transcends given cultural context and historical period and more specific knowledge about the variations in life meaning and conduct (ibid. p 333).

Here there is a considerable overlap with the core operations and end-states of integrated intelligence—especially with personal and social transformation, integrated perception, evaluation and choice, diagnosis, and wisdom itself.

Wisdom is not easy to define. Indeed it can be depicted as an aspect of personality, of development, as “postformal dialectic thinking”, or as an “expanded form of intelligence” (ibid. p 331). For Sternberg, wisdom is an aspect of practical intelligence:

> Wisdom is involved when practical intelligence... is **applied to** maximizing not just one’s own or someone else’s self-interests, but rather **a balance of various self-interests (intrapersonal) with the interests of others** (interpersonal) and of other aspects of the context in which one lives (extrapersonal), such as one’s city or country or environment or even God (quoted in Kunzmann & Baltes 2003 p 332).

The verbs of knowing in this case are neutral in respect to worldview. Balancing self-interest with the interests of others could conceivably activate critical/rational or intuitive ways of knowing. The verb “to apply” indicates the practical nature of wisdom—which is not merely intellectual knowledge, but applied knowledge (Sternberg 2003b), and again does not necessarily favour a particular cognitive modality.

Notably, Kunzmann and Baltes surmise that "what sets wisdom apart from (practical) intelligence is its orientation toward maximization of a common good rather than individual well-being" (Kunzmann & Baltes 2003 p 332). This is similar to integrated intelligence, which encompasses a human/social and a cosmic view, and implies an appreciation and commitment to something greater than the ego. Wisdom implies a strong social-level context in Kunzmann and Baltes' model, while with integrated intelligence this may also extend to a cosmic or spiritual focus.

As with the other three 'intelligences' discussed above, wisdom as defined by Kunzmann and Baltes contains no element of the extended mind, although there is a single reference to a spiritual conception with Kunzmann and Baltes' (obscure) mention of "God", as quoted above. In mainstream literature, wisdom is generally seen to occur as a conscious reflective process (Sternberg 2003b), and not with the aid of introspective tools that facilitate non-ordinary states of consciousness and receptivity, as is the case with integrated intelligence.

Writing from the worldview of modern academia, Kunzmann and Baltes avoid the issues of the numinous and transpersonal realms. Yet these realms are not incompatible with other representations of wisdom, emerging from civilisations with a mystical worldview. In indigenous societies there are references to prayer, meditation, and the gleaning of the knowledge from the spirits of the ancestors—often associated with wisdom (Broomfield 1997; Lawlor 1991; Murinbata & Whitehead 2002). In ancient Greek culture, the oracles and prophets were said to be wise, and their minds were believed to be infused with the wisdom of the gods (Grof 1985; Tarnas 2000). Within the idea of wisdom, native and ancient cultures often depict a confluence between wisdom and the numinous.

A significant overlap between the theory of integrated intelligence and Kunzmann and Baltes' wisdom is that the latter consider wisdom to be "the integration of intellectual, objective, or rational modes of knowing and emotional, subjective, or interpretative modes of understanding" (Kunzmann & Baltes 2003 p 337). The application of integrated intelligence is likely to require all these ways of knowing. As stated, in Wilber's transpersonal theory the transrational realms of human consciousness development both transcend and include reason. Yet with Kunzmann and Baltes there is no suggestion of the transpersonal, or of a hierarchy which valorises any particular way of knowing. When compared with integrated intelligence, the difference is the latter's greater clarification of the emotional/affective to incorporate classical intuition, and the subtle cues of the extended mind.

Finally, Kunzmann and Baltes emphasise that wisdom is strongly practical, not merely cognitive, being about "optimum human functioning" (ibid. p 340-341). This mirrors the "participatory" emphasis of integrated intelligence theory—taken from Ferrer's (2000, 2002) participatory approach to the transpersonal.

There is much overlap between wisdom and integrated intelligence—as Figure 6.7 indicates—despite Kunzmann and Baltes' not addressing the numinous and transpersonal. This absence mirrors the three previous systems theories, in that their emergence from the Western episteme and critical rational worldview restricts their discussion of mystical conceptions.

As the literature on wisdom develops, integrated intelligence theory might possibly combine with wisdom theory to provide a greater understanding of wisdom itself. In Western culture, there is a tendency to dismiss or downplay other civilisational representations of wisdom that incorporate numinous and transpersonal elements. An increased awareness of integrated intelligence may shift this attitude and allow Western social science to gain a greater appreciation of an expanded definition of wisdom.

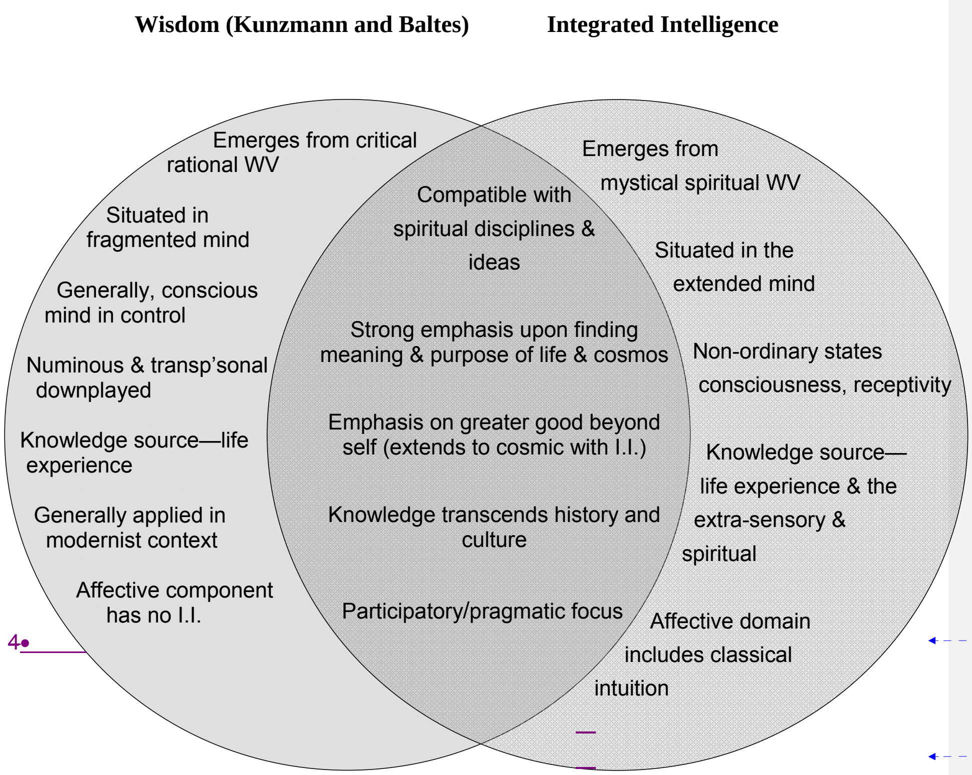

Figure 6.7: Wisdom & integrated intelligence juxtaposed

The discussion in sections 6.2 and 6.3 has permitted identification of the relationships between integrated intelligence and various conceptions within intelligence theory. IQ theory tends to exclude all but the most statistically verifiable and 'rationally' framed conceptions of intelligence. Yet Gardner's (1993a, 1993b) theory of multiple intelligence (with his concept of intrapersonal intelligence), and the other three theories addressed here, are helpful in developing the beginnings of a framework which might situate integrated intelligence within systems theories of intelligence.

There are nonetheless some fundamental differences between integrated intelligence and mainstream dominant discourse, as outlined in the next section.

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6.4 Final Remarks about mainstream Intelligence Theory and Integrated Intelligence

IQ theory and systems theories within mainstream discourse contain elements which are problematic in terms of the acknowledgement and situating of integrated intelligence. Standard intelligence tests are essentially “pen and paper tests” (Gardner 1993a) and are done in ordinary states of consciousness. For example, with the WAIS-3 outlined above—which is “reasonably representative” of IQ tests in general (Deary 2001 p 6)—there is no attempt to access the non-ordinary states of consciousness that are often associated with receptivity and thus with integrated intelligence (Braud 2003 pp xx-xxi; Grof 1985, 2000). Further, the WAIS-3 does not test for any cognitive modalities, core operations, or end-states associated with integrated intelligence: extrasensory acuity, spiritual understandings, wisdom, intuiting deeper and transcendent meaning, the facilitation of wisdom, communication with spiritual realms, and knowledge, etc. Typical of the modern intelligence test, integrated intelligence plays little or no part in the WAIS-3 test, either as an object of cognitive measurement or as method.

The exclusion of integrated intelligence from mainstream intelligence theory

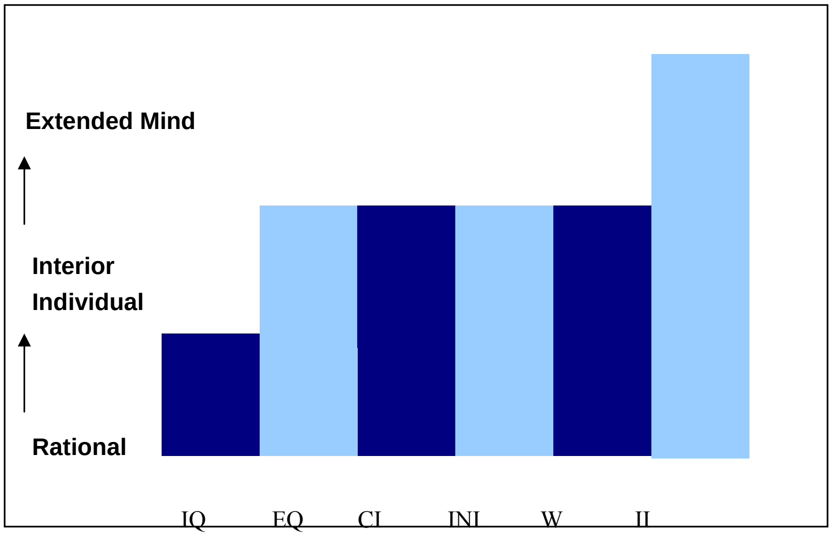
As is the case for the four intelligence theories outlined in section 6.3 above, many other theorists who expand their conceptions of intelligence beyond the limitations of IQ (Gardner 1993; Shearer 2004) merely posit horizontal extensions to the fragmented mind. This is done by adding dimensions such as: lateral thinking (de Bono 1999); collective intelligence (Nash 2005; Szuba 2002); inferential intuition (Klein 2003; Torff & Sternberg 2001); “civic intelligence” (Dewey 1937); or various non-linear components as with Kosko’s (1994) “fuzzy logic”. There is no expansion of the vertical dimension into the transrational. With the exception of Kosko, these theorists do not address the worldview level, or adopt a civilisational perspective on intelligence. These theories emerge from the mechanistic paradigm, which does not allow for the conception of an integrated intelligence, as a biological, localised and fragmented intelligence is implicit within that paradigm.

The dominance of the individual differences approach in the early to mid years of the twentieth century is significant, for this addressed only the litany. This featured a failure to acknowledge environmental and social influences in the development of intelligence. The dominance of Galton’s, Binet’s, and Piaget’s individualistic approaches until well after the 1950s undoubtedly contributed to this (Sternberg et al. 2003).

Vygotsky’s greater cultural focus helped redress the issue (Sternberg et al. 2003; Gardner et al. 1996). Yet, to refer to Wilber’s four-quadrant model, this merely represented an expansion into the exterior-social domains, or lower right-hand quadrant. Systems theories incorporating intrapersonal intelligence, emotional intelligence, wisdom, and creativity have expanded into the personal interior subjective—or top-left quadrant (lower triangle). Yet none of these represents an expansion into the transpersonal upper-left triangle. This is where integrated intelligence may potentially expand intelligence theory in the coming years, if the trend towards acknowledging greater interiority continues. This would, however, require a paradigmatic shift because, as I have outlined above, mainstream intelligence theory is still immersed in the worldview of critical rationality—while integrated intelligence emerges from the mystical/spiritual worldview.

6.5 Conclusion

Integrated intelligence theory potentially adds a vertical dimension to intelligence theory. It is a cognitive capacity that moves beyond psychometric and systems theories. Evidence for this can be taken from the consistent finding that integrated intelligence differs from mainstream theories in its incorporation of the extended mind. This is illustrated in Figure 6.8. Here, the rational modes embrace critical rationality and its preferred ways of knowing; the interior individual modes correspond to the interior personal subjective realms of Wilber’s modified four-quadrant model; and the extended mind incorporates the interior transpersonal subjective.



IQ = IQ theory. EQ = Emotional Intelligence. CI = Creative Intelligence.
INI = Intrapersonal Intelligence. W = Wisdom. II = Integrated Intelligence.

Figure 6.8: The distribution of rational, interior individual modes and the extended mind in six representations of intelligence

Although the particular theories addressed in this chapter comprise only a small fraction of contemporary mainstream intelligence theory, they have been examined because they represent part of the frontier of intelligence theory—those theories and concepts which are pushing the boundaries of the accepted. That the frontier stops well short of the transpersonal is the most notable finding uncovered here. A significant reason for this lies in the greater schema in which mainstream intelligence theory is embedded—wherein mechanistic, brain-based conceptions of consciousness underpin modern cognitive psychology and mind science in general.

The focus within this chapter has been upon mainstream intelligence theory in general. In the next chapter the focus narrows to individual theorists and texts within mind science.

Chapter Seven: The Individual Text Perspective—An Analysis of Several Critical/Rational and Mystical/Spiritual Theories of Mind and Intelligence

7.1 Introduction

> Now that it (consciousness) is accepted as a physical reality and not some mystical phenomenon I think we are on the road of a scientific understanding of this age-old problem (Susan Greenfield, in BBC 2001 episode 6).
>
> .
>
> My bookcase overflows with wonderful, reductionist accounts of how the world works, written by brilliant scientists for non-technical audiences—Gould, Dawkins, Sagan, Goodenough but I look in vain for their names on bestseller lists. Instead, I find such pathetic drivel as Deepak Chopra's *Ageless Body*, *Timeless Mind: The Quantum Alternative to Growing Old* and Harvard psychiatrist John Mack's *Abduction*. There is James Van Praagh, *Talking to Heaven*, while Neale Walsch is having *Conversations with God*… How are we to account for such widespread nuttiness? (Park 2000 pp 93-94).

So far in this thesis I have developed an epistemological foundation for situating intelligence theory in general and integrated intelligence in particular. This has had a heavy civilisational and paradigmatic emphasis. This chapter focuses upon individual theorists and texts regarding both intelligence theory and mind science in general, because consciousness theory and mind science implicitly underpin theories of intelligence. Therefore, this chapter represents the narrowest focal point before the final more visionary chapter concerning Western society and education.

In Part One, I analyse the representations of mind and intelligence found in the work of three mainstream science theorists. The texts are neuroscientist Susan Greenfield's

BBC series *Brainstory* (BBC 2001), Arthur Jensen's (1998) concept of mental ability ("g" theory), and Daniel Goleman's (1996, 1999) "emotional intelligence". In Part Two, I analyse works by three theorists who incorporate integrated intelligence into their texts: Danah Zohar's (2000) *Spiritual Intelligence*, John Broomfield's (1997) *Other Ways of Knowing*, and Ken Wilber's (2000a, 2000b, 2000c, 2001) Integral Theory. Finally, in the conclusion I shall make some general remarks regarding the ways that these two different approaches to mind and intelligence are developed

I now begin with the analyses of the three critical/rational texts.

Part One: Three Critical/Rational Texts

In Part One, the three critical/rational texts shall be analysed, and their continuities and discontinuities identified in a concluding summary. I have chosen these three texts for the following reasons. Firstly, despite covering divergent aspects of mind, ranging from the human brain, intuition, IQ, and emotional intelligence, they are clearly founded upon the tenets of the mechanistic paradigm (Table 2.1). They widely employ mechanistic metaphors and presuppositions within their texts. Further, all the theorists have been influential (achieving a degree of fame in their respective fields), indicating that they have been valorised within the dominant discourses of the West.

Greenfield's *Brainstory* (BBC 2001) is an excellent paradigmatic representation of modernist mind science. As a subject of analysis it is ideal: as a television program its visual components can be analysed alongside the language used. Arthur Jensen's (1998) *The g Factor* is an academic and strictly mechanistic model, which is the main reason it has been chosen. Its central thesis—that there is a single domain-general concept of intelligence—claims to be highly empirical. Jensen's thesis makes it a model example within the field of IQ theory. Daniel Goleman's (1996, 1999) "emotional intelligence" has been selected because it embraces the relevant concepts of emotion and intuition. Goleman's approach exemplifies how reductionist and brain-based constructions of mind effectively exclude the transpersonal and spiritual.

7.2 BBC TV's *Brainstory*

Hosted by neuroscientist Susan Greenfield, the BBC television production *Brainstory* (2001) paradigmatically exemplifies the methods, presuppositions, and images of mechanistic science. The worldview of neuroscience where, as Greenfield states, human consciousness is "reduced to a mere pile of neurons" (BBC 2001 episode 1) is pervasive throughout the series.

Reductionism

The rejection of inner worlds in modern science has meant that consciousness, including mystical experience, is commonly reduced to micro-processes in the brain (Dossey 1999a, 1999b; Grof 1985, 2000). *Brainstory* is no exception. Throughout the series, the presuppositions of reductionist explanations of mind go unquestioned. The approach is clear in the opening scene of the first episode, when Greenfield states: "Even the most spiritual aspects of our lives will be dissected" (BBC 2001: episode 1). Later in the same episode she reiterates that all conscious experiences— "even our deepest spiritual experiences"—are explicable in terms of "brain phenomena" (ibid.).

The tenets of reductionism are posited as givens. Greenfield states that, "If there is no special place in the brain whose job it is to generate consciousness, then somehow it must arise directly from the activity of ordinary brain cells" (ibid. episode 6). A superficial examination might suggest that Greenfield is objectively considering possible hypotheses. A deeper analysis reveals that the field of enquiry is restricted to brain-based theories. There is delimited choice, as the alternatives are two mechanistic hypotheses. Later Greenfield says: "We may not know the exact brain processes that give rise to consciousness, but we do know that it must be produced by ordinary brain cells" (ibid.). This statement represents the promissory materialism referred to in Chapter Five (section 5.6). In Part Two of that chapter, I outlined how the claim that consciousness arises from a neuronal substrate has been questioned by theorists such as Dossey (2003), Grof (1985, 2000) and the Dalai Lama (2005).

Reductionism is also apparent when Greenfield explains the relationship between the brain and Parkinson's disease. A computer-generated image of neurons and synapses appears as Greenfield makes her point. Greenfield states that when an electrical signal reaches the end of a neuron, a neurotransmitter is released which crosses the synapse into the next cell. She then pronounces: "All brain activity boils down to this" (BBC 2001: episode 1). The comment—simultaneously juxtaposed with the magnified computer-generated image of synaptic activity—entrenches the materialistic and reductive interpretation of consciousness and 'mind'.

For the mainstream neuroscientist, it is through reference to the micro-components of the system that the real can be consecrated (Bloom 2001; Dossey 1999b). That the micro-components may be affected by the macro-components is not discussed in *Brainstory*. There is no consideration that the brain's neurophysiology may be partly a function of environmental, psychological, or cosmological processes. This reinforces Stapp's (2005) claim that reductionist science fails to account for the human will.

Technology determines the real

Brainstory uses technology as a legitimising agent, as demonstrated by the aforementioned computer images of neuronal activity. Similarly, within the first two minutes of episode one of *Brainstory*, Greenfield is seen strapping the electrodes of an MEG machine onto her head. It is therefore not simply the data generated by the technology that is important. The machine itself (symbolically and metaphorically) establishes the real, consistent with the mechanistic paradigm. Thus, the profound spiritual experiences of the subject, Rene Carter, are introduced with the words: "Her temporal lobe epilepsy seems to have been a key factor in her religious beliefs". As Carter relates an experience of an intense spiritual vision she had of Jesus on the cross, the screen image shifts back and forth from a close up of Carter's face, to the needle of an EEG machine scribbling rapidly. The needle symbolically represents the validation of the real, the codification of consciousness, reducing it to the "Flatland" (Wilber 2001) of the paper surface. It is the abstraction and codification which becomes most real, not the experience itself. Further, the process renders the person and the experience as subjects, giving them the effective status of ‘other’. Direct first person perception is subsequently illegitimated, continuing the historical process of the scientific enlightenment (Hollinshead 2002) and the Western rationalist hegemony.

The inner and spiritual denied, the ego consecrated

Technology is also prominent in another paradigmatic bias: the denial of the spiritual and inner worlds (Chapter 5, section 5.4). Midway through episode one, we are told that the MEG machine: “actually enables us to see a thought” (BBC 2001: episode 1). Greenfield tells us that thousands of years of philosophical questioning have not enabled us to answer life’s fundamental questions. She adds: “My view as a neuroscientist is that we can explain everything about ourselves by looking inside” (ibid.). Yet here “inside” refers to the objectified neural functions of the brain—Wilber’s upper-right quadrant. It is neither introspective, nor first person—as when the mystics ‘went within’. Further, Greenfield states that new data collected regarding the brain will: “take us to a place that we have never been before—inside the human mind” (ibid.). Greenfield thus implicitly illegitimatises thousands of years of recorded first person insights from mysticism (Wilber 2001). This is reflective of the way in which the ‘inner’ (first person perspective) is written out of neuroscience (Wilber 2000c); and is the basis of the philosophical/empirical divide in contemporary consciousness theory (Chapter 5, section 5.6).

Greenfield’s tells us that: “Somehow the brain creates the intangible, indescribable feeling of being you” (BBC 2001: episode 1). The images that appear on the screen as the viewer hears these words are slow-motion representations of businessmen—in suits and ties—walking to work along a busy city street. They are expressionless, and joyless. In these images from *Brainstory*, the Western worldview, with its instrumental rationality (Sardar 1998; Slaughter 1999), is implicitly synonymous with ‘living’, and with consciousness.

Although other civilisations and other times have depicted very different experiences of consciousness, for Greenfield consciousness is the individual, conscious mind—the ego. It is a narrowly defined (verbal, abstract, and disembodied) depiction of the experience of being conscious and alive.

The reduction of spiritual experiences to their neural correlates is pervasive. Greenfield reduces "intense spiritual feelings" to "malfunctions" in the frontal lobes (episode one). More specifically, the spiritual visions of a middle aged woman are codified as "hallucinations" triggered by temporal lobe epilepsy (episode one). It is the vivisection, the dissected brain that is the ultimate purveyor of truth. Chalmer's (1997) "easy problem"—the neural correlates of consciousness—is enthusiastically oversold; while the "hard problem"—the explication of "qualia"—remains unaddressed.

Greenfield, confident in the capacities of technology to deliver the solution to "the final mystery", (the nature of consciousness) reports that: "as imaging techniques improve we'll be able to **monitor** the brain's activity in all its complexity, as it **flits** from thought to thought" (BBC 2001: episode 1). Here Greenfield once again equates thought with the conscious, rational/linguistic thought processes that "flit" through the mind. Conversely, mystical reports of the background of consciousness report state that consciousnesses itself is static and stable (Shear & Jevning 2002). The way of knowing is critical/rational and technologically based—"to monitor".

Greenfield's reductionism effectively relegates the unconscious to the realm of 'other'. This is seen when Greenfield (episode 6) speaks of the "distorted experiences" of a young man who has just entered an altered state of consciousness, after being given the drug cadamine in a laboratory experiment. The young man's experience includes a sense of travelling out of his body and through the galaxy. Greenfield says:

> As I **see** it, the *inputs* from his *senses* would normally dominate his brain, creating a large spreading wave of nerve cell activity. The drug might weaken the *signals* coming from the *senses*, leaving *a hectic jumble* of smaller ripples

> of activity *spontaneously* generated in the brain, producing *hallucinations* (ibid. Italics added).

The first-person experiences of the man are completely denied via such labels as: “a hectic jumble”, “hallucinations”, and “distorted experiences”. There is no attempt to examine the validity of the experience content, merely the neuronal processes that underpin them. What Greenfield “sees” is what is valorised—the preferred visual/auditory ways of knowing of Western science and mainstream mind science. The experience is regulated by the ‘senses’, which receive their ‘inputs’ in regulated mechanistic/behaviorist fashion. The ultimate legitimising symbol is the laboratory itself, implicitly privileging critical rationality’s experimentation as a way of knowing.

In contrast to Greenfield’s dismissal of the patient’s experiences, psychedelic researchers have found correlations between psychedelic perceptions, non-ordinary states of consciousness and mystical insight (Grof 1985, 1992; Sheldrake et al. 2001; Tart 2001). Terrence McKenna for example, finds that “in psychedelic experiences you’re actually tapping into the diurnal cosmic imagination” (Sheldrake et al. 2001 p 15).

Greenfield’s failure to recognise the content of the mystical experiences reveals a strong paradigmatic presupposition: that consciousness is epiphenomenal, with its informational content unworthy of study (Grof 1985). This mirrors the materialistic nature of the mechanistic paradigm.

Further paradigmatic constriction

Paradigms delimit the kinds of questions that can be asked, as well as where answers are sought (Grof 1985; Kuhn 1970. Chapter 2, section 2.1). Hypotheses and conclusions are therefore restricted. In the introduction to *Brainstory*, Greenfield posits a number of questions:

- “Could love simply be a hormone surging through our brains?”
- “So how does the brain generate *all* of the different aspects of our mental lives?”

- “Can we say where thoughts and feelings actually take place inside our heads?”
- “Is it possible that every nook and cranny of our characters can be traced back to an individual part of the brain?” (BBC 2001: episode 1. Italics added)

Reductionist and materialist assumptions underpin all the questions. Implicit within the second question is that the brain generates “all” of consciousness, leaving no room for mystical/spiritual conceptions. It is what Greenfield calls “the big question” that most clearly reveals the self-stultifying nature of her approach: “The big question is how does the brain do it? How does it (the brain) integrate all this different activity into the seamless experience that we call life?” (BBC 2001: episode 1). Again, all competing hypotheses that might consider non-materialist representations of consciousness are eliminated by the assumption that it is the brain that generates consciousness.

Greenfield makes her position about this transparent:

> As a scientist I cannot accept that consciousness is something mystical, beamed into our heads from outside. It *has* to come from physical processes within the brain. But the question is: how? (BBC 2001: episode 1. Italics added).

Once again, it is only in the machinations of the brain that the answers can be found, eliminating all competing worldviews and ways of knowing. The predominant verb of knowing is both explicitly and implicitly to “see”. Greenfield *looks* for answers in the most sensory meaning of the verb: “We *know* all the answers have to be *in there* (inside the brain), but how will we ever **see** inside? (ibid. episode 6. Italics added). Greenfield’s answer is that we will “see” with the senses, aided by modern technology. The assumption with which Greenfield begins determines her conclusion:

> I’m sure it has to be the brain that makes us who we are. Our hopes, our fears, our thoughts, our dreams, are all somehow hidden away inside our heads. I’m convinced that there isn’t a single aspect of our lives that doesn’t reside in the sludgy mass of our brain cells (ibid. episode 1).

Elsewhere we are told that: “The mass of protein and fat in our head can create our thoughts and feelings” (ibid. episode 6). The representation of mind is quintessentially materialist and reductionist.

Table 7.1: Greenfield’s *Brainstory* analysed according to CLA

Level	Details
The Litany	Microscale privileged: neurons, brain science. 1st person, inner, spiritual and numinous experience obfuscated. Promissory materialism. Mind as epiphenomena. Little examination of macro-scale factors (human will denied). Spiritual experiences = hallucinations. Hypotheses and questions defined by mechanistic paradigm, and delimit answers.
Social/system	Reductionist neuroscience. Technology determines the real. Computer-generated images validate microscale focus. People rendered as subjects of enquiry. Egoic and individualistic society valorised. Visual/auditory/sensory ways of knowing privileged. Abstraction and codification of an experience more ‘real’ than experience itself.
Worldview	Critical rationality. The mechanistic paradigm. Mystical insight and spirituality “dissected”.
Myth/Metaphor	Machine the prime metaphor, and symbol of legitimation.

For the mechanist, what is real is the measurable, preferably using the eyes. “The ultimate goal of neuroscience is to **interpret** all of our everyday experiences in terms of **measurable** changes of brain activity”, says Greenfield (BBC 2001). Interpretation and measurement are verbs of knowing which emerge from the critical/rational ways of knowing.

It can be seen that *Brainstory* develops a strongly mechanistic representation of the mind, as Table 7.1 (above) indicates. Uncontested materialism and reductionism predominate—the givens of the mechanistic paradigm and Western science.

My next analysis is located within intelligence theory—Jensen’s “g” factor.

7.3 Arthur Jensen's "g" Factor

Arthur Jensen's *The "g: Factor* (1998) is the culmination of his four decades of research. Jensen's claim is that there is a domain-general mental ability, or "g," after Spearman's original concept.

Jensen's definition of mental ability

Jensen finds no place for the word "intelligence", because he finds that it has too much ambiguity and "emotional baggage" (Jensen 1998 p 49). He uses the term "mental ability" and defines it in two ways. The first describes mental abilities as capacities that exist in physically normal people, where individual differences "are insignificantly correlated with measures of sensual acuity, physical strength, endurance, agility, dexterity" (ibid. p 52). However Jensen's second definition is more notable, stating that:

> An ability… is a mental ability if, with respect to *information transmission* per se, the *receptor and effector mechanisms* are nonspecific. In other words, an individual's *performance* is not essentially dependent on any *particular* sensory or motor system (ibid. p 52. Italics added, except for last).

Information processing (predicated in turn on computer analogies) underpins Jensen's model. The term "mechanism" explicitly reveals the mechanistic paradigm, as does the phrase "receptor and effector mechanisms". The latter also links Jensen with the stimulus and response formulations of the behaviourists and Enlightenment philosophers—who denied the affective domains of mind, and consciousness itself (Dossey 2001a; Ross 1993; Tarnas 2000).

For Jensen, mental ability is founded upon more essential predicates.

> To put the study of mental ability on a firm scientific footing, we must *begin* by using theoretically *neutral, objective*, operational **definitions**… Science begins by *first recognizing* certain *objective realities* and **asking questions** *about them*. In the domain of human abilities, what are these realities? To answer this, we must *first* become familiar with the technique known as factor **analysis** (Jensen 1998 p 49. Italics added).

Jensen follows the separation of object and perceiver that underpins modernist science. By implication Jensen's scientific worldview is one where there is a purely objective domain of enquiry. Yet there is an inherent contradiction in the statement that "Science begins by first recognizing certain objective realities and asking questions about them". The act of recognising reality as purely objective (which fails to problematise perception) is itself a product of the Western episteme, and the critical/rational worldview (Foucault 1984; Sardar 2000). That one must "begin" with this, place it "first" and then "first" employ factor analysis (analysis as a way of knowing) represents a value judgment and is not in itself objective. The questions which Jensen asks us to pose to determine "objective reality" thus reflect the tenets of mechanistic science (Table 2.1). Jensen, typical of many modernist scientists, fails to problematise the foundations of the worldview upon which he founds his research and its guiding presuppositions.

Jensen's definition of "objective" is self-limiting.

> … 'objective' simply means **agreement** among *observers* of an *external* event, or between **measurements** or **recordings** of events by some device, and **agreement** among persons who **read** these records (Jensen 1998 pp 49-50).

The verbs of knowing reflect the critical/rational worldview and privilege its ways of knowing. Sensory perception (Wilber's "eye of flesh") is valorised (measuring and recording), while "agreement" suggests verbal and codified knowledge structures (the "eye of reason").

Further, given the paradigmatic constrictions within modernist science and the self-limiting knowledge boundaries within academic institutions (Sheldrake et al. 2001), the very act of agreement amongst observers operating within this paradigm renders such agreement "non-objective". The role of the observer in the collapse of the wave function in quantum theory (Stapp 2005), and the challenge to pure objectivity posed by postructuralists (Foucault 1984, Inayatullah 2002a) have also undermined such claims.

Jensen's concept of mental ability is a construct developed at the litany level. Factor analysis is the defining method which underpins "g" theory. It comprises statistical processes which attempt to correlate various factors, to determine if the factors are constituted within a larger set of independent variables (Jensen 1998; Reber & Reber 2001 p 265). Notably, it is data reduction which is the primary feature of factor analysis (Reber & Reber 2001 p 264). While the processes within factor analysis are strictly statistical, there is still the requirement of subjective determination of whether the factors are representative of significant psychological conceptions. As an example, a group of IQ test scores may have significant correlation with each other. Yet the correlation may be indicative of common mathematical elements within the tests (ibid. p 264).

An inherent problem within factor analysis is that observation and measurement are fundamental. Cognitive processes and mental attributes which are not easily measured or observed are inevitably excluded from the process. Given the often inner, affective, non-linear, extra-sensory, and non-verbal predilections of integrated intelligence and intuitive experiences, factor analysis is an inadequate process to scrutinise it. Thus, Jensen's work finds no place for the intuitive, or for integrated intelligence. It is a highly mechanistic depiction of intelligence, and acknowledges only what can be readily measured.

Jensen's social analysis reflects his worldview

Jensen incorporates social analysis into his history of the development of "g" theory. His account for the historical absence of the idea of a general mental ability identifies several social factors. The first factor is that the medieval social system was based upon "aristocracies and serfdoms" (Jensen 1998 p 5), which had little need for the conception of mental ability. Thus Jensen sees industrialisation as crucial in the development of "g" theory, as specialised occupations and formal schooling made individual differences in mental ability more obvious (ibid.).

Jensen also identifies the effect of Plato's philosophy, where mind and soul are seen as the same universal and eternal properties. Plato's concept is incompatible with the idea of differences in human mental ability (Jensen 1998 p 4), yet Jensen's analysis ends at the social/systemic level. Notably, the universal/integrated is rejected by Jensen, while the individual differences approach to intelligence testing is privileged—implicitly reinforcing the individual/egoic nature of the Western episteme.

Jensen fails to acknowledge the issue of ways of knowing. Nor does he identify civilisational differences in knowledge structures and processes. He merely finds that quantitative analysis is the only valid means of developing knowledge claims in intelligence theory.

Jensen's empirical and mathematical focus

Jensen's brief history of psychology consists almost entirely of empiricists. He praises Galton, Wundt, Binet, and Spearman—especially the latter's five "quantitative principles of cognition" (ibid. p 38). Mathematician Karl Peterson, whom Jensen describes as "the father of statistics" (ibid. p 10), is revered for his revamping of Galton's formulation of co-relation "to make it mathematically more elegant" (ibid.). Spencer's embrace of Darwinism in the late nineteenth century is praised for achieving "the adjustment of internal to external functions" (ibid. p 6). Yet Spencer's position privileges Wilber's (2000c) exterior objective quadrant—the epitome of "Flatland", where all inners are reduced to surfaces, to empirical and quantifiable descriptors.

Jensen's brief biography of pioneering psychologist Sir Francis Galton is telling. Galton is valorised as "a polymath" and "genius" (Jensen 1998 p 7), and as having "what Hollywood calls 'star quality'" (ibid.). His contribution to behavioral science was "stellar" (ibid. p 9). Galton's fascination with measuring and testing devices is defended as "a seminal innovation—the *objective measurement* of human capacities" (ibid. p 11). Jensen's use of italics highlights what is valorised in Jensen's worldview: "objective measurement".

Jensen writes as a prelude to his biographical sketch of Galton that:

> The *empirical* **study** of mental ability and individual differences could not begin until someone took up *the methods of empirical science*, that is **asking definite questions** of nature and discovering the answers through **analysis of data** based on systematic **observation**, objective **measurement,** and **experimentation**. The first person to do this was the Victorian eccentric, polymath, and genius Sir Francis Galton… (ibid. p 7. Italics added).

It is Galton's ways of knowing, deeply embedded within the critical/rational worldview—questioning, collecting and analysing data, observation, objective measurement, and experimentation—that establish him as a "star" and a "genius" in Jensen's estimation. Inner worlds and intuitive perceptions are implicitly excluded as valid ways of knowing.

Jensen later enthuses about Galton's obsession "with **counting** and **measuring** things" (ibid. p 8.), and his having "**devised** mechanical counters as devices to help in **counting** and **tabulating**". Further, "He loved data" and "devised an objective **measure**" to test how much a lecturer bored the audience (ibid.). Jensen valorises Galton's obsession with numbers, a philosophy of: "When you can, count" (quoted in ibid. p 8).

Jensen's language reveals his critical/ rational worldview and the givens of the mechanistic paradigm. Darwin's theory of evolution is described as "the *mechanism* of biological evolution" (ibid. pp 6, 14. Italics added). Further, "hereditary individual variation is the *raw material* on which natural selection works…" (ibid. p 14. Italics added). The metaphor is materialist; again, inners are reduced to outers.

Likewise, Jensen's preferred verbs of knowing reflect his worldview and mechanistic leanings. Spearman "**read**" Galton (ibid. p 22). Galton and others were "**working on** the **measurement**" of mental abilities" (ibid.). Spearman "**formalised**" the idea of margin of error (ibid.). "**Testing**" is commonly used (ibid. pp 29, 53, 311, 315) as is "**experiment".** The verb to "**measure**" occurs repeatedly (ibid. pp 3, 50, 311, 314). The complete absence of mystical/spiritual verbs and ways of knowing is notable.

Jensen sees the rational, logical and mathematical as the pinnacle of human cognition. He describes “intelligence” (his “g” factor) as “the higher mental processes” (ibid. p 11), and refers to “the higher mental processes that people think of as ‘intelligence’” (ibid. p 14), explicitly: “the higher mental processes—reasoning, judgment, planning, verbal comprehension, and acquisition of knowledge” (ibid. p 15).

Jensen is a product of the Western episteme, and the mechanistic paradigm. His worldview—as indicated in Table 7.2 (below)—finds value primarily in the objective, the measurable, and the mathematical. Social and cultural factors are considered in brief, but there is little place for inner worlds, the intuitive, or the spiritual. He makes this clear: “But intuition and informed guesses, though valuable in generating hypotheses, are never acceptable as evidence in scientific research” (ibid. p 16).

Table 7.2: Jensen’s ‘g’ theory analysed according to CLA

Level	Details
The Litany	Factor analysis and correlations the basis of “g” theory. Affectivity denied—begins with neutral, objective definitions. Observation & measurement (data analysis) fundamental—intuitive, inner, 1st person experience rejected.
Social/system	Separation of subject/perceiver. Questions, definitions, (factor) analysis privileged. Critical/rational WOK privileged. Critical/rational verbs of knowing. Some social analysis: e.g., Plato’s dualism & medieval society restrict knowledge of “g”. Valorises empiricists e.g., Galton, Wundt, Binet, Spearman.
Worldview	Individual differences approach—reinforces Western episteme & mechanistic science. Scientific materialism. Reality is “objective”. Follows behaviourists and enlightenment philosophers. Critical/rational worldview not contested.
Myth/Metaphor	Mechanistic metaphors. Focus upon “information processing,” reinforces mind-as-computer metaphor. “Receptor and effector mechanisms”—stimulus and response model.

Jensen thus exemplifies the self-limiting nature of the methods of empirical science when applied to intelligence and mind. Jensen grants further understanding of how integrated intelligence has been paradigmatically excluded from mainstream intelligence discourse.

The next theorist to be analysed is Daniel Goleman. He also writes within mainstream intelligence discourse. However, he adopts a more expansive domain-specific model than Jensen, namely emotional intelligence.

7.4 Daniel Goleman: Emotional Intelligence

Daniel Goleman (1995, 1999) points out that traditional notions of intelligence fail to take into account emotionality. Goleman argues for the need to introduce the idea of emotional intelligence (EQ) into intelligence discourse. Using research into brain physiology to establish the importance of emotions in the thinking process, Goleman explains why emotions so often overpower reason. Goleman's concept of EQ incorporates wisdom, empathy, self-discipline, introspection and intuition. It is his representation of intuition that is the focus here.

Emotional intelligence defined

Goleman states explicitly that his depiction of intelligence will stand as "a challenge to those who subscribe to a narrow view of intelligence", especially those who maintain that "IQ is a genetic given that cannot be changed by life experience" (Goleman 1996 p xii).

Goleman's emotional intelligence includes "self-control, zeal, persistence and the ability to motivate oneself" (ibid.). It incorporates the capacity "to reign in emotional impulse; to read another's innermost feelings; to handle relationships smoothly…" (ibid. p xiii), as well as "self-awareness, self-control, and empathy, and the arts of listening, resolving conflicts, and cooperation" (ibid. p xv). Emotional self-awareness is another crucial factor (Goleman 1999 p 65). In short, it is "how—to bring intelligence to emotion"

(Goleman 1996 p xiii). This implicitly privileges 'intelligence' above emotion, and implies that emotions in themselves are not intelligent.

In *Working with Emotional Intelligence*, Goleman (1999) more explicitly refers to the intuitive realm. He finds that emotional intelligence means "to be intuitive, passionate, bold but grounded" (Goleman 1999 p 54). This includes "our deepest sense of what **feels** right and what is 'off'" (ibid. p 58). Goleman's intuitions thus incorporate an affective dimension.

A 'scientific' model of mind

Goleman constructs the emotional and intuitive mind in the language of brain science, an approach which ultimately restricts his thesis. He finds that intuitive decision making is really just utilising "data":

> Though there are no easily quantifiable ways of measuring such important aspects of a decision, we do nevertheless have an immense amount of relevant "data" in the form of hunches. And... we ignore such data at our own risk (1999 p 58).

By reducing intuitions to "data", Goleman colours them in mechanistic terminology.

An anecdote involving a person commenting upon the fallacy of trying to be purely rational highlights the implicit validation by quantification:

> When you do that and you're completely objective… all you really have are cold statistics. But inside, it's almost as if you had a *meter* that **measures** all of that data…The *needle* is **measuring** feeling (1999 p 59. Italics added).

A further anecdote, told by "a highly successful entrepreneur" (1999 p 62), is notably reductionist and mechanistic:

> An intuitive decision is *nothing but* a subconscious **logical analysis**…. Somehow the brain goes through these **calculations** and comes up with what we would call a *weighted* conclusion… (1999 p 62. Italics added).

The prefix "nothing but" establishes the reductive and self-limiting premise that intuitions are merely logical analyses in disguise, reinforced by the term "calculation", and the positing of a material metaphor ("weighted"). The anecdote explains a mystical/spiritual way of knowing (intuition) in terms of critical/rational ways of knowing—logic, analysis, and mathematics (calculation); according to the materialism of the mechanistic paradigm (Davies & Gribbin 1992). Goleman then reinforces the mechanistic explanation by locating the source of the intuitions in "primordial roots in evolution" (Goleman 1999 p 59):

> Hunches start much deeper in the brain. They are a function of the emotional centers that ring the brain stem atop the spinal cord—most particularly… the amygdala and its connected neural *circuitry*… *Every* experience that we have an emotional reaction to, no matter how subtle, seems to be **encoded** in the amygdala (Goleman 1999 p 59. Italics added).

The verb "to encode" suggests a critical/rational worldview preference for codification—abstract knowledge. Further, the amygdala is "the repository for everything we feel about what we experience" (1999 p 59). In such a materialist model there is no place for integrated intelligence, as the blanket phrase "every experience" effectively excludes all other hypotheses.

It is scientific data that determine for Goleman what is appropriate, as the following extracts suggest:

> Most important, the neurological data suggests a window of opportunity for shaping our children's emotional habits. (Goleman 1996 p xiii)
>
> The next major step in our journey… is in seeing how neurological givens play out in the basic flair for living called emotional intelligence... (ibid. p xiii).
>
> Perhaps the most disturbing single piece of data in this book comes from a massive survey of parents and teachers and shows a worldwide trend for the present generation of children to be more emotionally troubled than the last… (ibid. p xiv).

Goleman's text is dotted with references to scientific and academic research into emotion, neuroscience, and psychology in general. He therefore establishes a firm scientific grounding to his theory, but one which echoes the paradigmatic delimitations of the Western episteme. Most importantly, “data” which are not gleaned via the scientific method are implicitly downplayed or rejected.

A neo-Darwinian, neurophysiological and reductionist model

Goleman’s theory of the emotional mind has a strong biological basis, predicated upon the theory of natural selection. Commenting upon the speed of emotional responses, Goleman writes:

> In evolution this quickness most likely revolved around that most basic decision, what to pay attention to, and, once vigilant while, say, confronting another animal, making split-second decisions like, Do I eat this, or does it eat me? Those organisms that had to pause too long to reflect on these answers were unlikely to have many progeny to pass on their slower-acting genes (Goleman 1996 p 335).

Like purely biological and reductionist models of mind, consciousness, and intelligence, Goleman’s thesis ultimately produces a self-limiting theory of mind. It leaves no space for discourse on the transpersonal, as mind in the neo-Darwinian paradigm is implicitly an emergent property of neurobiology, explicable only as evolutionary epiphenomena (Bloom 2001; Grof 1985).

Recurring reductionism is inherent in Goleman’s references to neurophysiology and brain parts. The language is paradigmatically representative of Newtonian/atomistic science.

> LeDoux calls it “precognitive emotion,” a *reaction* based on *neural bits and pieces* of *sensory information* that have not been fully sorted out and integrated into a recognizable *object.* It’s a very raw form of *sensory information*, something like a neural *Name That Tune* (1996 p 27. Italics added, except for last).

Goleman’s construct of mind is of a sensory information processing system, built up from “bits and pieces”—an essentially computational model. Reactions of the brain within the system come from the recognition of an “object”, suggesting the observer and object split of mechanistic science. There is no attempt to distinguish clearly amongst types of feelings, between intuition and emotion, or between classical and inferential intuition.

Mechanistic language

Goleman criticises the mind-as-computer model which dominates cognitive psychology, because (unlike the computer) the mind is strongly affective. He writes:

> …the brain's wetware is awash in a messy, pulsating, puddle of neuro-chemicals, nothing like the sanitized, orderly silicon that has spawned the guiding metaphor of mind (Goleman 1996 p 44).

Yet in self-contradiction, Goleman's thesis is replete with mechanistic language and images. Commenting upon why emotions often override reason, Goleman writes:

> This given of human nature arises from the basic *architecture* of mental life. In terms of *biological design* for the basic *neural circuitry* of emotion, what we are born with is what worked best for the last 50 000 human generations... (ibid. p 5).

The employment of the verb "circuitry" is mechanistic, and recurs throughout the text. A further notable (perhaps ironic) feature is the implicit use of a metaphor which suggests intelligent design—mental life is an "architecture", while "biological design" suggests a creative force underpinning the entire process. Elsewhere there is related mechanistic language:

> … in the *mechanics* of emotion, each feeling has its own direct repertoire of thought, reactions, even memories (Goleman 1996 p 340).

> …one of the tasks of the left frontal lobe is to act as a neural *thermostat*, regulating unpleasant emotions (ibid. p 29).

> Strong emotion… can create neural *static*… (ibid. p 30).

> Since the interval between what *triggers* an emotion and its eruption can be virtually instantaneous, *the mechanism* that appraises perception must be capable of great speed… This appraisals needs to be *automatic*… The emotional mind is our *radar* for danger… (ibid. p 335).

It is difficult to imagine explicating brain physiology and mind without references to metaphor and imagery (Maddox 1999). Yet Goleman's regular employment of machine metaphors suggests strongly that the author conceives of the brain and mind as being machine-like.

Goleman's construct of mind operates like the Enlightenment philosophers' and behaviourists' view of sensory stimulus and response (Gardner et al. 1996). Referring to a neural connection between the thalamus and the amygdale, Goleman writes:

> This smaller and shorter pathway… allows the amygdala to receive some direct inputs from the senses and start a response before they are fully registered by the neocortex (ibid. pp 20-21).

And, "That information and our response to it is coordinated by the prefrontal lobes…" (ibid. p 28). Goleman's brain is a sensory processing unit, shuttling data between subcomponents in almost linear fashion:

> The emergency *route* from eye to ear to thalamus to amygdale is crucial… But this *circuit* from thalamus to amygdale carries only a small portion of *sensory* messages, with the majority taking the main route to the neocortex (ibid. p 26).

In this model there is little place for self-consciousness, and human will is implicitly downplayed.

Goleman's model and the examples he employs establish a stimulus and response world of fright and flight—emotions as evolutionary protectors of the human animal. There is a direct reference to this when Goleman writes of "intuitive astuteness"—our immediate and intuitive assessment of people in initial encounters. This, according to Goleman, "may be the remnant of an essential early warning system for danger, one that lives on today in feelings such as apprehension" (Goleman 1999 p 62). A problem here, however, is that Goleman fails to clearly identify affective domains which are not mediated by this fright or flight model. Intuition is thus depicted simply as an extension of neo-Darwinian emotional adaptation.

Goleman's self-limiting emotional mind

Goleman's construction of "the emotional mind" is founded upon Freud's concept of "primary process" (Goleman 1996 p 338) and this also delimits his thesis. Goleman writes:

> In primary process thought, loose associations determine the flow of a narrative; one object symbolizes another; one feeling displaces another and stands for it; wholes are condensed into parts. There is no time, no law of cause and effect. Indeed there is no such thing as "No" in the primary process; anything is possible. The psychoanalytic method is in part the art of deciphering and unraveling these substitutions in meaning... with one element standing for another, things need not necessarily be defined by their objective identity: what matters is how they are *perceived*; things are as they seem… while the rational mind makes logical connections between causes and effects, the emotional mind is indiscriminate, connecting things that merely have similar striking features (1996 p 339).

This explanation does not permit a broader exploration of the intuitive elements that he incorporates within his model. The affective is a crucial dimension of intuitive and integrated intelligence, as argued in Chapter Five (section 5.4). Yet Goleman's explication of the emotional mind depicts it as "symbolic" and "indiscriminate", constituting no "objective reality". The perceiver creates what matters, and "anything is possible". The implication is that the emotional mind does not deal with anything real. Conversely, domain two integrated intelligence is predicated upon extrasensory perception and a relationship between subject and object. Domain one integrated intelligence incorporates the perception of the unitary nature of mind and cosmos—a repeatable, arguably 'empirical' experience (Wilber 2000c). Goleman's description of the emotional mind therefore represents a conceptual conflict with integrated intelligence. The latter theory is founded upon claims of perception that are more than merely "indiscriminate" and "symbolic".

In Goleman's concept of emotional intelligence, emotions and intuitions are essentially included under the same label of "the emotional mind". This creates a self-limiting problem, as the sources of emotions are posited in physiological and reductionist terms—with “their storehouse in the amygdale” (Goleman 1996 p 22). Intuitions and gut feelings emerge from “our internal store of emotional memory—our own reservoir of wisdom and judgment” (Goleman 1999 p 62). The storehouse and reservoir metaphors, and their sources in previous personal experience, once again reinforce the stimulus and response model of mind.

Similarly, a “successful entrepreneur” is quoted as saying:

> I think there are fewer people with strong intuitions at a young age than old, because life experiences add up… it’s like your gut tells you things and there’s *a chemical reaction* that’s going on in your body, which is triggered by your mind, and tightening your stomach muscles, so your gut is saying, ‘This doesn’t feel right’ (Goleman 1999 p 60. Italics added).

Intuitions are reduced to bio-chemistry, leaving no room for extrasensory intuitive and affective perceptions. It is thus an essentially materialist model. There is no attempt to explicate consciousness itself.

It can be seen that Goleman’s texts do indeed stand as “a challenge to those who subscribe to a narrow view of intelligence” (Goleman 1996 p xii). The emotional realm is incorporated, moving beyond the computer analogue models that dominate psychometric theories of intelligence. Further, as Goleman points out, he moves a step beyond Gardner’s (1993) intrapersonal and interpersonal intelligences, pursuing “the role of feeling in these intelligences” (Goleman 1996 p 43). Gardner focuses more on “cognitions *about* feeling” (ibid.).

Finally, Goleman finds little function for intuition in terms of spiritual development. Yet, his is a construct of mind which encourages “introspection”, “self-awareness” (1996 pp 46-47; 1999 p 65), and self-reflection. His reference to “the inner contentment that arises from attuning one’s life to be in keeping with one’s true feelings” (1996 p 41) may be interpreted as a spiritual focus.

Table 7.3: Goleman's emotional intelligence analysed according to CLA

Level	Details
The Litany	EQ needed to supplement IQ. EQ is bringing intelligence to emotion. EQ incorporates wisdom, empathy, self-discipline, introspection & intuition. Intuition a part of emotions, and has affective component. EQ can be learnt. Emotional mind is "indiscriminate & symbolic".
Social/system	Neuro-scientific approach—empirical, reductionist, materialist. Implicitly privileges "intelligence" above emotion. Intuition & emotion not clearly distinguished. Reductionism restricts other models of intuition, incl. mystical. Intuitions are just utilising "data". Critical/rational ways of knowing privileged.
Worldview	Emerges from Western episteme and mechanistic paradigm. Neo-Darwinist presuppositions. Brain is sensory information processing system, built from "bits and pieces".
Myth/Metaphor	Mind as computer questioned, but language and thesis contradict critique. Mechanistic metaphors. Intuitions explicated via mechanistic metaphors & neuronal substrate.

However, there are no mystical or numinous components to Goleman's inner worlds, as indicated in Table 7.3. Consistent with the systems models of intelligence discussed in the previous chapter, Goleman's thesis focuses upon the personal interior subjective realms (of Wilber's modified model), but not the transpersonal interior subjective. The prime uses of emotional and intuitive cognition are posited in terms of human relationships, education, and enhancing the workplace and profit-making. This reflects a characteristically Western bent to his thesis.

Summary

The texts and theorists analysed in Part One reveal some striking similarities, presenting predominantly mechanistic depictions of mind and intelligence. Each incorporates neo-Darwinian paradigmatic assumptions about the nature of consciousness, and its epiphenomenal status in cotemporary science. The texts are heavily reductionist, relying on the employment of neuroscience to explicate claims.

Most notably, all the texts fail to problematise the major tenets of mechanistic science and its materialistic representations of mind. None of the texts raise the issues of reductionism, materialism, nor the Western 'objective' focus which attempts explication via the observer/subject split. Nor are ways of knowing and the paradigmatic and civilisational constrictions of these explicitly addressed. The extended mind is not considered at any point, although Goleman incorporates inferential intuition (Torff & Sternberg 2001a, 2001b) into his discussion.

It is not surprising that the texts analysed here give a mechanistic representation of mind from which integrated intelligence is absent, because the paradigmatic presuppositions of mechanistic science are not problematised. The texts are typical of mainstream dominant mind science.

In Part Two, it will be shown that this is not the case with all contemporary depictions of mind and intelligence.

Part Two: Three Mystical/Spiritual Texts

The texts I analyse in Part Two emerge from the mystical/spiritual worldview. Each includes integrated intelligence into the discussion. This means that—given the hegemony of the mechanistic paradigm and the critical/rational worldview—they form part of silenced discourses. These are the 'others' of contemporary mind science. These three theorists comprise a small percentage of those writing about integrated intelligence. However, they have been chosen for the reasons given below.

Firstly, each has a background within a different discipline. Danah Zohar is a writer whose primary interest is the links between quantum physics, spirituality, and social and individual development. John Broomfield is an academic and historian with a strong passion for indigenous and Eastern cultures. Ken Wilber is a philosopher and transpersonal theorist. As a collective, these people represent a diversity of experience and knowledge from different fields.

Secondly, each incorporates the issue of integrated intelligence in different ways. For Wilber, integrated intelligence is posited as the culminating process of the evolution of consciousness. His claims come backed by vast and diverse research that bridges a plethora of disciplines. Zohar prefers the empirical approach, working scrupulously to establish a scientific and neurological foundation for her theory of spiritual intelligence. Broomfield takes a very personal perspective, detailing his own mystical experiences, while drawing upon scientific research for validation.

These thinkers are all, to some degree, iconoclasts and outsiders to mainstream discourses—and sometimes even within their respective fields. Yet because of recent developments across many disciplines, and the emerging issue of spirituality and consciousness, they represent important voices.

Part Two examines these authors' works while posing the following questions: What exactly are Wilber, Zohar and Broomfield saying, and where are they situated with respect to a civilisational view of knowledge? How do they differ in their ideas, their worldviews, and their methods—especially in regard to integrated intelligence? What are the strengths and weaknesses of their arguments and what are the general problems pervading this burgeoning field of enquiry?

There is an added dimension here beyond the analyses in Part One, in that the theorists' representations of integrated intelligence will be compared and contrasted, particularly in the summary of Part Two. There will be less focus in Part Two upon identifying verbs of knowing, as the ways of knowing are generally more explicitly addressed by the theorists. They will be identified only where relevant to the analysis.

7.5 Danah Zohar

Zohar (2000) attempts to create an empirical basis for spiritual experience and perception in her book *Spiritual Intelligence*. According to Zohar, spiritual intelligence (SQ) is:

> the intelligence with which we **address** and **solve** problems of meaning and value… with which we can **place** our lives in a wider, richer meaning-giving context… with which we can access that one course of action or one life-path that is more meaningful than another (Zohar 2000 pp 3-4).

SQ is our ultimate intelligence. “Mere IQ or rational intelligence isn’t enough”, she writes (ibid. p 21). Yet her text contains certain contradictions and limitations.

Integrated intelligence and Zohar

Zohar’s attitude to integrated intelligence is unclear and contradictory. On the one hand, Zohar seems to acknowledge integrated intelligence and the extended mind, when she writes that SQ “is an internal, innate ability of the human brain and psyche, drawing its deepest resources from the heart of the universe itself” (ibid. p 9). Zohar also backs “the proto-consciousness view”—that consciousness is a fundamental property of all matter and the universe (ibid. p 82). Yet there are inconsistencies, both stated and implied. For example, she writes:

> There is a God’s eye view, but it is available only to God. The best that we can do is to gain knowledge of as many perspectives as we can, and acknowledge a whole that is greater than we can perceive (ibid. p 204).

This clearly implies an individual, localised point of perception, consistent with a non-transpersonal model of consciousness. This is distinctly different from integrated intelligence.

An aspect of Zohar’s theory that suggests her model of consciousness is non-integrated is that it is organic, and often highly reductionist. She writes that consciousness originates in “the synchronous 40Hz oscillations… that unify data in the brain”; these oscillations are the source of SQ (ibid. p 7). Despite the aforementioned transpersonal components of consciousness in Zohar’s model, she adopts materialist presuppositions:

> (The brain) produces the mystery of the conscious mind, our awareness of ourselves and our world and our ability to make free choices about engaging

> in the world. It generates and structures our thoughts, enables us to have emotions and mediates our spiritual lives (ibid. pp 39-40).

Zohar's organic model would be less contradictory if her text did not expand SQ's domain beyond the original mundane definition—addressing 'meaning', 'value' and 'context'. These are critical/rational processes, which extol the virtues of SQ as a hermeneutic tool, a means of 'recontextualising' experience—although finding meaning may also incorporate mystical/spiritual ways of knowing. The problem is not that these two ways of knowing are incompatible, but that Zohar fails to adequately clarify the relationship between them, and instead drifts between them without careful explication.

Zohar and intelligence

There are, according to Zohar, three kinds of intelligence. With each of these, Zohar supports her argument with brain science and physics. The first is the rational/logical intelligence which she associates with the way individual neurons in the brain fire and connect sequentially (ibid. p 12). The second intelligence is: "the emotion-driven, pattern recognizing, habit-building intelligence" (ibid. p 12). Entire segments of the brain fire together simultaneously and electrical activity occurs across the brain in patterns in response to various kinds of experiences (ibid. p 11-13).

Spiritual intelligence is the third intelligence, and Zohar evidences her argument through neuroscience science. She refers to Austrian neurologist Wolf Singer's work on "the binding problem", which suggests that there "is a neural process in the brain devoted to unifying and giving meaning to our experience" (ibid. p 12). She also refers to Rodolfo Linas's research on sleeping and waking consciousness and the binding of cognitive events in the brain; and to biological anthropologist Terrance Deacon's work on the origins of language (ibid. p 12).

With her constant referencing of scientific research, Zohar implicitly privileges the scientific method, and critical/rational ways of knowing. This implicit contradiction continues throughout the text.

Zohar explores the potential connection between the individual and transpersonal consciousness via quantum theory. She examines evidence for the possible existence of quantum level electrical fluctuations and Bose-Einstein condensates in the brain. However, she largely dismisses the research into quantum theories of consciousness since the 1930s, because they have focused upon micro-phenomena such as the neuronal structures within the brain. Zohar believes that larger-scale neural phenomena, such as cross-brain electrical activity, are more likely to produce useful evidence for the transpersonal consciousness (ibid. pp 84-90). Yet it may be noted that both Zohar's suggestion and those she critiques valorise experimentation and analysis as ways of knowing: they are materialist in essence.

Finally, Zohar speculates that the Higgs-Field, the fast-oscillating energy field that emerges from the quantum vacuum, may be the key to validating the proto-consciousness perspective:

> If proto-consciousness in the universe is a fundamental property of the universe, then there is proto-consciousness in the Higgs Field, and the quantum vacuum becomes very like what mystics have called the 'immanent God', the God within all (ibid. p 90).
>
> This in turn would link the 40Hz oscillations in the brain to "God" (ibid. p 90.).

Once again it can be noted that the validation process privileges analysis and experimentation. Thus, at the litany level, Zohar attempts to support her case with a scientific approach to an intelligence that is explicitly mystical/spiritual in nature.

Paradigmatic perspectives

Unlike the mainstream theorists outlined in Part One, Zohar and the theorists in Part Two deeply question the givens of Western science and its paradigmatic foundations. Zohar finds the absence of SQ in mainstream discourse is due to paradigmatic and social factors. The dominant IQ paradigm has restricted deeper analysis of research data (ibid. p 11), while the social sciences since the seventeenth century have "reinforced the certainties of Newtonian absolutism" (ibid. p 201). These trends were further reinforced by custom, tradition, family and community (ibid. p 202). Zohar also criticises anthropocentric Western humanism, which followed Aristotle and the Enlightenment in defining humans as rational animals (ibid. p 32). Humankind became alienated from self, nature, magic, and mystery by reductionist scientific thought, and by a psychology which defined humanity in terms of the isolated ego (ibid. p 32).

An eclectic worldview

In terms of her worldview, Zohar incorporates elements of mystical spirituality, textual spirituality and critical rationality, but ultimately privileges the last.

Zohar relates that Hindu and Buddhist cultures have deeply influenced her (ibid. p 23). She employs mystical concepts such as the Hindu *chakra* system (in her model of personality types), and refers to subtle energies of the body. Quotes from Eastern sages such as Tagore, Lao Tzu and Mahatma Gandhi are common, while references to Jewish, Islamic and Christian teachings (in particular their mystical aspects) dot the text. Notably, these references are sparse in the first four parts of *Spiritual Intelligence*. It is in the last part, where she outlines the more practical aspects and applications of SQ, that these mystical references become more common.

Zohar points out that science is “bottom up truth”, based on observation (ibid. p 203). However, she explicitly valorises the holistic spiritual traditions which emphasise inner experience, such as the mystics of “the Abrahamic religions, Taoists, Hindus, Buddhists” and the Quakers (ibid. p 203). These insist that we must work on ourselves “to find some inner light” (ibid. p 203).

However *Spiritual Intelligence* cannot be easily labeled “new age”, despite the fact that the Bloomsbury edition categorises it as “Self Help/New age/Business”. While the subject matter is spiritual, and the mystical is explicitly valorised, the method is predominantly philosophical and often empirical.

Metaphor and Zohar

The privileging of critical rationality is notable at the metaphorical level. Zohar's text is dotted with mechanistic metaphors of consciousness and the brain. This is despite her comments on the limitations of "the brain as computer" metaphor (ibid. pp 54-55). Zohar uses the terms "wiring", "rewiring" (pp 41, 52, 197), and "hardwiring" (pp 40, 41, 94, 106) to explain neurophysiology. Such mechanistic terminology implicitly places her work closer to mechanistic science than the explicit claims of her thesis would suggest.

A common practice for Zohar is to take traditional spiritual metaphors and substitute them with 'scientific' metaphors to clarify the spiritual principles. Zohar is in effect writing about spirituality within scientific discourse. She writes that God is:

> …the source of self that is beyond awareness (that) is both the ground of being itself, the source of all manifestation, and the ultimate source of the energy which becomes conscious and unconscious mind. In twentieth-century science, this source of both existence and self is associated with the quantum vacuum, the still, ground energy state of the universe. In the Lotus of Self, I depict it as the primal mud out of which the lotus' roots and stem grow (ibid. p 127).

Zohar has utilised a classical Eastern motif—the lotus—as metaphor for 'self', but inserted a scientific metaphor ("the quantum vacuum") to replace the idea of God.

Zohar critiques a parable from the *Surangama Sutra*, where the Buddha talks to Ananda, his chief disciple. In the story, Ananda asks why the unity and oneness of the universe "appears as so very many emanations". To explain this, the Buddha takes out a handkerchief and ties it into six knots and explains, "Then we have here six knots, but it is still one handkerchief" (ibid. p 159). To this Zohar responds:

> Today such accounts don't **speak** to the modern mind. Today such questions **demand** 'scientific' answers, brain phenomena that we can '**weigh and measure**', experiments that we can **read** about (ibid. p 159).

The verbs of knowing are critical/rational, and this way of knowing and worldview are implicitly privileged over the mythical—and mystical spirituality. The passage above also suggests why Zohar employs scientific metaphors such as the following:

> These (40 Hz oscillations) are the 'center' of the self, the neurological source from which 'I' emerge (ibid.).
>
> You and I, the chairs on which we sit, and the food we eat are all patterns of this energy… (oscillating on) a still 'ocean' or background state of unexcited energy called the quantum vacuum (ibid..p 160).
>
> We are 'waves' on the 'ocean' of the vacuum; the vacuum is the ultimate center and source of the self (ibid.).

It is debatable whether Zohar's metaphors are as effective as the originals. The idea that we must connect with "the center" (ibid. p 162)—reframed as "the quantum vacuum"—lacks an intuitive basis. The original metaphors such as "God", "the sun", "the lotus", etc., are possibly archetypal motifs within human consciousness. Such motifs are comprehended at a deep level by the non-conscious mind, according Jungian (1989) psychology. Zohar's metaphors are intellectual abstractions probably nonsensical to those uninformed of theoretical physics.

Further, Zohar's text, as with Wilber's (below), does not mention her direct spiritual experiences or perceptions. According to her references, she gleans her knowledge of spirituality from ancient and modern mystics—Lao Tzu, Sufi mystic poet Rumi, St John of the Cross, as well as Western figures like Plato, Socrates, and the story of Faust. Zohar shares only one deeply personal anecdote in *Spiritual Intelligence*, relating the struggle regarding her personal issues with her father (Zohar 2000 pp 186-191). Yet there are very few personal anecdotes elsewhere. Zohar's personal experience with spiritual intelligence remains unclear.

Whereas classical and new age texts with a spiritual or mystical focus tend to incorporate supernatural phenomena and deistic references, Zohar's text is largely devoid of these. The former acknowledge that thoughts can be generated or influenced by sources such as other individuals, spiritual entities, deific sources, animals, places, nature, and the Earth as Gaia. Zohar's reluctance to address domain two integrated intelligence may reflect her 'scientific' approach to the problem, and her privileging of the critical/rational worldview.

At the beginning of *Spiritual Intelligence*, Zohar exhorts: "I shall propose a model of self that is intended to be both broader and deeper than any postulated before" (ibid. p 115). Yet her uniqueness and depth are questionable. Her text lacks the hierarchical depth of Wilber's model, whose vertical dimension is far more sophisticated and concise. The limited representation of personal mystical anecdotes and numinous experience suggests a lack of courage on her behalf to explore "strange things", to borrow Broomfield's (1997) terminology. Her goal is to establish a working model for consciousness that incorporates the spiritual, but she is restricted by her methodology. Numerous mystical traditions have found that spiritual experience is non-organic, transcendent, and transpersonal. Zohar's insistence on using predominantly scientifically credited research, concepts and metaphors is thus self-limiting.

Perhaps the most restrictive aspect of Zohar's work is her insistence that spiritual insight is simply "recontextualising" (Zohar 2000 p 65). For Zohar, the transcendent is equated with "putting things in wider context" (ibid. p 68). It is questionable whether such critical/rational verbs of knowing permit "a taste of the extraordinary, the infinite, within ourselves or within the world around us" (ibid. p 69).

Ultimately Zohar does not explicate her theory clearly; Table 7.4 (below) summarises this finding. According to many transpersonalists, mystics, and thinkers, such as Bucke (2001), Gebser (1985), Grof (1996), Hawkins (1995, 2002), and Wilber (2000a, 2000b, 2000c, 2000d), spiritual insight is not an intellectual process. It is a process requiring transcendence—a shift to a higher level of consciousness. It is deeply personal. Zohar has implicitly privileged modernist science and the critical/rational worldview. The transpersonal interior subjective triangle (of Wilber's four quadrant model) is repeatedly reduced to the personal subjective interior, and the exterior individual quadrant. To use Wilber's terms, Zohar has tried to build a case for "Spirit" from a "Flatland" foundation, with less than resounding success.

Table 7.4: Zohar's *Spiritual Intelligence* analysed according to CLA

Level	Details
The Litany	IQ not enough. Three-tier model: reason (IQ), emotion, and spiritual intelligence. Contradiction of definitions, representations: SQ is finding meaning and recontextualisation; but also transpersonal; SQ originates in 40Hz oscillations in brain. Backs proto-consciousness view.
Social/system	Empirical, reductionist focus of modernist science, Cites research in neuroscience, linguistics, quantum physics and consciousness theory. Mythology in final chapter. WOK sometimes incongruent with argument: Incorporates paradigmatic perspective: IQ paradigm, Newtonian science, and anthropocentrism of West. Lack of personal anecdote, spiritual experience unclear. Numinous/psychic experience absent.
Worldview	Draws from mystical spirituality, textual spirituality and critical rationality—privileges the last.
Myth/Metaphor	Mechanistic metaphors of consciousness and brain. Spiritual metaphors substituted with scientific metaphors. Sparse employment of myth/anecdote till last chapter.

While Zohar is reluctant to embrace the numinous aspects of experience, John Broomfield takes a very different approach.

7.6 John Broomfield

John Broomfield's *Other Ways of Knowing* (1997) aims to expand the parameters of what currently constitutes valid means of perception amidst the dominance of mainstream scientific discourse. His model of mind is a deeply pantheistic, spiritual and romanticised one, where nature and humanity have the potential to live in an Eden-like harmony.

Situating Broomfield

Broomfield's worldview emerges from the mystical spirituality of indigenous cultures and Eastern philosophy. His vitalistic cosmos bristles with life and spirit at every level. It is a world of life after death, interspecies and spirit communication, psi and supernatural phenomena. He writes that evolution "can be seen as the never-ceasing **dance** of life-energy **shaping** vital, interconnected patterns—a vivid kaleidoscope of opportunities for creative spirit in matter" (ibid. p 172). The verbs to "dance" and to "shape" indicate that Broomfield's model of evolution is more akin to the intelligent design hypothesis than to neo-Darwinism. Broomfield often grants the Earth and cosmos human qualities such as "wisdom", the ability to give "guidance", and to teach (ibid. pp 1, 79-80, 90).

Broomfield states explicitly that mythology and story are legitimate ways of knowing. They create a "connected knowing" that stands in contrast to the "separate knowing" of fragmented reason (ibid. p 218). "Classical science and history will not suffice as the mythologies of the twenty-first century", writes Broomfield. For these are the stories of colonisation, domination, segmentation and "Judeo-Christian millenarianism" (ibid. p 53). Many of his points are elaborated with personal anecdotes, and the mythologies of indigenous peoples. To validate his argument of a connected cosmos, Broomfield does not refer to empirical data, but re-tells the Maori myth of the beginning of the universe involving Mother, Papa, and the Father Rangi, and their three children. A resulting family squabble saw the children take the forms of the ocean (Tangaroa), sky (Tawhirimatea), and the forest (Tane). Other relatives took on the forms of the birds, fish and land animals (ibid. pp 97-98). The mythical is valorised over the empirical, inverting Zohar's approach.

Broomfield and integrated intelligence

Integrated intelligence features heavily in Broomfield's world. He insists that indigenous peoples' beliefs in an intelligent and vitalistic universe are legitimate. Humans and nature are not separated, but are in "unity" (ibid. p 96). Nature communicates with us in subtle ways and through "audible messages and visible appearances" (ibid. p 113). Animals are endowed with vibrant intelligence, and non-verbal communication with them is possible. It is also a universe of angels, divas and "nature entities" (ibid. p 110); a universe where Polynesians communicate with spirit guides to navigate the Pacific (ibid. pp 2-4, 106); and where Australian Aborigines telepathically follow the songlines of the land and of their ancestors (ibid. p 105-106). It is the Western and modern world that has forgotten these ways of knowing, according to Broomfield.

Thus nature can teach us spiritual enlightenment (ibid. p 5). It is in dances (p.106), dreams (pp 101, 156), songs (pp 105-106), meditations, and in the connection with "the sacred unconscious" (p 79) that the vitalistic sprit of the universe opens up to us, argues Broomfield. These methods and ways of knowing are a strong paradigmatic contrast to the detachment of the scientific method that dominates the mechanistic theorists in Part One of this chapter.

Critical/rationality

Critical rationality and its ways of knowing play a supporting role in Broomfield's explicitly mystical thesis.

Broomfield employs analogies with quantum physics to help support his thesis. For example, in order to validate the idea that consciousness and matter are not dualistic, he refers to John Wheeler's "participator" theory, where mind and matter are entangled, the former "co-creating" the universe (Broomfield 1997 p 38). Broomfield also cites the theories of David Bohm and his holographic universe, Ilya Prigogine's dissipative structures, and Rupert Sheldrake's morphogenetic fields. Quotes from such scientists are common; an example is holographic brain theorist Karl Pribram's maxim that: "Mental properties are the pervasive organizing principles of the universe" (ibid. p 72). Further, to support his case for extrasensory perception, Broomfield briefly refers to the research of the Mobius society and SRI International in California, Mundelein College in Chicago, and the Princeton Engineering Anomalies Research programme, which have attempted to empirically validate psi phenomena (ibid. pp 116, 157).

Yet this is not a text that valorises the empirical, and the method reflects this. The scientific and empirical references constitute a domain of secondary importance.

Broomfield's social contexts

Broomfield's text examines cultural depictions of intelligence, and different "ways of knowing". He examines indigenous and ancient belief structures, and uses their myths and stories as a means to demonstrate his points.

Broomfield then contrasts these ways of knowing with modern scientific depictions of mind and intelligence. As with Zohar, he finds that it was in the wake of the Enlightenment philosophers that modern science began to reject integrated conceptions of the universe, and consciousness itself. Modern science has become increasingly fragmented in its approach, and linear in its constructions of time and place (ibid. pp 13-17, 32-37). Broomfield is heavily critical of many aspects of modern life and "our scientific perception of segmented materialism" (ibid. p 30). We have "boxed ourselves in" with linear schemata, causation and temporality (ibid. p 30). The verbal phrase suggests the linear, mathematical nature of the mechanistic paradigm. Thus Broomfield finds that scientists must become holistic and develop "inner awareness" (ibid. p 75).

Broomfield believes that a society and politics based on divine guidance is possible. He uses Gandhi's ideology of *satyagraha* as his example of a political "vehicle for transforming the consciousness of a nation" (ibid. p 187). Politics must be based on "recognition that consciousness makes reality, that our politics is a **manifestation** of the state of our individual and collective awareness" (ibid. p 180). Politics shapes consciousness. Social and economic policies—"spiritual politics"—must follow from these principles. Self-empowerment of individuals and groups should take precedence over power over others (ibid. pp 180-181). Ideally, economics must be based upon an "**attunement** to seasonal rhythms", not just human reason. He thus praises E.F. Schumacher (ibid. pp 196, 197, 202, 203.) and the "loving economy" of Wendell Berry (ibid. pp 206-207).

It can be seen that Broomfield's socio-cultural vision is one that privileges the mystical and the spiritual. His verbs of knowing reflect his worldview—"manifestation" implies intelligent design, and "attunement" suggests the alignment of human consciousness with a divine substrate. There is a generally consistent employment of similar verbs throughout the text, such as: "By **attuning** ourselves again to their (the Earth's life forms') voices, we can become **aware** of the harmonious resonances that **flow** in our own bodies. We can **know** unity" (ibid. 90). This "knowing" implies a collapse of the subject/object dichotomy, and a fluid, Gnostic receptivity to an intelligent cosmos.

Broomfield's vision of education follows suit. He states that this is a universe where "the whole sends messages to the parts" (ibid. p 213). In such a world the teacher's role is to encourage exploration, learning, and growth. Broomfield criticises the "banking concept" of education, which assumes that knowledge is a gift passed from those who know, down to those who know nothing. This stultifies the desire to learn or "to create independent, self-confident, whole people" (ibid. p 213). He maintains that such disempowerment of the young is not what is needed in a rapidly changing world.

Knowledge is not simply intellectualisation, but must have "inner knowing". Broomfield finds that: "deep wisdom is available to us if we will but **listen** intently to our bodies" (ibid. p 219). Teachers must encourage students to "**trust** their gut understandings, their intuitions" (ibid. p 219). The verbs of knowing imply receptivity to the transpersonal. There must be exploration of symbolic realms, such as found in the universal archetypes of dreams, daydreams, meditations and altered states, fables, and fairy tales, poetry, music, dance sculpture and painting (ibid. p 219). Further, these must be reinforced by experience (ibid. p 220). Students and teachers should spend time in wild and sacred places to restore “direct awareness of the intricate interconnections that sustain life” (ibid. p 220). Our education must work to restore the relationships between things (ibid. p 221). Broomfield’s ways of knowing clearly reflect the “relational” knowledge that Wildman (1996) finds has been lost in contemporary Western science.[27]

Education in Broomfield’s model mirrors the ideals of the Romantics. Yet it remains largely undeveloped. Specific curriculum details are largely absent.

Broomfield’s text is the most ‘radical’ of the three theorists analysed in Part Two, as Table 7.5 summarises. The mystical and numinous form the heart of his mystical/spiritual worldview. In terms of Wilber’s Integral Theory, the transpersonal interior subjective is heavily privileged; the reductionism of the behavioural quadrant (upper right) and dominant mind science play a secondary role. Wilber (2000c) would likely criticise Broomfield’s ready employment of mythology and dreams as method, in that Broomfield makes no distinction between higher and lower, pre-personal, and transpersonal realms of consciousness. Yet the text is heavily personal, bringing to life many of his arguments. It valorises the native and shaman, indigenous culture, and invites humankind to return to a simpler lifestyle, which in turn features a more integrated intelligence.

[27] Wildman (1996, www.metafuture.org/articlesbycolleagues/PaulWildman/Dreamtime.htplym) —following the conceptions of Joseph Campbell and Jung and drawing upon Australian Aboriginal culture—offers a view of mythology which contradicts Wilber’s view. According to Wildman, myth is ontology, where “world soul manifest(s) through archetypal dreamtime figures, undertaking walkabout dreamtending as active imagination”. For Wildman, this manifests as a kind of integrated intelligence, evidencing “telepathy and a form of consciousness emerging from the land—a sort of noosphere emerging from the morphogenic spirit of place”. This is a deeply ‘relational’ knowledge largely forgotten by the West, argues Wildman. Wilber’s philosophical approach to mysticism may well preclude him from a deeper appreciation of such indigenous knowledge.

Table 7.5: Broomfield's *Other Ways of Knowing* analysed according to CLA

Level	Details
The Litany	Other ways of knowing (dance, songs, dreams) have been forgotten in the West, but are valid. Other WOK open voice of cosmos. Strong representation of the numinous realm. Integrated intelligence abounds—humanity and nature in unity. Learning should be holistic.
Social/system	Highly idealistic—humans and nature in Eden-like harmony. Creative cosmos akin to intelligent design. Ideal society and politics based on divine guidance. Verbs of knowing consistent with worldview—e.g., "manifestation", "attunement", "flow," "listen", and "trust". Criticises 'banking' system of education. But education vision is undeveloped.
Worldview	Mystical/spiritual—privileges the mystic, pantheist, Romantic, and indigenous. Secondary critical/rational approach—cites quantum physics, parapsychology, and philosophy. Finds Enlightenment vanquished integrated consciousness. Critiques scientific perception as "segmented materialism".
Myth/Metaphor	Mythology and anecdote—creates "connected knowing", unlike "separate knowing" of fragmented reason. Highly personal. The Earth and cosmos granted human qualities e.g., "wisdom", "guidance", the ability to "teach". Classical science and history are about colonisation, domination, and segmentation—will not suffice as myths of 21C".

Thus far in this thesis, Wilber's Integral Theory has been widely employed to disrupt or analyse other theorists and texts. Now, in the final of the detailed textual analyses, I turn the tables and analyse Wilber himself, using CLA—and somewhat ironically, his own Integral Theory.

7.7 Ken Wilber

Transpersonal theorist Ken Wilber's model of consciousness is an incredibly detailed, complex, and intellectual one. He attempts to posit a comprehensive map of consciousness and psychology which "honor(s) and embraces(s) every legitimate aspect of human consciousness…" (Wilber 2000b p 2). His is a layered or hierarchical system, where human consciousness develops from the pre-personal, to the egoic, and then into the transpersonal. In this model phylogenetic and ontogenetic evolution mirror each other (Wilber 2000c pp 153-154). Put rather simply, this development of consciousness also corresponds to his three ways of knowing: the “eye of flesh” (sensorimotor), the “eye of reason” (mental/rational), and the “eye of contemplation” (spiritual/mystical) (Wilber 2001 pp 2-6). It is in the contemplative and transpersonal realms that Wilber locates the aspects of consciousness which relate to integrated intelligence. Wilber calls these the psychic, subtle, causal, and non-dual levels of consciousness (Wilber 2000a, b, c p 197). Each of these later stages in Wilber’s model represents part of the soul’s journey from ego to spirit. Quite explicitly, this is a model which privileges the transpersonal, and the mystical sage.

Wilber makes an important distinction between the psychic level and the more fully integrated awareness that characterises the final three stages of spiritual development. This is a more sophisticated model than those in general new age literature, which often fails to distinguish clearly between the psychic and unity consciousness. New age texts also tend to valorise psychic development as a vital part of spiritual development (e.g., Broomfield 1997; Kubler-Ross 1997; Wilde 2001).

Wilber acknowledges both the psychic and transpersonal realms of consciousness, yet goes little into detail about the former. His “psychic” level does not refer specifically to extrasensory perception, but to an expanded concept of self that transcends ego—although psychic experiences may comprise an aspect of it (Wilber 2000a pp 183-186). The psychic is therefore not valorised in Wilber’s model; this is typical of the Buddhist attitude, which acknowledges the psychic, but sees it as relatively insignificant or a distraction (Jacobson 1997). Instead, Wilber’s texts valorise experiences of domain one integrated intelligence.

Wilber equates rationality and the ‘mental’ domains of consciousness with ego-centered, dissociated self-consciousness. In Wilber’s (2000c) model, rationality—like all but the final non-dual stage—is merely a stepping-stone to enlightenment. Rationality is included, and transcended within higher states of consciousness.

Wilber's texts are replete with references to philosophical, academic and scientific research. *Sex, Ecology and Spirituality* (Wilber 2000c) features some 235 pages of end notes. These include references to psychology, ecology, anthropology, cosmology, mysticism, theology, postmodernism, physics, etc. The depth of his scholarship is immense. In the autobiographical *Grace and Grit* (Wilber 2000d), Wilber states in a conversation with his (now) late wife Treya Wilber that he is more like the ancient Buddhist scholars than the Buddha himself (ibid.).

Situating Wilber

In *Grace and Grit*, Wilber compares his life before meeting his late wife Treya Wilber to that of a Zen monk. His worldview—like the postrational stages of his model—is heavily influenced by Buddhist and mystical philosophies in general, and he regularly refers to Buddhist, Sufi, Tantric, Gnostic, and Hindu mystics. Wilber has been accused of privileging these traditions at the expense of alternative spiritual worldviews and mainstream Western religion (Bauwens n.d.).

Unlike some new age theorists, like Broomfield (1997) and Lawlor (1991), Wilber does not valorise indigenous ways of knowing. He relegates them to pre-personal/pre-rational levels of consciousness (Wilber 2000c pp 244-247). He finds that the nature mysticism of indigenous peoples (with the exception of shamans) is a pre-personal experience, not *trans*personal. Wilber criticises several contemporary theorists—including Jungians (such as Jung himself and James Hillman), the 'romantics', and new agers for failing to comprehend the pre-personal and transpersonal distinction (Wilber 2000b p 104). Conversely, he sees genuine mystics as operating within the transpersonal realms, beyond the level of the purely rational-logical. The indigene is therefore relegated to a lesser status in Wilber's metaphysic.

Wilber’s worldview is mystical/spiritual, yet the validity of the mystical is established via a critical/rational process. The intellectual approach and the sheer depth of his research and critical inquiry distinguish him clearly from typical new age authors and nondual mystical thinking (e.g., Jacobson 1997, Nisargadatta 2001). He posits his own claims, and critiques the givens of his own and other discourses via reference to research and science.

Ironically, it is the lack of a personal/anecdotal dimension which is one of the most problematical aspects of Wilber’s work. As Richard Slaughter has pointed out, it is unclear how Wilber came to the insights he represents in his work, and thus how valid his understanding of the transpersonal is (Slaughter 1999 p 349). It is arguably inconsistent of Wilber to criticise systems theorists as being unable to offer a unified theory of everything because they have ignored the personal and the inner (Wilber 2000c pp 147-49), when his own work reduces spiritual experiences to approximations and linguistic abstractions (e.g., the “nondual”, “subtle”, “causal”, etc.), without personal anecdote or insight. By doing so, he reduces his books to the very “Flatland” that he criticises systems theorists for.

Wilber’s books consist of interpretation of other scientists, thinkers and sages, positioning them within his spiritual framework, but commonly lacking in any explicit experiential dimension. His preferred ways of knowing are critical/rational, as analysis, interpretation and synthesis of data are his main cognitive tools. Philosophical analysis is the prime means via which Wilber appears to gain his insights.

Since Wilber has explicitly stated that the eye of reason is inadequate to comprehend the transrational (Wilber 2001), he creates an inherent contradiction in his thesis. His failure to outline his own transrational experiences of consciousness is peculiar, given his stated valorisation of mystical experience in comprehending the higher stages of consciousness. It is not clear whether he has had any direct experience of transrational consciousness, as there is no reference to such experience in the seven Wilber texts listed in the bibliography of this thesis.

Wilber and the social level

Wilber's is an integral model and incorporates social dimensions. The cultural aspects of socio-cultural evolution constitute the lower left-hand quadrant of his four quadrant system, while the social is covered by the bottom-left quadrant, as indicated in Figure 2.4 (Chapter 2). His breadth is impressive, but not the depth. Since his major focus is upon the evolution of consciousness, social issues are typically examined in respect to their influence on the history of ideas, religion, mysticism and science. Some of the issues he does touch upon include power structures in feminism (Wilber 2000c p 393), science and global culture (ibid. pp 710-716), the development of postmodernism in the wake of modernist science (Wilber 2000a pp 54-64), and the men's movement (Wilber, 2000c p 258). The very specific treatment of such issues leaves Wilber open to the criticism that his books are more intellectual and theoretical than grounded in mundane or practical human concerns.

In a broader sense, Wilber's books are all social commentary. The development of society and culture are embraced within the evolution of consciousness, and are subsumed within metaphysics. According to Wilber, cultures and societies reflect the evolution of spirit. Just as individuals evolve, moving higher along the "Great Nest of Being", societies and culture evolve collectively, mirroring the evolution of the individual (ibid. pp 153-157).

Although the four quadrant model appears to grant equal value to each quadrant, it is clearly the upper-left quadrant that has highest priority for Wilber. The mystical is privileged.

Wilber and the mythical/metaphorical

Beyond the autobiographical *Grace and Grit*, Wilber's texts tend to lack an anecdotal/mythical dimension. This distinguishes his works from those of the new age, and from classical spiritual texts. As stated previously, Wilber rejects mythology as method. Wilber criticises Joseph Campbell's claim that myth grants access to transrational apprehension, suggesting that "mythology can rightly lay claim only to the childhood of men and women" (Wilber 2000c p 250). Mythology cannot be employed as a means to greater understanding without the aid of the rational mind, Wilber argues (Wilber 2000c pp 247-50). He writes that:

> …a myth is being a "real myth" when it is "not" being taken as true, when it is being held in an 'as if' fashion. And Campbell knows perfectly well that an 'as if" stance is *possible only with formal operational awareness* (ibid. p 247).

A myth, argues Wilber, can only be understood properly at the rational levels of consciousness and beyond, for the mythic is transcended by the rational, and then the rational is transcended by the transrational. The Romantics' and Jungians' valorisation of myth is for Wilber a function of "the pre-trans fallacy" (ibid.).

Yet there is an implicit mythology within Wilber's texts. The 'story' that persists is that of enlightenment through transcendence, a definitively Eastern motif. For Wilber (2001), it is introspection and meditation which will lead us there. What Wilber does is to take the spiritual and mystical elements of the spiritual journey, and place them in a contemporary, rational, and sometimes scientific guise. The image of Wilber that adorns the Shambalah texts is half sage (the shaved head), half intellectual (the peering, intelligent gaze from behind studious glasses). This epitomises a man and a philosophy which—like Zohar's—attempts to bridge the critical/rational and mystical/spiritual worldviews. However, in Wilber's case the preferred ways of knowing are less steadfastly empirical, and more clinically philosophical.

Wilber's employment of language and metaphor reflects his construction of consciousness and cosmos and the values he makes explicit. We must "**listen**" carefully to become "**attuned** to the cosmos" (Wilber 2000a p 96). The evolution of consciousness in the Kosmos is like a "ladder" (2000a p 129), and the levels are "rungs" (2000a p 157). There are thus higher and lower levels, with the mystic/sage privileged and placed atop the system. Further, the hierarchical Kosmos contains the “Great Nest of Being”, where the term “nest” is used to reinforce the idea of a maternal, compassionate, and intelligent cosmos.

Wilber’s widespread use of the term “Flatland” to describe modernist science and its postmodernist decedents is undeniably derogative, finding the latter’s constructs lacking in the metaphysical depth of mystical and Eastern epistemes. This language and these metaphors are deliberately selected by Wilber to reinforce his arguments, in contrast to the implicit and often unconscious metaphorical base of the three mechanistic theorists in Part One.

Table 7.6: Wilber’s Integral Theory analysed according to CLA

Level	Details
The Litany	Attempts to embrace all four quadrants—intentional, cultural, social, behavioural. Consciousness develops from pre-personal, to personal, to transpersonal. Each level transcends and includes the previous. Rationality (vision-logic) a stepping stone towards transrational. Integrated intelligence lies in transpersonal realms. Rationality and dissociated ego contiguous. Emphasis upon domain one integrated intelligence, downplays domain two.
Social/system	Heavily philosophical. Lack of personal spiritual anecdote—implicitly privileges the philosophical. Social issues are subverted below the spiritual—generally shallow treatment.
Worldview	Explicitly mystical/spiritual, yet implicitly privileges critical rationality via philosophical intellectualism. Textual spirituality and traditional Western religion devalued.
Myth/Metaphor	Rejects mythology as means to transrational insight. Implicit “story” is Eastern mystical enlightenment via mediation and introspection. Metaphors reinforce hierarchical mystical/spiritual worldview. Implicit reinforcement of critical rationality with Euclidean-like four quadrant model, and idea that meditative insight is “empirical”.

There is another way in which Wilber implicitly valorises critical rationality and its preferred ways of knowing. To confirm Wilber’s metaphysical claims, skeptics are told that they should meditate to “perform this experiment” and “look at the data” themselves (Wilber 2000a p 198). This comprises part of Wilber’s claim that meditative insight is “empirical” and can be communally confirmed in the same way the scientific method validates knowledge claims (ibid.). This implies that mysticism needs to conform to the culture of science to establish validity. Finally, perhaps the greatest irony is that the four quadrant model itself mirrors Euclidean geometry, with concepts posited on a grid with vertical and horizontal axes—arguably the epitome of “Flatland” itself.

Books, research, theories, and philosophy are the tools of the critical/rational worldview. The task of writers like Wilber (and Zohar), in attempting to posit mystical/spiritual concepts in critical/rational format, is highly problematical, as Table 7.6 summarises. That his texts are highly intellectual and abstract exacerbates this problem.

Summary

Part Two presented three thinkers in three different disciplines who are taking the notion of integrated intelligence seriously. I have shown that there are some typical problems amongst these thinkers. At the level of the litany, there is the obvious problem of a discourse featuring integrated intelligence being represented to a dominant science that valorises the material and empirical. At the mythical and metaphorical level, there exist the issues of the legitimacy of mythology and first person experiences as explicative tools, and the employment of appropriate metaphors to explain the metaphysical and mystical conceptions and experiences being referred to.

7.8 Conclusion

In contrast to the mechanists analysed in Part One of this chapter, the mystics in Part Two explicitly emphasised the transpersonal interior subjective domain (upper-left quadrant, upper triangle) above Wilber’s other quadrants, whereas the mechanists ignored it *in toto*. The latter tended to ground their conceptions in the exterior objective domain (upper-right quadrant). The mystical theorists tended to be more all-quadrant, whereas the mechanists displayed a tendency to focus upon one domain—the behavioural or upper-right. Goleman also extended his thesis into the personal interior subjective domains of mind.

Table 7.7: The six theorists from Chapter Seven compared and contrasted using CLA

	Litany	**System**	**Worldview**	**Myth/metaphor**
Greenfield	Mind equals brain. Critical/rational WOK dominate. **No I.I.**	Empiricism, reductionism.	Western episteme, mechanistic paradigm.	Anecdotes to reinforce materialist argument. Mechanistic metaphors.
Jensen	Intelligence is static, domain-general, critical/rational WOK dominate. **No I.I.**	Empiricism, factor analysis privileged. Intuition invalid WOK.	Western episteme, mechanistic paradigm.	Anecdotes to reinforce materialist argument. Mechanistic metaphors.
Goleman	EQ & IQ can co-exist. Inferential Intuition and emotion represented, but critical/rational WOK dominant. **No I.I.**	Empiricism/ analysis.	Western episteme, mechanistic paradigm, neo-Darwinism.	Critical rationality dominates, anecdotes used. Mechanistic metaphors.
Zohar	EQ & IQ & SQ can co-exist. **I.I.1 acknowledged**, but numinous **(I.I.2) ignored.**	Empiricism/ analysis, myth.	Western episteme, mystical/spiritual WV.	Critical rationality dominates, but mythology in last chapter. Scientific metaphors.
Broomfield	Cosmos is alive, intelligent. **I.I.1& 2 fully acknowledged**.	Myth, song, dance, dreams, analysis; empiricism secondary.	Mystical/spiritual WV. Critical rationality supports.	Mythology valorised over critical rationality. Mystical, vitalistic metaphors.
Wilber	Consciousness/Spirit primary force in Kosmos, evolving into non-dual**. I.I.1 privileged over I.I.2.**	Philosophy, analysis, mystical theory.	Mystical/spiritual WV explicit, but implicit valorisation of critical rationality.	Mythology rejected. Careful selection of metaphors to reinforce argument, but some contradict thesis.

I.I = integrated intelligence. I.I.1, I.I.2 = integrated intelligence domains one & two.

Table 7.7 summarises the essential differences amongst these theorists. These two representations of mind and intelligence emerge from different worldviews. Integrated intelligence and the extended mind were completely ignored by the mechanists. Amongst the mystics, Broomfield embraces integrated intelligence domains one and two with enthusiasm, Wilber focuses upon domain one (but acknowledges domain two), while Zohar posits a confused representation which acknowledges domain one while largely ignoring domain two.

These factors support my finding from the previous chapter—that a paradigm shift is required in order for the concept of integrated intelligence to become a legitimate component of mainstream discourses on mind and intelligence.

This chapter concludes my greater analysis of mind and intelligence in the West, both mainstream and alternative. In the next and final chapter my focus expands to embrace a more visionary perspective, with a consideration of the potential roles of integrated intelligence in contemporary society.

Chapter 8: The Futures Perspective. Education for Transformation—Integrated Intelligence in the Knowledge Economy and Beyond

8.1 Introduction

> If you believe we have the greatest research universities and opportunities, it all has to be driven by IQ … We want these people. In a world where IQ is one of the most important commodities, you want to get as many smart people as you can (Richard A. Rashid, director of research for Microsoft, quoted in Friedman 2005 pp 274-755).

> We have to think now not just about personal success and class mobility but about planetary survival and human co-evolution. This means that we will have to elevate schooling to a spiritual level heretofore unknown in public education (Moffett 1994a p xii).

> Only intuition, resting on sympathetic understanding can lead to these laws, the daily effort comes from no deliberate intention or program, but straight from the heart (Albert Einstein, quoted in Hart 2000 p 20).

The prior analyses of mind science and intelligence have laid the groundwork for this chapter. Here, I look to the future beyond the current dominant discourses, and towards the near and ultimately long-term future of education and society.

The knowledge economy which has superseded the industrial has perpetuated many of its themes: scientism, instrumentalism, secularism, empiricism, and technological determinism (Milojević, 2004). The spiritual components of modern life, education and society have become increasingly obfuscated (Hart 2000; Milojević 2005; Moffett 1994a).

The purpose of this chapter is to introduce several possibilities and potentials regarding the implementation of integrated intelligence in the current Western state education system and the knowledge economy which it serves. Several definitive problematiques regarding life and education in the knowledge society will be outlined. These will be accompanied by the positing of possible benefits and implications of the introduction of integrated intelligence in education and society within the short to medium-term future. Finally, the focus moves beyond the knowledge economy to the potential use of integrated intelligence in the long term, to help induce personal and social transformation.

Throughout this chapter I will delineate the potential applications of the core operations and end states of integrated intelligence (outlined in Chapter 1, & Tables 1.1, 1.2, & 1.3). The method will shift from analysis to an emphasis upon visioning. As Milojević argues in the wake of Ziauddin Sardar, Ashis Nandy and Sohail Inayatullah, dissenting futures have to move beyond protest and posit workable alternatives where the voices of 'others' are heard—those that have been excluded, exploited, disempowered or marginalised (Milojević 2005 p 7). This chapter represents one possible alternative. The developed vision is designed to encourage deeper reflection upon the present, to appreciate it for the remarkable moment that it is (Inayatullah 2002a).

The attempt here is not to suggest that integrated intelligence will usurp critical rationality in the foreseeable future. Firstly, it may be noted that mystical/spiritual and critical/rational ways of knowing can feasibly work together as part of an integrated intelligence (Hart 2000). They are not mutually exclusive. Secondly, attempts to implement utopian futures have generally created havoc and suffering, as Milojević (2003, 2004, 2005) points out. However, the utopian vision serves a useful function in futures studies, via the dissent it generates. It enables a contestation of hegemonic spaces which may be left unquestioned in dominant discourses. It permits the potential opening of a dialogue between the current dominant images of the future, and the alternative/utopian image (Milojević, 2005 p 5).

The vision of the future being developed here will be referred to by a term I have coined myself—“the integrated society”. This is where education systems, societies, and the people within them are imbued with a transpersonal knowing. The model draws heavily from transpersonal and mystical theory.

A second important factor here is that, as Friedman (2006) states, economies which fail to address the needs of the increasingly “flat” world will be left behind in the age of globalisation. This includes the increasing need for “IQ” and “smart” people in the traditional critical/rational senses of the terms—as the quote at the beginning of this chapter suggests. Abandoning all the motifs of the present age for a utopian future predicated upon mystical spirituality is not a realistic option. The short-term perspective outlined in Part One of this chapter suggests ways in which integrated intelligence might enhance and facilitate current ways of knowing in modern education and society. In Part Two of this chapter, a more long-term perspective will be developed.

Part One: The Near Future—Integrated intelligence in the knowledge society and its education system

That we have now shifted from the industrial economy to the knowledge economy—where industrial/manufacturing economies have been superseded by economies focused upon the production of knowledge—is widely accepted. Peters and Humes (2003) write that in the major OECD countries more than fifty per cent of Gross Domestic Product is employed to produce and distribute knowledge. The catalyst for this in countries like Australia, the USA, the UK, Canada, Finland, and Ireland has been the proliferation of the use of the internet and associated new technologies (ibid.).

Below I take several problematiques within the knowledge economy and identify ways that integrated intelligence might be of benefit therein.

8.2 The corporate takeover of society and education

Education in the age of globalisation is increasingly about serving the materialistic needs of a technocratic society (Broomfield 1997; Carter & Smith 2003; Hart 2000;

Milojević, 2004; Moffett 1994; Rubin 2002). This has extended into universities, where even 'pure' sciences such as botany and entomology have become driven by "commercial interest and consumer demand" (Jardine 2000 p 9; Dossey 2000). Instrumental rationality and technoscience have come to dominate society, science, and education (Pickstone 2000; Slaughter 1999).

Modern culture is often without a purpose or depth that transcends the immediate gratifications and selfishness of the human ego (Clarke 1989). Psychiatrist Victor Frankl called the nihilism and existential vacuum of the modern age and the materialistic strivings of its population a "mass neurosis" (Frankl 1985 p 152). Meaninglessness has been filled with political ideology and the imperative to consume, the latter foisted upon the populace through the power of industry (Clark 1989).

Moffett (1994a) argues that corporate greed and political shortsightedness have hijacked education. Personal and spiritual development has been downplayed by governments in the creation of modern curricula, in favour of training for productive employment and social responsibility. Policy makers and business leaders are afraid that the former will subvert the latter two, argues Moffett. Big business has been largely concerned with short-term profits, and since personal development and spiritual wisdom are not seen to build short-term profits, they have become increasingly neglected (Moffett 1994a).

Moffett points out that without personal and spiritual development, the greater society will not have what industry is crying out for: the levels of responsibility, talent, sophistication and social skills that are derived from maturity and self-fulfillment (Moffett 1994 p 6).

The industrial model: "Just another brick in the wall"

In the music video of Pink Floyd's classic song "Just Another Brick In the Wall", rigid, expressionless and uniformed school students are seen moving along an automated factory assembly line. One by one, they fall off the end of the conveyer belt and into a large vat. The camera shifts to the bottom of the vat, where sausage meat is seen being squeezed out onto another assembly line. Pink Floyd’s image depicts perfectly the criticism that schools have become factories dispensing a product for the marketplace (Beare & Slaughter 1993; Hart 2000; Moffett 1994a). Chilton Pearce calls this policy “preparing the child to be a dollar commodity in the marketplace” (quoted in Walker 1998 www.ratical.org/many_worlds/JCP98.html). Former president of Chrysler, Lee Iacocca epitomised this attitude to education when he addressed the Association for Supervision and Curriculum Development. He said:

> Your product needs a lot of work, and in the end, it’s your job… your customers don’t want to hear about your raw materials problem—they care about results… Right now, American education has a lot of dissatisfied customers (quoted in Moffett 1994b p 585).

In the schools-as-factories system, the end goal is to meet the needs of industry—to optimise rates of consumption and profits. The student is molded into the societal machine, either becoming a producer, or serving the needs of producers. The needs of the individual for personal and spiritual growth are sublimated to the needs of industry (Moffett 1994a). This system is depicted in Figure 8.1, below.

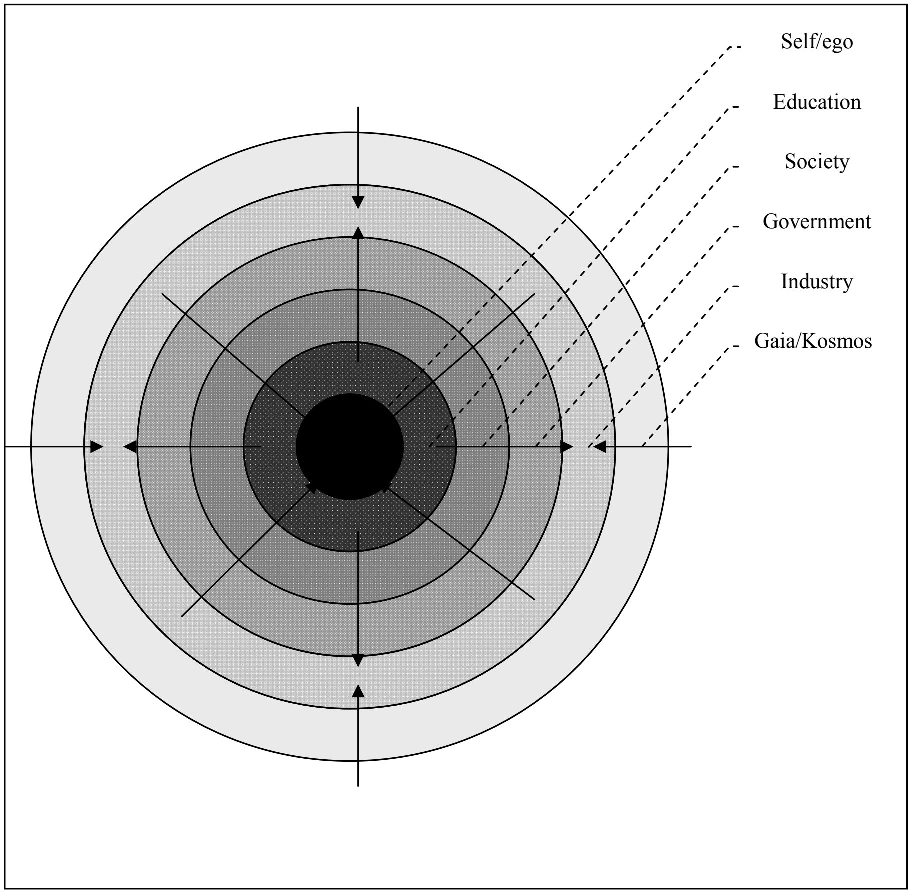


Figure 8.1: The ego and the ego-transcendent in relation to the industrial/knowledge economy model of education and society

All the greater needs that lie beyond industry and corporate goals—the social, Gaian, collective human, and cosmic evolutionary—become sublimated. In Figure 8.1, the arrows represent the forces of power and manipulation within/beyond the industrial/knowledge economy. The inward-pointing arrows indicate the controlling forces of industry and "the world ego" (Wilber 2000c; Wilde 2001), as it attempts to push away the imperatives of integrated intelligence (Kosmos).[28] This is because they do not serve the needs of the ego. The outward pointing arrows represent the forces of "spirit" or the

[28] The term "Kosmos" is taken from Wilber (2000c) and incorporates all four of his quadrants, including mind and "Spirit". It implies a spiritual evolution.

cosmic evolutionary imperative, which tends to transcend the confines of the ego (ibid.).[29]

In the industrial/knowledge economy, the system boundary tends to sit at the level of industry, with both government and society lying below industry, as servants of the industrial machine. Similarly, in the global economy the interests of nations are heavily influenced or controlled by industry and business, which fall within the boundary of the system. This model reflects the essence of Eisler's (2004) dominator model, the dominating force in this case being industry and powerful corporations.

The outer arrows indicate the 'intelligence' of the Kosmos and Gaia, consistent with the theory of integrated intelligence, where the Kosmos has an innate intelligence. The information cannot move into the inner levels of the system, as business (represented by the inner arrows) prioritises values and information which are not inclusive of the intelligence of the Kosmos. The inner levels of the system serve as repelling forces to the transrational information of Kosmos.

The gradation of colour from dark at the centre to lighter hues at the periphery suggests the increased access to information at each level. The "self/ego" is darkest as the self in this model is most 'in the dark', with information access restricted by the levels above it. Kosmos is depicted in transparent colour as it retains transparent information—but its data is hidden from the individual by the covert regulating mechanisms of the levels in between. Up to the level of "industry", this power play is consistent with Foucault's (1984) depiction of the forces of power regulation throughout human history. However, it differs markedly with respect to the intercession of the spiritual dimension

[29] This model is founded upon a common presupposition within transpersonal theory, and in turn the IFM model. The imperatives of the human ego towards power, control and self-gratification are set against the ego-transcending imperatives of transpersonal consciousness/integrated intelligence (Gebser 1985; Hawkins 2002; Reanney 1991; Wilber 2000a, b, c; Wilde 1993)—as indicated in Chapters One and Two of this thesis.

and the regulating input of that level. In numerous spiritual depictions of history a universal regulating intelligence is seen as directing or guiding evolution, as was indicated in Chapter Five (Table 5.1).[30] In this interplay, the prime discrepancy between postmodernist and mystical/spiritual representations of history can be appreciated.

Possessive individualism, greed and education

Education in the age of globalisation has become increasingly about serving the materialistic needs of the technocratic society (Broomfield 1997; Carter & Smith 2003; Milojević 2003; Moffett 1994; Rubin 2002). This has come at the expense of any greater goal related to the meaning or purpose of life. Children and graduates are products of an education system that turns them into money-focused consumers with reduced capacity to intuit greater meaning or purpose from life or its significant events (Hart 2000; Jung 1973, 1989). Modern Western life tends to valorise the individual above others and the greater whole. This has, with the aid of industrialisation and neo-liberalism, tended to encourage greed and narcissism (Clarke 1989; Sardar 1998). Thus, Loye finds that the neo-liberal vision is a collective of selfish individuals, a product of the philosophy of neo-Darwinism and Adam Smith (Loye 2004a).

Potential uses of integrated intelligence within this problematique

For the citizen of the modern world, personal choices are greatly influenced by the imperatives of globalisation and industry. For a more expansive and holistic education

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[30] This inevitably raises an old theological question. If intelligence is guiding history, why is there so much human evil, and so much suffering? While a genuine discussion of this issue is beyond the scope of this thesis, it may be noted that numerous texts featuring the concept of integrated intelligence move away from the traditional theological concept of a transcendent God, instead positing the idea of personal spiritual guidance, and/or an impersonal, self-regulating cosmic intelligence. In these texts, suffering and evil are typically depicted as a means for the individual, humankind and cosmos to develop greater self-understanding. Examples include Broomfield (1997); Moffett (1994a); Newton (2000); Wilber (2000c); and Wilde (1993). This is more consistent with the Eastern religions and philosophies that typically underpin the mystical/spiritual worldview.

and society, where integrated intelligence might be valued and employed, the education system needs to expand definitions of what it means to be human and lead a meaningful life. What is required is a movement beyond education as mere training, acquisition of knowledge, and credentialism (Guile 2003; Hart 2000). Integrated intelligence and its core operation of integrated perception—the direct experience of the interrelatedness of people, environment and the universe—would help develop a "commitment to the whole", as Senge (1994) calls it. Wisdom—an end state of integrated intelligence—also entails a commitment to something greater than the self (Hart 2000; Kunzmann & Baltes 2003). As Bill O'Brien states: "Genuine commitment… is always to something larger than ourselves" (quoted in Senge 1994 p 171).

Numerous questions regarding meaning and purpose were erased by the Western rationalist hegemony—especially in the nineteenth century (Sheldrake et al. 2001), as discussed in Chapter Three. People turn to entertainment and hedonism for relief, and may suffer neurosis and psychosis (Jung 1989). Integrated intelligence and a spiritual and meaningful curriculum could potentially be a part of the revival of a more integrated, spiritual and humane education system.

As was stated in Chapter One, Ferrer (2000, 2002) has indicated the importance for transpersonal philosophies to move beyond their cognitive focus. His "participatory knowing" is compatible with the transpersonal vision and participatory epistemology of the eighteenth and nineteenth century Romantics (Strohl 1998), and with the general argument of this thesis. While the interface of integrated intelligence, "participatory knowing", and participatory futures remains to be clarified by further research, the links between these or similar concepts have been noted by several thinkers (Beare & Slaughter 1993; Inayatullah 2002a; Murphy 1992; Slaughter 1999; Tarnas 2000; van Dusen Wishard 2003). The key point is that integrated intelligence may be part of a greater participation by the individual in a society which is developing according to the core operations and end-states of that intelligence.

The integrated society and its education system

Figure 8.2 (below) depicts the shift in power relations in the integrated society. There is a shift in the flow of information and power that is entailed when integrated intelligence is fully implemented into education and society. Unlike the system in Figure 8.1, the individual is in continual feedback with the intelligence of the Kosmos and all the levels within the system. This would require the greater development of receptivity. Each level contains its own drives and imperatives, but ultimately serves the highest order. The arrows show that information and 'force' are moving both ways—from Kosmos to individual, and from individual to Kosmos.

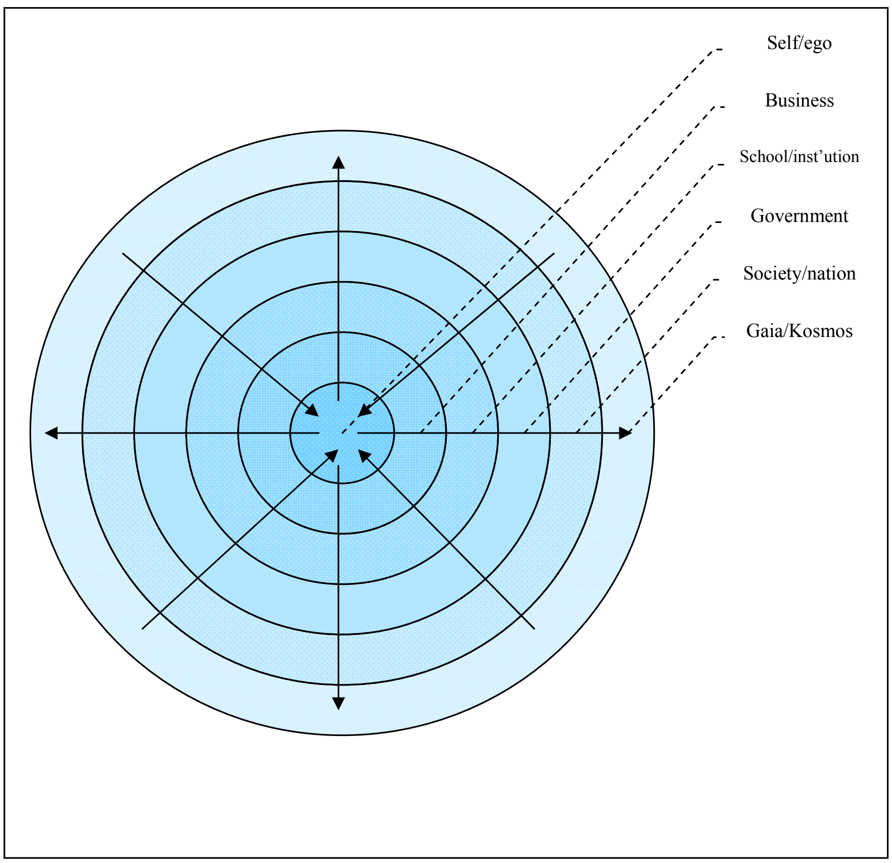

Figure 8.2: The integrated society, education & Kosmos

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The system is an actualisation hierarchy—not a dominator hierarchy (Eisler 2004), as with Figure 8.1. Ideally, the individual is not forcibly controlled by the hegemonic forces within the system. The outer levels represent 'attractive' potential higher levels of consciousness evolution.

In the integrated society, the individual is centered within fields of consciousness, with the potential of developing more expansive domains of awareness; this is consistent with the fluid, boundary-transcending representations of self depicted in many mystical and transpersonal representations of consciousness (Bradley 2004; Hawkins, 2002; Wilber 2000a, 2000b, 2000c). Industry is in dialogue with all those forces above and below it. Consistent with Eisler's participator model (2004), the Kosmos is participating with the entire system, not dominating it. Society and nation are situated at the second level of the system, as the integrated society as a whole (employing the intelligence and wisdom gleaned from Kosmos via integrated perception) determines what government and business will do, not the reverse. This is akin to Broomfield's (1997) ideal society. The use of lighter hues (as opposed to the darker colours in Figure 8.1) is intended to suggest an integration of intelligence, a fluidity and transparency between the levels, and a free flow of information.

This potentiality for spiritual evolution might be compromised by the constrictive forces of ego, and the reactionary forces within each level, including industry. Hawkins (2002) and Bradley (2004) compare levels of consciousness to the self-regulating tendency of attractor fields in systems theory. Hawkins argues these fields are extremely powerful, and tend to restrict the movement of an individual's consciousness from one field to a higher one.

Integrated intelligence—with its integrated perception and wisdom—may assist in the circumvention of the corporate power structures that dominate the present knowledge economy and the globalised world (Milojević 2005). Integrated intelligence has a spiritual value structure and features a mystical/spiritual worldview, which may help override the materialist imperatives of modern culture.

So far, I have touched upon the knowledge economy's dominator power structure and its antithesis to integrated intelligence. In the next section, a subset of this broader problematique will be addressed.

8.3 Systemic control, coercion and manipulation

Within the industrial/knowledge economy, individuals are typically controlled and manipulated. This is because the agenda of moulding individuals to fit into the societal machine often contradicts the desires and needs of the individual (Moffett 1994a). Yet, while the needs of individuals might be selfish and ego-centered, they may also be selfless and spiritual. Thus, the State and/or corporate power structures may suppress not only ego-centered drives, but spiritual/transpersonal ones also. The latter may be seen as assisting in the overall evolution of consciousness in the society (Hawkins 2002; Moffett 1994a). There is therefore an unintentional stultification of greater human and social development due to the short-term control of 'lower order' problems.

The 'corporate takeover' of education can be traced back to a wider social problem. Critics have pointed to the powerful controlling influence of mainstream establishment culture (Dossey 2000b; Franklin 1999; Hart 2000; Loye 2004a p 26; Milojević 2003, 2004, 2005; Reanney 1994; Wilde 1993). Loye (2004a p 26) equates this "Establishment" with the paradigm of the "Pseudo-Darwinian Mind":

> Arising during the twentieth century, this is the control of the masses and a widespread, passive, and compliant academic elite through the possession of television, publishing, and practically all other media by an economic and power elite, which finds in old-style survival of the fittest, selfishness *uber alles* Darwinism the legitimizing or excuse it proffers from and pays for in science (Loye 2004a p 26).

As shown in Figure 8.1, the Establishment must spend energy in attempting to suppress the 'voice' of the higher levels of the system—the evolutionary pull of "Spirit"

(Wilber, 2000c), as those higher imperatives often contradict the needs of those in power. For example, ecological activists—whom Wilber (2000a) sees as part of the transcending force of the emerging vision logic level of human consciousness—protesting at WTO meetings. The forces of reaction (state-trained police) are used to restrain them. In the classroom, control of the students becomes an essential function of the system (Moffett 1994a). Much time and energy have to be spent on this maintenance of control and order within this system.

Franklin (1999), after an examination of the journal *The Review of Educational Research*, finds that the idea of social control has been central in the development of educational curricula. At around the time of World War One, educational administrators attempted to create a scientific method of curriculum development in the name of social efficiency. Those curriculum designers have attempted to use the curriculum as an instrument of social control, Franklin argues. Public schools and their curricula have been used to establish control amidst the social problems of industrialisation, urbanisation, and immigration. In Franklin's understanding, this agenda was transposed via the scientific language of psychology and learning (Franklin 1999).

The significant point is that such social control has placed no value upon the spiritual growth of the individual, nor upon personal empowerment, the latter of which is a threat to the power of institutions and the state (Moffett 1994a; Wilde 1993). It may be supposed that individual access to spiritual knowledge and transpersonal experiences has suffered. This is because such experiences require inner and altered states of consciousness (as has been argued throughout this thesis), and these have been absent from the educational processes of state control, and the critical/rational ways of knowing which have dominated Western society for several centuries.

Potential uses of integrated intelligence within this problematique

As can be inferred from Figure 8.2, the integrated society and its integrated intelligence permit the emergence of a natural collective goal of humankind—

transcendence or enlightenment. This is consistent with transpersonal and mystical theory (Hawkins 2002; Jacobson 1997; Wilber 2000c). The alignment of individual consciousness with a collective consciousness also means that morality and social cohesion will naturally follow (Moffett 1994a). As Moffett states, even though spiritual education does not generate the immediate economic outcomes that are valued by industry and government, it pays in the long term. The pay-off is subtle: a more mature and sophisticated society capable of carrying through with the responsibilities that democracy requires, increased intrinsic capacity for moral behaviour, and an elevated creative potential that a population living to higher purpose implies (Moffett 1994a). This is consistent with integrated intelligence's end state of personal and planetary transformation (Chapter 1, Table 1.3). This will be discussed further in section 8.6, below.

Figure 8.2 also shows that integrated intelligence potentially transcends (in part) the knowledge control of the State, and the spiritually stultifying forces of consumerism and industrialisation. The individual draws knowledge and inspiration from the highest levels of the system (the Kosmos). These lie beyond the constraints of the lower levels (in Figure 8.2), such as educational and bureaucratic institutions, industry, governments and nation-states. The individual relies less upon the vested knowledge of the teacher and society, and more on the inner wisdom of a psyche attuned with Spirit. This is consistent with the educational visions of Bear and Slaughter (1993), Broomfield (1997), Hart (2000), Krishnamurti (1956), Milojević (2005), and Moffett (1994a).

The integrated society and its utilisation of integrated intelligence potentially usurps the dominator power structures of the modern knowledge economy. It also has the potential to positively engage knowledge systems at a more mundane level, as shall be discussed in the next section.

8.4 Complexity, information overload and the loss of meaning

A salient characteristic of the knowledge economy in the era of globalisation is confusion. This confusion stems from three interrelated problematiques—complexity, information overload, and meaninglessness.

Complexity

Steadily increasing complexity has been a long-term tendency over the last three centuries in capitalist societies (Hodgson 2000 pp 89-90). Such complexity entails "a growing diversity of interactions between human beings, and between people and their technology" (ibid. p 90). New analytic problems are an inevitable scenario given the degree of innovation and change. Further, the nature and diffusion of knowledge creates difficulties in dealing with implicit, context-specific, and distinctive knowledge or skills (ibid. p 89). It is likely that in core economic sectors both products and processes of production will increase in complexity and sophistication. The outcome of this will be that all activities will be "infused with greater complexity" (ibid. p 90).

Modern culture represents an open and dynamic system. It is more chaotic, and control of situations or dynamics is becoming increasingly difficult. With this increasing uncertainty and complexity, making accurate predictions via logic and calculation becomes more difficult (ibid. p 92). This is an increasing problem in light of the aforementioned loss of intuitive knowledge structures in the West.

Information overload and analysis paralysis

Information overload is the result of the growing complexity of modern systems. Advanced communications and information technology has resulted in a significant increase in the sheer volume of data (Hodgson 2000). Hodgson postulates that with this increase in complexity, "more and more 'bits' of information" will be needed "to specify interactions and changes within the structured system" (ibid. p 90).

Scientific knowledge tends to emphasise the accumulation of information and data. Mechanistic science has a tendency to acknowledge only certain kinds of data, especially measurable data. In 2002, humankind stored approximately five exabytes[31] of new information on paper, film, optical or magnetic media—a doubling over a three year period. This is equivalent to all the words ever spoken by humans (Klinkenborg 2003). Thus, in modern knowledge economies, there has been a vast increase in the volume of information, which increases the complexity of society and degrees of confusion in individuals. That this data tends to exclude information in meaningful domains such as the spiritual and inner dimensions of human experience adds to the sense of confusion (Hart 2000). The flood of often unfiltered information on the internet exacerbates the problem (Gackenbach 1998; Milojević 2005).

In Chapter Four (section 4.3), it was argued that the linear thought processes of the critical/rational mind retard lability and receptivity, and facilitate inertia. Rigid thought processes retard psychic functioning (Braud 2003). Therefore, there is good reason to believe that the contemporary school-as-factory—which emphasises rigidity and control of both behaviour and thinking (Fromberg 2001; Hart 2000)—retards access to the extended mind and integrated intelligence. The modern global citizen may be experiencing an expansion of linguistic, numerical, and technical literacy, whist simultaneously experiencing a retardation of integrated intelligence.

The loss of meaning

The fragmentation of knowledge and the sheer volume of data in the modern world also reduce the potential to comprehend the whole. The reductionist approach of the critical/rational worldview (outlined in Chapter 5, section 5.3) exacerbates the problem (Bloom 2001; Clarke 1989). If we look at only part of a system, comprehension of the patterns and interconnections between the parts is lost (Eisler 2004 p 72).

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[31] "An exabyte (derived from the SI prefix exa-, and abbreviated as EB) is a unit of information or computer storage equal to approximately one quintillion bytes" (Wikipedia: http://en.wikipedia.org/wiki/Exabyte).

One of the most notable characteristics of mystical experience is its capacity for transcendent perception of the whole, of interconnectedness. Zohar (1994) argues that the modern bureaucratic state retards a sense of sacredness and connectedness with the whole. Plurality and eclecticism (part of postmodernism) allow for little commonness, and thus little possibility of a new social covenant. Nor do they permit any common set of values. Bureaucracy inevitably becomes the foundation for such a society (Zohar 1994 pp 225, 272).

The absence of a genuine spiritual consciousness in modern education after the industrial revolution has possibly reduced the ability to access holistic and integrated intelligence and thus of the capacity to see 'the big picture'. The observer and subject/object dichotomy, the transcendence of which is required to access transpersonal awareness (Reanney 1994 p 86), has thus been reinforced. It may follow that industrialised and post-industrialised societies produce individuals whose minds have a reduced capacity for conceiving and accessing spiritual dimensions.

A related problematique is that of the Western world's focus upon possessive individualism at the expense of meaning and relationship, including relationship knowledge (Wildman 1996). Total freedom leads to total alienation, argues Clarke (1989). Modernity's insistence on the sacredness of the isolated ego state (and its fragmented consciousness) leaves little place for the connectedness and deep shared meanings which might potentially be perceived and experienced via integrated intelligence.

Potential uses of integrated intelligence within this problematique

The often immediate and non-linear, non-sequential nature of integrated intelligence bypasses the necessity to have *conscious* awareness of all the (non-locally) available data, before decisions are made. For example, Rowan (1991) argues that the best managers are the intuitive ones who learn to trust their intuition in decision-making situations. Those who wait for a complete analysis of any given market or business problem are left behind in the fast-paced modern world (ibid.). Other recent scientific research clearly shows that a *less* exerted approach to decision making facilitates greater accuracy in making correct choices. This is because during unconscious thought processes, information in large quantities can be effectively integrated (Dijksterhuis et al. 2006). As intuition expert Klein (2004) suggests: “The world is too complex to think ahead using careful analysis of situations” (Klein 2004 p 285), and that instead, we should “rely on our intuitions” (ibid.). The core operations of integrated intelligence domain two (Table 1.2) might assist managers and others in coming to terms with the world’s mass of data and innumerable personal choices. Specifically, evaluation/choice, location, foresight, and diagnosis might be activated without access to all ‘hard’ data.

With increasing complexity, the capacity to learn and adapt rapidly are becoming increasingly important (Hodgson 2000 p 92). Hodgson argues that the increasing complexity of the modern societal system requires greater flexibility and adaptability, both at a personal and at an organisational level (ibid.). An integrated conception of self and of knowledge systems (i.e. the understanding that integrated intelligence is transpersonal and non-localised) potentially moves the individual beyond the often fragmented ways of knowing of critical rationality. This, combined with foresight—a core operation of integrated intelligence—will enhance both adaptability and flexibility. The fluid and receptive nature of integrated intelligence is relevant here. The relaxed and open nature of receptivity stands as a contrast to the rigidity and inflexibility of ego-based states of consciousness, which tend to cling to worldviews and limited ways of knowing (see Chapter 4, section 4.3).

With the increasing unpredictability of the modern world, rational, linear, and sequential modes of thought (such as pure logic or reason) are becoming evermore inadequate. As the sheer amount of data expands rapidly, attempts to rationally analyse all available information may result in “analysis paralysis” (Rowan 1991). Integrated intelligence has the advantage over traditional logical analysis of imbedding the individual within a constant stream of knowing. Integrated intelligence will not provide specific functional knowledge (such as how to operate the latest piece of software), but it can provide a context of meaning and purpose which grant relevance and comprehension of the bigger social and cosmic picture. The critical/rational worldview which underpins the knowledge economy posits the individual within a random, mechanical universe, devoid of deeper meaning (Frankl 1985; Capra 2000; Sheldrake et al. p 2001). The integrated society entails a worldview where the individual is situated in the dance of cosmic evolution, where the metaphors—as listed in Chapters Four to Seven of this thesis—are much more personable. In the mystical/spiritual worldview, the self is connected to the greater whole, providing a reframing of life's meaning. Moreover, it is a universe where, as Broomfield (1997) states, the whole speaks to the parts. In such a universe, the idea of spiritual guidance comes back into consideration. The connection with the consciousness of the Kosmos grants the individual a source of wisdom for the life journey. The mechanistic paradigm and the consumer society cannot provide that. This is because self is implicitly dissociated from that intelligence, and alienated from the whole (Clarke 1989; Reanney 1991), and the wisdom that transcends individualism is not valued (Hart 2000). The integrated society also re-introduces the concept of agency and 'God', although not necessarily in the biblical sense (Russell 2004), as was outlined in Chapter Five and Table 5.1.

The meditative and concentrative methods that can be employed in the training for integrated intelligence may provide benefit in the form of mindfulness and equanimity. For example, in the Buddhist tradition of *Samatha* (internal quiescence) it is believed that once *Samatha* has been accomplished "various forms of extrasensory perception and paranormal abilities can be developed with relative ease" (Wallace 2003 p 185). Without a relaxed mind in a state of presence,[32] the fragmented mind is arguably less able to

[32] Buddhist teacher Leonard Jacobson (1997) sees that keeping the mind in the present moment is the key to spiritual development. This is consistent with the tenets of Buddhism.

make sense of the information overload, and has restricted means to make the sense of things (Zohar 1994, 2000). Integrated intelligence has the potential to move beyond this information-overload problematic, transforming it into opportunity for increased knowledge, wisdom and growth.

In an increasingly complex society and workplace, integrated intelligence may also serve as a source of practical knowledge for individuals. Work now requires greater degrees of personal proficiency, autonomy, and expertise, with a consequent decentralisation of management power (Hodgson 2000). Even universities are no longer “the exclusive site of expertise but a site of public discourses” (Delanty 2003 pp 79-80). Experts have to traverse many discourses outside their areas of expertise (ibid.). Though writing about universities in particular, Delanty’s comments can be applied to education in the broadest sense of both formal and informal life-long education. The end result is that, as Delanty suggests, the era of the expert is quickly passing.

Both within the university and for the worker in the knowledge economy, there is an increasingly huge volume of information required to gain a deep understanding of multiple fields of knowledge. The dissociated state of the fragmented mind means that a time-costly process is required to locate and evaluate information and diagnose problems.

The core operations of integrated intelligence domain two–location, diagnosis, and evaluation–could be highly valuable here. The creative and innovational potential of integrated intelligence might also be employed in generating solutions and alternatives. Scientific research may also benefit. While the ‘justification’ for particular scientific research explicitly employs critical rationality, the ‘discovery’ process whereby research is “inspired, conceived, planned, and conducted” is less discussed (Braud 2003 p xviii). Nonetheless, this is the domain where creativity and inspiration play a major role, and therefore potentially integrated intelligence. Here, integrated intelligence might find an overlap with the current burgeoning field of creative intelligence (Lubart 2003). As Lubart states explicitly:

> Creative intelligence may be considered as increasingly important in the new millennium because the technologically orientated world in which we live changes rapidly and often presents new complex problems that require innovative solutions (Lubart 2003 p 279).

Ostrom Moller (2000) points out that the industrial model of education with its cogs-in-the-machine approach is seriously outmoded. Machines are increasingly doing the manual work, and computers are doing the calculations. As Moller puts it, "…the challenges become how to ask the right questions, how to define the problems and how to choose between various alternatives offered by the computer" (Ostrom Moller 2000 pp 126). Integrated intelligence offers a transpersonal overview that is needed in such a "non-material society" (ibid. p 126). The individual that is guided by the transpersonal (the Kosmos) may be able to intuit solutions via the previously mentioned core operations. The person need not necessarily have a conscious knowledge of the reason why a choice is correct or wise, nor access to all the data (Rowan 1991; Klein 2004). This would truly be an asset amidst information-overload.

Integrated intelligence also has potential benefits for researchers. Information overload means that the decision of what to read amongst thousands of potential books and articles is a highly problematic task, if one approaches it in a purely rational way. This makes Rowan's (1991) "analysis paralysis" likely. Michael Talbot's (1992) alleged capacity to locate books in libraries with no conscious prior knowledge (see Table 1.2) stands as an example of how integrated intelligence might be employed to facilitate research. Researchers such as Anderson (1998), Hart (2000), Rothberg (2000), and Varvoglis (2003) are already moving beyond the rationally bounded "Anglo-American approach" (de Quincey 1999) to research, and incorporating transpersonal cognitive processes.

Renewed meaning, renewed hope

Integrated intelligence's core operations may provide renewed hope and meaning, via a re-mapping of our worldview. Slaughter (1999) states that we need to identify sources of inspiration and hope in the contemporary world (Slaughter 1999 p 242). The need for meaning through knowing where we stand in relation to the Kosmos cannot be easily done away with, and this meaning has traditionally been provided by religion (Clarke 1989 p 211). Within spiritual discourses that incorporate integrated intelligence and the integrated mind, there is the idea of a universal guiding consciousness, albeit taking various expressions (Table 5.1). These include Sarkar's Supreme Consciousness (Inayatullah 2002b), the Buddhist concept of the "universal mind" (Nisker 1998 p 198), and spiritual educator Moffett's "cosmic consciousness" (Moffett 1994a p 11).

A universe imbued with integrated intelligence is a deeply meaningful one. Employing the metaphors of quantum physics to back up her argument, Zohar (2000) suggests that there is an implicit covenant between the quantum vacuum (the ground state of being) and all people. This grounds all our meanings in a greater context. This is a sacred covenant because it is about the ultimate meaning of our existence (ibid.).

Bussey (2004) finds that meaning and hope go hand in hand. Futures without meaning are futures without hope. Integrated intelligence may enter the discourse, may re-kindle hope and meaning potentially via its end state of personal and social transformation (Table 1.3). An integrated Kosmos is one where "the whole sends messages to the parts" (Broomfield 1997 p 215). This situates the evolution of self and society within a cosmic context, an inherently meaningful scenario.

The effects of the increasing complexity, confusion, and meaninglessness of the knowledge economy, are potentially offset by an integrated society founded upon the immediate and transpersonal ways of knowing of integrated intelligence. Yet for this to happen, the rejection of intuitive and mystical ways of knowing will have to be addressed.

8.5 The rejection of intuitive and mystical knowledge

Contemporary secular education in the knowledge economy has all but totally rejected the mystical, the intuitive, and the transpersonal (Hart 2000; Moffett 1994a)—the cornerstones of integrated intelligence. This follows in the wake of the Western rationalist hegemony (Chapter 3).

The valorisation of critical rationality and the individual

The modern state school of the West exists within the critical/rational worldview. Beare and Slaughter (1993), de Bono (1986), Fromberg (2001), Gardner (1993, 1999), Gardner et al. (1996), Krishnamurti (1956), and Moffett (1994a) have all pointed out that traditional schooling focuses heavily upon verbal/linguistic and mathematical/logical intelligences. The approach is linear, results are measured in linear ways, and then used for competitive ends (Fromberg 2001 p 110). This approach developed from the Western European tradition which emerged during the nineteenth century and is fundamentally a "maturationist, linear child development framework" (ibid. p 93). In this system, teachers have lost the capacity for fluidity of teaching because they have been trained in "definitive, static models" of temporality (ibid. p 107). The beliefs of educators reflect mechanistic conceptualisations of intelligence, with most of them believing that students learn as passive receptors of externally generated information/data, rather than as beings capable of actively generating their own knowledge (Woolfolk et al. 2001 pp 152-153; also Broomfield 1997). Intuitive thinking, imagery, imagination, analogy, and other such ways of knowing are often marginalised (Fromberg 2001 p 107).

The development of IQ tests has been significant. IQ tests were originally developed to test a student's capacity to meet the demands of the industrial model of education, and particularly to handle rural student immigration, by identifying at-risk students

(Gardner et al. 1996 pp 49-51). Thus, within education, intelligence became defined in measurable mathematical and linguistic terms, reflecting the foci of IQ testing.

The secular state has reinforced the industrial/knowledge society's reduction of the spiritual and mystical aspects of education (Laura & Leahy 1988). Contemporary school students, though potentially highly proficient at mathematics and highly literate (relative to children from previous eras), are able to utilise a strictly limited range of cognitive processes, states Chilton Pearce (in Walker 1998). The cognitive processes of language and mathematics centre upon rational/linguistic intelligence and conscious, ordinary states of awareness.

Problematic also are the individualism (Clarke 1989) and narcissism (Nisker 1999 p 11) of Western cultures, and the competitive ethos of the neo-Darwinian mind (Loye 2004a, 2004b). These encourage ego-fixated states of awareness (Chapter 4, section 4.5). Loye (2004a) finds that the "pseudo-Darwinian Mind" has so dominated education in the wake of Darwin that schools have become mainly "factories for the training and survival of the fittest" (Loye 2004a p 30). This has led to the valorisation of IQ and (in the United States) SAT scores as the "the highest aspect of human achievement" (ibid.). Similarly, Goleman (1996, 1999) states that emotional intelligence and intuition have been largely ignored in the wake of the focus of modern society and education on rationality.

In short, modern Western education reflects the critical/rational worldview with its rational, linear ways of knowing, and valorises the ego. In turn, the mystical and spiritual are diminished.

Virtual worlds and the stultification of the subtle, inner and transcendent

A related point is the increasing focus upon computer hardware and software, and internet technologies (Oppenheimer 2004). There are potential benefits for spiritual education with new technologies and the internet. Markley (2004) and Elgin (in Phipps 2004) both see the mass media as a possibly potent force in the transformation of the species towards a more integrated and spiritual whole. Elgin argues there is potential for religious and spiritual traditions to make their wisdom available to help transform the mass media “into a more enlightened, healthy expression of that collective mind” (in Phipps 2004).

Yet, while computers and the internet increases both the volume of, and access to data, in their current form they do not facilitate the non-ordinary states of consciousness that are associated with integrated intelligence. Technological optimists tend to fail to clearly distinguish amongst data, information, knowledge, and wisdom (Dian 2003). While access to the internet clearly improves the volume of the first three, it is questionable whether it can improve the latter, as wisdom is usually a function of life experience (Hart 2000). Many mystical traditions distinguish between intellectual knowing and deep understanding. Silent, reflective modes of consciousness (especially meditation) tend to be preferred, or tools which disrupt the conscious and learned mind’s ‘rational’ understanding—such as with the use of Zen koans (Watts 1989).

Ironically, the computer exacerbates the estrangement from inner dimensions. As with other key technological developments such as the telescope, the printing press, and the television, the use of a computer requires an externally focused cognitive process—decodification of text/graphics. While some (Gasson et al. 2004; Kaku 1997) have argued that the internet will develop into a kind of collective consciousness or world brain, Wilber (2000a) argues that using the internet lacks an inner cognitive process. In a related point, Targ and Katra (1999) find that in the contemporary school, there is great encouragement for outstanding athletic performance, but virtually none for developing meditative practice and insight. ‘Technological aptitude’ might easily be substituted for ‘athletic performance’.

Further, with the secularisation of schools, and the focus upon technology in learning, even public Waldorf schools in the USA (teaching the metaphysical philosophy of

Rudolph Steiner) have had to minimise esoteric practices and conceptions, and "have been pretty well stripped of exploration of the spiritual" (Oppenheimer 2004 p 386).

Chilton Pearce (in Walker 1998) states that the children of today are already becoming impaired in their ability to distinguish "subtleties", which is a result of "the failure of appropriate (emotional, nurturing) stimuli and the massive over-application of inappropriate or high level, artificial stimuli" (in Walker 1998). The children of the present age are "damaged past the point of educability in any real sense" (ibid.).

Pearce cites research done at Tunbingen University in Germany—carried out over twenty years—which made three significant findings. Firstly the subjects of the study displayed a one percent per year *reduction* in the capacity for sensory sensitivity and the ability to acquire information from the immediate environment. Secondly, only "highly concentrated bursts of over-stimulation", such as loud sounds or intense visuals were being registered by the most recent subjects of the study (Walker 1998). This rendered the children insensitive to subtleties. Thirdly, the study noted the lack of adaptation of the brains of children, being unable to cross-index sensory systems, such that there was no synthesis occurring in the brain. Thus there was an impaired capacity to contextualise sensory stimuli. Pearce states that this may explain why modern children are so easily bored and distracted unless provided with intense stimuli (ibid.).

Pearce's argument indicates that the prolonged use of computers, television and music, combined with an absence of proper nurturing, retards sensory acuity. It is reasonable to extrapolate that it may also retard intuitive capacities. The facilitation of integrated intelligence and the recognition of subtle intuitive feelings, requires a quiet and receptive state of mind (Chapter 4, section 4.3). Such states may be becoming increasingly rare in the computer and entertainment age.

Potential uses of integrated intelligence within this problematique

As integrated intelligence requires a reflective inner process, there are some obvious roles it might play in rectifying the modern trend of denying the intuitive and inner.

Greater connection and Inayatullah’s fourth bottom line

Senge (1994) sees personal mastery and the integration of the intuitive, transcendent and rational faculties as being intricately interrelated in the modern workplace. These enhance perception of the connectedness of the world, compassion, and commitment to the whole (Senge 1994 p 167). Senge sees a movement away from selfishness and towards a commitment to something greater than ourselves, including a great desire to be of service to the world. This includes the experience of the awakening of “a spiritual power” (ibid. pp 167-172). This shift is an important part of the learning organisation. The encouragement of personal mastery in the terms mentioned by Senge, will “continually reinforce the idea that personal growth is truly valued in the organisation” (ibid. p 172). This principle could apply equally to the knowledge economy in general. Senge’s argument is relevant to related concepts within integrated intelligence—especially the core operations of integrated perception and personal and planetary transformation

There are parallels here to Inayatullah’s (2005) call for spirituality to be “the fourth bottom line” of business. Inayatullah believes there is already a strong shift towards a more responsible society and corporate world:

> We are moving from the command-control ego-driven organization to the learning organization to a learning and healing organization. Each step involves seeing the organization less in mechanical terms and more in gaian living terms. The key organizational asset becomes its human assets, its collective memory and its shared vision (Inayatullah 2004b www.metafuture.org/Articles/spirituality_bottom_line.htm).

For Inayatullah, the ‘spiritual’ requires three factors which echo the concept of the integrated society. Firstly, there is the need for a “relationship with the transcendent… both immanent and transcendental” (ibid.). Secondly, there is the necessity of meditation and/or prayer. Finally, Inayatullah posits the need to honor the social, which he defines as “a relationship with the community, global, or local, a caring for others” (ibid.).

Integrated intelligence stands as a possible mediation factor here—its core operations can work within all of these processes. If, as Inayatullah implies, spirituality does become the fourth bottom line of modern economics, integrated intelligence could play a crucial role.

The meditative, youth and meaning

It is the processes that are required to facilitate integrated intelligence which are likely to provide greatest benefit in circumventing the problems of the loss of the inner and transcendent, and the distracted attention of youth. Meditative, silent, and reflective states require awareness of inner worlds and non-ordinary states of consciousness. These are often required to facilitate integrated intelligence (Domain one: Nisker 1998; Wilber 2000c. Domain two: Braud 2003; Broomfield 1997; Grof 2000). They may help take young students' attention away from machines and entertainment, and direct their awareness inward. For the young of today, this has the potential to redefine the meaning of life. It may encourage a focus shift from entertainment and personal gratification, to seeing their lives within a universal and spiritual context. One of meditative discipline's primary benefits, argues Hayward (1984), is its potential to help establish a society where human relationships and political systems might be grounded within genuineness, compassion, gentleness, and "truly knowing who we are" (Hayward 1984 p 18). The methods of insight meditation, such as employed by the Buddhists, were specifically designed as ways to explore and experience the connection of self and the world around us (Nisker 1998 p 13).

Meditative states of mind leave the subconscious undistracted (Senge 1994 p 164). The capacity for mindfulness and equanimity is an intimate aspect of meditative traditions; in the Buddhist tradition of *Samatha* (quiescence), the process of fixing one's mind steadily upon an image is an important skill. Mindfulness is defined as "the faculty of sustaining the attention upon a familiar object without being distracted away from it" (Wallace 2002 p 178). Even sufferers of obsessive-compulsive disorders have been able to use meditation to gain insight, and choose “new and more adaptive responses to the intrusive and intensely bothersome thoughts and urges which bombard their consciousness” (Schwartz 2002 p 296). In this process, they also “systematically alter their own brain chemistry” (ibid.). Therefore, the easily-distracted youth of today might find similar benefits to the obsessive-compulsive disorder sufferers, via the use of meditative techniques.

In the Buddhist tradition, *Samatha* and *Vipassana* (insight) go hand in hand (Schwartz 2002 p 295). There are potential benefits here in terms of quiescence and mindfulness. The Buddhist tradition suggests that equanimity will surely accompany the employment of meditative methods in the facilitation of integrated intelligence.

To summarise, intuitive and inner worlds have been largely excluded from the modern knowledge economy and its education system. The insertion of the core operations of integrated intelligence into contemporary education, business, and society, via meditative and spiritual methods, may help redress this historical denouement.

This completes my consideration of the possible short-term applications of integrated intelligence in the knowledge economy. The essential argument is represented in Table 8.1, below. The focus now turns to the long-term future of humankind and cosmos, and the role which integrated intelligence might play therein.

Table 8.1: Four short-term problematiques and the potential mediating roles for I.I.

Problematique	Potential role of integrated intelligence
The corporate takeover of society and education Education controlled by big corporations and politics. Students products molded for society. Possessive individualism, narcissism and& greed. Ego and business shuts out Spirit.	Integrated perception enhances awareness of interrelatedness of people, environment and the universe—facilitates commitment to whole. I.I. and a spiritual curriculum may revive integrated, spiritual and humane education system. I.I. may be part of individuals' participatory knowing in society developing in wisdom and spirituality. In integrated society individual in feedback with Kosmos and entire system. Goal—actualisation, not domination. Industry in dialogue with system, not controlling it. Fluidity and transparency, free flow of information.
Systemic control, coercionand manipulation Establishment culture in control. Students/people cogs for the machine. Shame &and fear. Curriculum as state control. Higher needs of individuals neglected. Evolutionary pull of human Spirit suppressed. Integrated intelligence stultified - inner and transcendent space denied.	Self-actualisation more readily permitted within fluid integrated society. Integration of self and divine—morality and social cohesion follow. A more mature society—responsibilities of democracy more easily met Personal and planetary transformation. Knowledge &and wisdom drawn from Spirit—by-passing state and institutions.
Complexity, information overload and loss of meaning Internet exacerbates problem. Analysis paralysis. Critical rationality expanded, but intuition &and I.I. retarded. The big picture, meaning, sacredness, connectedness, & and spirituality lost. Bureaucracy dominates. Possessive individualism → alienation.	Immediacy of I.I. transcends conscious data. Individual imbedded in constant stream of knowing. Context and meaning of decisions enhanced—transpersonal perspective, intelligent Kosmos. Spiritual guidance. Wisdom seeks meaning beyond the self. Foresight enhances adaptability, facilitated by receptivity. Mindfulness & equanimity facilitate I.I. —overcoming confusion of complexity. Creative potential of I.I.2 to generate solutions—incl. science and research. Intelligent "Kosmos" —more meaningful and hopeful.

Table continued from previous page	
The rejection of intuitive and mystical knowledge Traditional schooling—critical rational WOK, other WOK ignored. Approach linear, neo-Darwinian competition. Teachers incapable of fluid teaching. Intuition and other WOK ignored &and stultified. Narcissism, individualism, ego in schools. Test scores the focus. Computers and internet: data increase, inner worlds diminished. Inadequate emotional nurturing, over-application of artificial stimuli—sensory and possibly ESP retarded—children uneducable.	Strong inner, intuitive focus—meditative, reflective states, non-ordinary states/consciousness. Mindfulness and equanimity result. Potential aspect of personal mastery. May contribute to spirituality in learning & healing organisation— – incl. relationship with transcendent, meditation/prayer, honouring the social. May redefine meaning of life - —away from entertainment and gratification, to perception of life within universal and spiritual context.

Part Two: The Long-Term Future—Human consciousness evolution

Any long-term prediction or visions of the future are inherently problematic. The task here is to posit a broader temporal view, seeking to find how integrated intelligence might assist in the longer evolutionary development of human consciousness. The privileging of the mystical/spiritual worldview will become more apparent.

8.6 The forward view: Beyond knowledge to transformation, wisdom and spirituality

Within this thesis I have used the mystical/spiritual worldview stand as a disruptor to the dominant discourses on mind and intelligence. Here I continue this process, using the givens of mystical discourse to guide the discussion. The idea that human consciousness is capable of developing transrationality will be significant here. Hawkins (2002), Gebser (1985), Grof (2000), and Wilber (2000a, b, c, 2001) will be applied.

Research suggests that extrasensory perception is enhanced when individuals are open-minded, share a common purpose and mutual trust, and have mindful attention

(Targ & Katra 1999). It may also require some degree of transcendence of the imperatives of the human ego (Bussey 2004). Given this, integrated intelligence may not be compatible with the aggressive, fast-paced, competitive culture of the knowledge economy. Its most suitable applications may possibly occur within a long-term global transformation of consciousness. Nonetheless, its *initial* applications in the ways suggested above may also help to facilitate such a shift in consciousness.

The wisdom society and the role of integrated intelligence

Wisdom is one of the end states of integrated intelligence (Table 1.3), and as has been argued, there is a strong overlap between integrated intelligence and wisdom (Chapter 6, section 6.3). It is in the facilitation of wisdom that integrated intelligence may serve its most beneficial long-term function.

Various critics have argued either that the wisdom society is approaching, or that it is essential for the futures of humankind (Bjonnes 2000; Dian 2003; Markley 2004; Elgin, in Phipps 2004; Slaughter 1996). Dian (2003) believes that the knowledge society will be short-lived, and that it will be replaced by the wisdom society, where “the human side of activity” will be deemed more important” (Dian 2003 p 7).

Slaughter (1996) also argues for a “wise culture which values wisdom above raw technical power” (Slaughter 1996 p 678). Slaughter sees the need for humankind to let go of the industrial model of education. Instead there is a need for an “opening to the processes of transformation available through the perennial wisdom of humanity” (ibid.). Notably, such a culture “is far-sighted and imbued throughout with transpersonal awareness” (ibid.). Both of these are vital components of an integrated intelligence.

Wisdom and spiritual experiences are closely correlated. Elgin (in Phipps 2004) points out that enlightenment experiences are a kind of awakening, with the individual “being bathed by a light with immense wisdom and compassion” (Phipps 2004). Elgin suggests that the term ‘homo sapiens sapiens’ (which he interprets as meaning “to be doubly wise") epitomises the true nature of humankind. Such a definition of humankind shifts the collective goal of the species, enabling us to:

> … discover our place in this living universe. It utterly transforms the nature of the human journey. Then we can ask ourselves: Are we serving our capacity for double wisdom, for knowing that we know–in other words, for awakening? And can culture co-evolve with that awakening of consciousness? (Phipps 2004 www.wie.org/ji9/elgin.asp).

Integrated intelligence is ultimately an intelligence for transcendence of the fragmented mind, embedded as the theory is within the IFM model and transpersonal and mystical discourses. Its greatest function may not be to serve the knowledge economy with its ego-dominated foci and fractured representation of knowledge, but to move humankind beyond it.

Integrated intelligence and the spiritual

Integrated intelligence is intricately linked to human spirituality. It is not a conception that can be conceptualised nor actualised without reference to this. This is because it is an intelligence which imbeds the self within a cosmic framework, meaning, and purpose. Yet as with Inayatullah's (2004) "fourth bottom line", this spirituality is not necessarily a religious, nor does it necessarily favour one specific interpretation of spirituality.

The spirituality of integrated intelligence is more akin to neuroscientist Antonio Damasio's (2004) concept of "life of spirit". Damasio finds that spirituality comprises three important components. Firstly, there is a sustained and "intense experience of harmony, to the sense that the organism is functioning with the greatest possible perfection" (ibid. 284). This includes a desire to act towards others with generosity and kindness. Damasio states that sustained feelings of peace, love, beauty, and joy are central to the spiritual. He suggests that "perhaps the spiritual is a partial revelation of the ongoing impulse behind life in some state of perfection" (ibid. pp 284-285). For Damasio spiritual feelings "form the basis for an intuition of the life process" (ibid. p 285).

Secondly, there is a "humanly nourishing" component to spiritual experiences (ibid. p 285). Joy, the most positive of human feelings, should be sought because it leads to "greater functional perfection" (ibid. p 285). Cooperative human behaviour thus causes a sense of pleasure and reward in the brain (ibid.).

Thirdly, spiritual experience can be deliberately facilitated. Traditional means such as prayer and ritual can be used in the modern age via the contemplation of nature, reflection upon scientific discovery, and experiencing great art including music (ibid. pp 285-286).

Damasio's is not a specifically transpersonal vision, but it is one that is highly compatible with the spiritual dimensions of integrated intelligence theory. Integrated intelligence also facilitates "an intuition of the life process". Its affective foundations represent an interface between the human and the cosmic, an intuitive relationship between human and divine. Damasio's refreshing synthesis of reductionist neuroscience with 'big picture' spirituality, mirrors integrated intelligence theory. Integrated intelligence theory as outlined in this thesis does not imply a denunciation of the material or the microscale. God and the divine is not 'in the brain', but neither is it purely transcendent. Any truly sustainable vision of human futures must acknowledge both the mundane and the divine, the micro and macro. As was shown in Chapter Three of this thesis, the interplay between critical rationality and the spiritual has been a central process in the evolution of Western culture, society, and consciousness. That interplay is not likely to end with a complete victory for the materialists. A truly integrated intelligence requires an integration—an all levels, all systems approach to the future of humankind.

Damasio makes a further point pertinent to integrated intelligence. The non-religious processes outlined in his third point lack the framework of traditional religious methods. Ritual and "shared assembly" (ibid. p 286) facilitate a range of spiritual experiences that are different from those that can be experienced individually (ibid.) Ironically, the individual focus of integrated intelligence theory as outlined in this thesis may potentially discourage a ‘participatory’ spirituality and lead to what Ferrer (2000, 2002) calls “spiritual narcissism”. Yet there is nothing in the theory as posited in this thesis which makes it explicitly antithetical to organised religious practice.

Nonetheless, this may be an issue with dogmatic and fundamentalist approaches to religion, as there has been a history of criticism by traditional religions of the new age, and to mystical knowledge that has proliferated in the West in recent years (Milojević 2005).

Wisdom is one of the end-states of integrated intelligence, and any direct and successful application of integrated intelligence within modern education and society will feasibly enhance general levels of wisdom in the populace. Integrated intelligence is embedded with the mystical/spiritual worldview, and may also help redress the dearth of the spiritual in the materialistic modern Western world.

Conclusion

The knowledge economy is embedded within the critical/rational worldview and its epistemic boundaries of knowledge—as are dominant mainstream theories of intelligence and consciousness. The possible employment of integrated intelligence in the modern world may allow the development of a self and a society which moves beyond the narrow dimensions of the knowledge economy and state education systems. This may help manifest a humankind imbued with transpersonal wisdom.

The vision developed here has emerged in the context of the tension inherent within the postmodern age, and its multiple competing perspectives. As Tarnas (2000) points out, it is this tension which has permitted a deepening of the questioning of personal, social and cosmic evolution. It has also permitted the kind of exploration that I have undertaken in this chapter, and in this thesis. I have neither resolved this tension, nor attempted to—for this tension is what will drive us forward.

The integrated society touched upon in this chapter will likely *not* emerge from a simple change of map or paradigm. As Wilber (2001) points out, merely exchanging a modernist/postmodernist worldview for an holistic one will likely perpetuate the current "Flatland" of modernity and postmodernism. This is because a new intellectual framework does not go deep enough. Wilber finds that the inner and spiritual dimensions must be incorporated at an experiential level (ibid.). Throughout this thesis I have argued that what is required is an expansion of our ways of knowing, of what it means to be intelligent, and to be human. That requires inner work, inner worlds, and the incorporation of the spiritual.

Integrated intelligence may assist humankind in not only accessing expanded sources of knowledge, but in re-connecting people with each other and the universal intelligence that—according to mystical traditions—has spawned us. In that sense we may see ourselves as an intrinsic part of the web of life, rather than as alienated automatons in a mechanistic universe. Integrated intelligence is potentially an intimate part in the healing of the vast macrocosmic wound created by the Enlightenment split between heart and soul. It may not completely resolve the existential dilemma of humankind at the dawn of the twenty-first century, but it offers a way to bridge the gap created by the unfinished Romantic project, which was left idling in the wake of the ascendance of "Flatland" in the present age.

Conclusion

> What stands out is that there is no field of science that is free from glaring ignorance (Maddox 1999 p 367).

This thesis began with a quote from a poorly educated (from a modern perspective) ‘intuitive inventor’ (Itzhak Bentov), making claims about the nature of consciousness and cosmos. The arguments posited throughout this thesis permit a greater understanding of Bentov’s representation of mind, and the reasons for his exclusion from mainstream discourses on mind. That exclusion is a function of a paradigmatic hegemony, which rejects Bentov’s mystical/spiritual ways of knowing. Bentov is representative of a discourse which has been effectively silenced in the halls of learning, academia and science in the contemporary West. Most notably, Bentov’s way of knowing is ‘intuitive’, built upon insights gleaned from meditation and non-ordinary states of consciousness.

My approach has also enabled a greater understanding of the words of Michael Persinger, the second theorist referred to at the beginning of the thesis. Persinger’s reductionist approach and materialist predilections are consistent with the civilisational ways of knowing and epistemic givens of the West.

I conclude this thesis with a review of the initial questions and the identification of future research issues. Finally, I suggest that there is a requirement for humankind to move beyond contemporary science’s dominant mythology: the universe-as-machine story.

A review of the initial questions

In Chapter One, a primary question and seven related questions were posited. The primary question was:

> **How has integrated intelligence become suppressed, and mainstream mechanistic depictions of mind privileged in contemporary Western science, society and education; and what are the implications of this for modern education and society?**

I showed that there are several major ways in which integrated intelligence and mainstream dominant contemporary depictions of mind and intelligence differ. This was outlined in Chapter Two (section 2.3), and summarised in Table 2.1. The defining differences have been shown to be:

- The materialism of mainstream science, versus the spiritual and metaphysical foundations of integrated intelligence, predicated upon 'Spirit', divinity, or cosmic consciousness.
- The empiricism of mainstream intelligence theory, founded upon the scientific method, versus the intuitive, first person approaches of theorists writing about integrated intelligence.
- Mainstream intelligence theory's position within Western science's neo-Darwinian insistence upon a random universe leached of intrinsic meaning and purpose, versus the mystical worldview where divine and cosmic mind exist within the evolution of the Kosmos.
- Mechanistic science's patriarchy, including control over nature, analysis and reductionism, and downplaying of the affective, versus the receptive and feminine processes of integrated intelligence.

- Mainstream mind science's valorisation of linguistic, logical and abstract/mathematical cognitive processes, versus the privileging of the intuitive and affective within integrated intelligence.
- Mainstream dominant intelligence theory's positioning within Western science's egoic, separated, individualistic prerogatives, versus the transpersonal and cosmic holism of integrated intelligence.
- The machine-dominant metaphors of Western conceptions of mind, versus the organic, divine, and fluid metaphors which dominate integrated conceptions of intelligence.

The related seven questions have been answered in the following way.

1. What is integrated intelligence?

Integrated intelligence is a transpersonal cognitive mode that integrates personal consciousness with the mystical, and permits a person to function successfully within a given environment. It comprises two related domains. Domain one integrated intelligence is the immediate perception of the integrated and holistic basis of Kosmos, usually perceived during meditative or contemplative experience. Integrated intelligence domain two comprises cognitive processes which are predicated upon extra-sensory perception: clairvoyance, visionary experience, the 'psychic' and the numinous.

2. In what ways does integrated intelligence differ from current mainstream dominant definitions and assumptions about consciousness and intelligence?

The distinctions outlined above in answer to the primary question are relevant. Further, Chapters Four to Seven demonstrated that there are seminal distinctions, via an analysis of both alternative and mainstream discourses on mind. The preferred ways of knowing are different. Western science has commonly rejected the inner, affective and subjective—the foundations of mystical insight. The analysis of texts in Part One of

Chapter Seven clearly demonstrated this. The mechanists valorise empiricism and the scientific method, while the mystics privileged the subjective domains of experience.

3. How have rational/linguistic definitions of consciousness and intelligence dominated these fields; and why has integrated intelligence been largely neglected in modern scientific discourse?

The genealogy developed in Chapter Three outlined the development of the Western rationalist hegemony. Over a period spanning two and a half millennia and the cultures of ancient Greece to the birth of modern world, critical/rational ways of knowing have come to increasingly dominate. Conversely, intuitive and spiritual modes of awareness have been increasingly rejected and devalued. Western society has increasingly employed experimental, classificatory, analytical, linguistic/logical, and mathematical ways of knowing to consecrate the real (Gardner 1993, 1999; Gardner et. al 1996; Pickstone 2000). Those domains of the Kosmos that are not readily examined or perceived using such ways of knowing became increasingly obfuscated. In particular, Wilber's (2000c) upper left-hand quadrant (the subjective inner realms of cognition) have been denied or reduced to the right hand quadrants—the empirical. Thus, modernity has generally relegated the intuitive to a lower status, while valorising the empirical and critical/rational.

Further, the employment of Inayatullah's CLA has brought to attention the pervasive failure of theorists within modern mind science to question the foundations of their own worldviews.

4. What power plays within these discourses have resulted in the exclusion of integrated intelligence?

Figure 2.2 in Chapter Two depicted an epistemic schemata showing how knowledge is mediated in the West. The mechanistic and neo-Darwinian paradigms have been shown to be crucial here (Chapters 4 & 5), as have the issues of ways of knowing. The mechanistic paradigm posits consciousness as epiphenomena, relegating it to diminished status as a domain of enquiry—although its importance has grown recently.

Integrated intelligence is often ridiculed or simply ignored in modern intelligence theory, and transpersonal and humanistic psychology have remained on the fringes of contemporary psychology. Further, cognitive psychology has become a handmaiden to the reductionist materialism of neuroscience (Maddox 1999). The restrictive computer metaphor is pervasive.

Within postmodernist/poststructuralist methods, the intuitive is reduced to another ‘way of knowing’. This has effectively illegitimated mystical experience, as postmodernist theory explicitly rejects hierarchies of knowledge (Wilber 2000c), while its methods are predominantly rational/analytical (Inayatullah 2002a).

5. What have been the seminal moments in the history of the West where integrated intelligence has been excluded?

Integrated intelligence has been present throughout the history of Western civilisation. Indigenous cultures have long held integrated conceptions and perceptions about nature and cosmos. In ancient Greece, Christendom, Gnostic cultures, the Middle Ages, and in the philosophies of the eighteenth and nineteenth century Romantics, there have been various depictions of intelligence that incorporate integrated intelligence. In contemporary society, elements of integrated intelligence can be seen in transpersonal theory, humanistic psychology, parapsychology, contemporary mysticism, the new age movement, and in some systems theories and quantum physics theory.

Integrated intelligence is not a singular discourse. Rather, it is scattered across these disciplines, discourses, and civilisations. There are conflicting theories, concepts, language, and metaphors. The definitions of domains one and two of integrated intelligence highlight their commonalities. These differences represent the greatest problem regarding the discussion of integrated intelligence.

6. How has the focus upon mechanistic representations of mind affected contemporary schooling and education?

It has been shown—particularly in Chapter Eight—that integrated intelligence has been effectively excluded from contemporary mainstream state education in the Western world. Intelligence has been defined in terms of scholastic ability, and the aptitudes of students in regard to how they might serve the economy. The increasing use of the computer has exacerbated this problem, as computer-aided instruction is not focused upon the inner worlds common to mystical discourses

7. What are the possible implications of incorporating integrated intelligence into modern society and educational practice?

The speculative nature of the potential uses of integrated intelligence which were posited in Chapter Eight reflects the newness of this concept. There is little current literature regarding how integrated intelligence might be employed in contemporary society.

Integrated intelligence might be used to reinstate the spiritual into contemporary education and to deepen the focus of curricula currently dominated by vocational education and the '3Rs' (Moffett 1994a). There may be short-term benefits for the knowledge economy, such as the reinsertion of meaning, purpose, and quiescence into people's lives, or to assist in research. Finally, its greatest functions may be in the development of the wisdom society and the evolution of human consciousness.

Further research issues

This thesis has introduced a new dimension to transpersonal and mystical theories of mind—their potential synthesis with intelligence theory. The focus has been upon situating the discourse within a civilisational and epistemic perspective. Yet numerous issues remain largely untouched here.

The evolution of consciousness towards the transpersonal (Gebser 1985; Hawkins 2002; Wilber 2000a, 2000b, 2000c) invites deeper enquiry. A prime issue is how to best categorise integrated intelligence. Is it a type of intelligence, as with Gardner's (1993a, 1993b) multiple intelligences? Is it a way of knowing, as with de Bono's (1999) six thinking hats model, or Pickstone's (2000) schema? Can it be classed as an extrasensory perception, or an 'extraordinary human experience'? Or could it be labeled a level of consciousness, as with Wilber's (2000c) model? Would a shift in consciousness from one level to a higher one be discernable in an IQ test?

The answers to these questions inevitably reflect how intelligence is defined. In this thesis, Reber and Reber's (2001) definition of intelligence as "the ability to profit from experience" (p. 361) has been adopted. This entails "…the ability to behave adaptively, to function successfully within particular environments" (ibid.). Chapter Eight outlined possible uses of integrated intelligence in a 'particular environment'—the knowledge economy. The potential applications of its core operations and end states suggest its possibilities as a form of intelligence.

A further important issue is whether a shift into the transpersonal realms of cognition transcends the need for the critical/rational intelligence of mainstream theory. For example, in the case of psychiatrist David Hawkins (2002), his claimed transcendence of rational consciousness resulted in his not having to analyse or *consciously* process information. His diagnosis of patients required no deliberate processing of data or necessity to make informed analytical decisions. This has important implications for intelligence theory. An individual operating at a transrational level of mind may be deemed 'unintelligent' in an IQ test, but be representative of a level of consciousness development which is far above the human average. This raises further issues regarding measurement of the core operations of integrated intelligence, an issue touched upon in the analysis of Jensen (1998), in Chapter Six.

The possible negative side-effects of developing and employing integrated intelligence have not been a focus within this thesis. These might include having too great a focus upon the numinous, and thus inhibiting a more "participatory" (Ferrer 2000, 2002) spiritual development; being "sucked into" traumatic or dark psychic patterns

(Buchanan 2003); spiritual narcissism (Ferrer 2002; Wilber 2000c); the fear of confronting numinous and spiritual dimensions (Sheldrake et al. 2001); and resistance from religious and scientific groups (Buchanan 2003; Grof 1985; Milojević 2005).

The need for new perspectives

In order for consciousness and intelligence theory to break out of their paradigmatic confines, we need new ways of looking at old problems. Former indigenous hunter Tjiniman Murinbata (Murinbata & Whitehead 2002) provides a relevant civilisational perspective on consciousness and mind. When taken to the Tuscan 3 consciousness conference,[33] Murinbata initially attempts to evaluate the conference as a ritual. However, he later modifies that description because the conference seems to him to take people away from the truth, not closer to it, which is what he claims true ritual should do. For Murinbata, the true ritual does this by connecting deeply with the past and the knowledge of the ancestors. Murinbata is puzzled to observe a series of 'talking heads' (the academics presenting papers), his description of Western science's intellectualised and dissociated ways of knowing, teaching, and learning (Murinbata & Whitehead 2002). Murinbata's observations suggest that consciousness studies need to incorporate alternative worldviews.

This mirrors Wilber's (2000a, 2000b, 2000c, 2001), Schlitz's (2001) and Varvoglis' (2003) arguments that it is time to move beyond pure empiricism in the study of mind. Empirical science attempts to eliminate all subjectivity, and extract all inners, and intuitions from its methods. Schlitz (2001) feels that "it really comes down to 'I'" (Schlitz 2001 p 342). Further, it is necessary to acknowledge that "even the 'it' and the 'I' are grounded in the 'we'" (ibid.).

Another domain I have not considered is how advanced levels of technology might enhance integrated intelligence. Physicist Michio Kaku (1997) expresses the pertinent

[33] Charles Whitehead took Murinbata to this conference in Arizona in 1998 to provide an indigenous perspective. See www.imprint.co.uk/pdf/Tjiniman.pdf.

concept of an electronic global mind in his book *Visions*. An interface of integrated and electronic intelligence may be able to work in complementary fashion, each supplementing the weaknesses of the other. Yet it can be seen that what researchers such as Kaku call the global brain, consists of cognitive functions that are an extension of the Western rationalist hegemony (data processing, codification, analysis, etc.). Conversely the core operations of integrated intelligence approximate intuitive processes (holistic perceptions, insight, meaning, transpersonal experience). How these two seemingly opposing visions of mind might come together in the future is scope for much further research.

Finally, this thesis has identified some on-going problems for research into integrated intelligence. These include:

- The problem of communicating mystical insights in the mental/rational medium of books and academic papers.
- The lack of agreed upon terminology in the literature. Terms such as ‘psychic’, ‘psi’, ‘transpersonal’, ‘transcendent’, ‘intuitive’, ‘numinous’, ‘spiritual intelligence’, ‘divination’, ‘revelation’, may all cover related ground, or may refer to completely unrelated themes.
- The problematic nature of establishing empirical validity for integrated consciousness.
- A tendency for theorists espousing transpersonal claims to over-rely on analogies with quantum physics and systems theory. A similar problem derives from the tendency to employ spiritual literature as supporting evidence for claims.
- Despite the recent increased credibility of consciousness studies “confusion abounds” (Blackmore 2001 p. 22).
- It remains unclear how intuition relates to other cognitive capacities (Torff & Sternberg 2001 p 7).

- There is the ever-present scorn and attacks of skeptics, academics, and those in mainstream discourses (Anthony 2003b).

These problems require considerable further research and/or negotiation before genuine progress can be made.

Time for a new story

Inayatullah's (2002a) CLA methodology allows us to see that contemporary Western society and its representations of mind are founded upon the story of the machine, and humankind's obstinate infatuation with its own power. Like Narcissus staring at his reflection and falling in love with himself, modern humankind has built the machine and become enamoured with it. The machine reflects the tenets of patriarchy, the power of *man* over nature, and the dream of rising above the vulnerability of life within an uncertain cosmos. So infatuated with the machine has humankind become, that everywhere we look, we see the machine. Abraham Maslow (1971) famously noted that to the person with a hammer, everything looks like a nail. To paraphrase with a twist, to someone who has fallen in love with the machine, the whole universe looks like a machine—something that can be switched on and off, taken apart and put back together, and ultimately controlled and overpowered. This paradigmatic pathetic fallacy has ultimately pervaded contemporary theories of mind, and so the computer has come to be the dominant metaphor of cognitive science.

Many theorists are referring to the need for a change of mythology. Schlitz (2001) argues that our civilisation is "between stories". It is a time of transition, and the new story has not yet emerged. She asks:

> Is there a new story that is not about a strictly physical, reductionist, separate, objective world out there, but one in which we are fundamental actors in the evolutionary process? If we can be bold enough to own our responsibility, we may be bold enough to recognize that we are conscious participants in an evolving universe (Schlitz 2001 p 350).

“The time of Western organizing myths is passing”, writes psychologist Mihaly Czikszentmihalyi (2004 p xii). The central organising ideas of the past—“Myth, God, and Reason” —need to be superseded by “Holos” or the understanding that humankind is embedded within larger systems.

Duane Elgin believes that the present crisis of humankind is a spiritual one:

> We are not simply hitting an environmental wall, or the limits to physical growth, but we are hitting an evolutionary wall, which is the limit of our traditional image of who we think we are as a species, and the limit of that form of growth. And we are also hitting the limits of our life stories as nations, as races, as ethnic groups. We need to find our larger story as a human family. So when we look at our sense of identity as a species and our need for a larger story, then that invites us to look into the so-called spiritual realm (Phipps, 2004 www.wie.org/ji9/elgin.asp).

Grof (1985) similarly argues that humankind is on the verge of a major shift of paradigms much like the Copernican and Darwinian revolutions. The understanding that consciousness is not confined to the brain, and is a vital aspect of the universe requires a complete revision of our maps of reality. Like Wilber (2000c), Grof believes that a simple intellectual shift will be inadequate; a profound transformation of consciousness will be required (Grof 1992 p 217).

Integrated intelligence shares many of the qualities and characteristics which Czikszentmihalyi, Elgin, Schlitz, Grof, and others are saying must be part of a new paradigm for humankind. As stated in Chapter Eight, its ultimate function and benefit may be personal and planetary transformation, a claim that runs through mystical traditions worldwide (Wilber 2000c). Yet like Narcissus, humankind must see the self-limitations of an ego-centered focus. The machine metaphor threatens to lock humankind into an endless and futile bid to control and subvert nature, and to reduce consciousness to epiphenomenal status within a machine cosmos where life is nothing but “temporary bits of organised matter” (quoted in Mole 1999 p 80).

Although mainstream discourses have been slow to acknowledge it, the trend towards depicting consciousness and intelligence in integrated terms is slowly gaining momentum (Anthony 2003b). Integrated intelligence can thus no longer be dismissed as irrelevant, useful only to mystics, or as an anachronism. This movement is profound in its implications for science, education and society.

Integrated intelligence cannot simply be incorporated into our epistemological maps as a new discipline or an emerging field, as have artificial intelligence theory and genetic theory, for example (Kaku 1997). These fields reside firmly within the mechanistic, reductionist paradigm which legitimates them and elevates them to privileged positions within modernist space. Conversely, integrated intelligence is paradigm-shaking. As Jung wrote, rationalists are forced to insist that the “paranormal” does not exist, for their worldview stands or falls on the issue (Jung 1989 p 305). Similarly, acknowledgement of integrated intelligence requires a profound paradigmatic adjustment. It threatens to destabilise the foundations of the current dominant Western map of the universe, but also to expand our minds beyond the self-fixated boundaries of egoic humankind. This has the potential to undermine the “selfish gene” thesis that has paradigmatically defined so much of recent biological and psychological science (Loye 2004a; Maddox 1999).

Final note

In this thesis, I have compared and contrasted two different constructs of intelligence, which emerge from different ways of knowing, and different worldviews. It is appropriate to end with a reference from representatives of both schools. Contemporary mystic Stuart Wilde writes:

> An energy shift that’s prevalent in the world today sees one group of people moving gradually from ego towards spirit, through the realignment of their consciousness, while anther group is threatened by changing circumstances and moves increasingly in the opposite direction, toward the ego, seeking greater manipulation, guarantee, and control over human affairs (Wilde 1993 p 8).

Mystics such as Wilde (1993, 2001), Wilber (2000c), Bucke (1991), and Hawkins (2002) commonly equate the unbalanced rational mind with the ego, while skeptics often see the mystics as “the enemies of science” (Efremov 2002). Yet it need not be a battle of extreme and incompatible paradigms. The interplay between these two worldviews stands as a potential interface where human knowledge might expand beyond its currently defined boundaries, as Tarnas (2000) has noted.

Finally, as long standing former editor of *Nature*, Maddox (1999) argues science is “far from being at an end” (Maddox 1999 p 331). He finds that “there will be many unknowns brought to attention in the years to come”, and that “The 500 years of modern science are a good beginning, but only a beginning” (ibid.). He states:

> The truth is that the sheer success of science in the past half-millennium has engendered a corrosive impatience. We too easily forget how recent are the empirical and theoretical foundations of present understanding. Prudence, or merely good manners would dictate a seemly recognition that they may also be incomplete (ibid. p. 375).

There is much to learn.

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