RETHINKING CLAIMS OF SPIRITUAL INTELLIGENCE: A DEFINITION, MODEL, AND MEASURE

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ABSTRACT

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A four-factor model of spiritual intelligence is proposed. Supportive evidence is reviewed for the capacities of critical existential thinking, personal meaning production, transcendental awareness, and conscious state expansion. Beginning with an over-inclusive 84-item Spiritual Intelligence Self-Report Inventory (SISRI) in Study 1 (N = 619 undergraduates), a series of exploratory factor analyses led to a reduced 39-item scale. Study 2 (N = 305 undergraduates) involved a confirmatory factor analysis which resulted in the removal of additional scale items in order to obtain adequate model fit. The final version of the scale, the SISRI-24, displays excellent internal reliability and good fit to the proposed four-factor model of spiritual intelligence. Additional measures of meaning, metapersonal self-construal, mysticism, religiosity, emotional intelligence, IQ, and social desirability offer support for construct validity. According to both intelligence criteria and current psychometric standards, findings validate the proposed model and measure of spiritual intelligence. Suggestions for future studies are discussed.

To Teresa

for opening doors, supporting dreams,

and making this thesis possible.

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A Brief History of the Study of Human Intelligence

In the fourth century B.C.E., the Greek philosopher Plato compared human intelligence to blocks of wax, in so much that people differed in the size, hardness, moistness, and purity of their intelligence. In this analogy, intellectual deficits were described as the result of overly hard, overly soft, muddy, or impure blocks of wax (Cianciolo & Sternberg, 2004). Plato's own predecessor, Socrates, was a supporter of the Anaxagorean notion that intelligence organizes all things and is therefore the reason for everything. Socrates reasoned that intelligence would always organize things in the best way possible, and although he did not agree with all of Anaxagoras' teachings, these ideas contributed to Plato's famous *theory of forms* and *allegory of the cave*, which suggest that reality exists only in one's mind (Zusne, 1957).

Many of these ancient philosophies regarding the human mind had a profound impact on the philosophy of thirteenth-century Christian theologian Thomas Aquinas, who argued that intelligent people had more complete and universal comprehension skills compared to those with lower intelligence (Cianciolo & Sternberg, 2004). Eighteenth-century philosopher Immanuel Kant believed that the mind had no substance; that it was an active process which converted sensory input into an ordered, coherent, and meaningful experience. He called this process apperception (Kant, 1781/1997). Regarding intelligence specifically, he proposed that there were many different types or facets of intelligence, each varying greatly in degree from individual to individual (Cianciolo & Sternberg, 2004). In the early part of the following century, phrenologist Franz Joseph Gall developed cranioscopy, a system for determining personality and mental ability based on external features of the skull (Gall & Spurzheim, 1835, as cited in Cianciolo &

Sternberg, 2004). While this method was later deemed invalid, it raised important questions regarding the measurement of intelligence (Cianciolo & Sternberg, 2004).

It was not until the late nineteenth and early twentieth centuries that the superconstruct of intelligence would experience a massive boom in scientific theory and research (Cianciolo & Sternberg, 2004). In his 1871 book *The Decent of Man*, Charles Darwin contended that human intelligence developed from the instincts of our earlier nonhuman ancestors. The difference between human intelligence and that of other species was simply a matter of degree resulting from evolutionary processes. Accordingly, only intelligent genes would have remained in the gene pool, increasing the degree of intelligence over time (Darwin, 1871).

Explorer, anthropologist, and Darwin's cousin, Sir Francis Galton, concurred with the notion that human intelligence resulted from evolutionary processes and attributed the degree of success in people's lives to such heritability (Cianciolo & Sternberg, 2004). Galton outlined support for this theory in his book *Hereditary Genius* (1869/2000), in which he traced the lineage of eminent European men. This theory, as well as his suggestion that individuals with low intelligence should not be allowed to breed, were largely responsible for initiating the European eugenics movement at the turn of the century (Clayes, 2001). Galton made additional controversial claims regarding the intelligence of African people, suggesting that Anglo-Saxons were at least two levels above in their intelligence (Jensen, 2002). Such ideas had lasting effects on the nature/nurture debate (Solso, MacLin, & MacLin, 2005), which extended well into twentieth-century theories of intelligence (Cianciolo & Sternberg, 2004).

James Cattell expanded on Galton's work with psychological testing using surveys and questionnaires. J. Cattell strongly encouraged the development and acceptance of more quantitative measures in the field of psychology (Cattell, 1890), one goal being the study of

human intelligence (Cianciolo & Sternberg, 2004). He came to the conclusion that there likely exists a general, unifying human intellect, based on findings regarding students' reaction times and other simple sensory processes (Cattell & Ferrand, 1896, as cited in Ciancolo & Sternberg, 2004). This was in contrast to conclusions made by J. Cattell's assistant, Clark Wissler, who observed little support for a general intellectual ability (Cianciolo & Sternberg, 2004).

More valid methods of testing intelligence were developed by Alfred Binet and Theodore Simon in 1916 (Cianciolo & Sternberg, 2004). They defined intelligence as a set of judgement skills which could only be tested by examining higher-level cognitive abilities, such as verbal skills and social comprehension, rather than simple mental processes like those measured by Galton (1869/2000) and J. Cattell (1890). Binet and Simon's original test consisted of tasks designed to measure mental performance in childhood. Immediately following its release, Lewis Terman (1916) revised and perfected the Binet-Simon intelligence test and initiated its use in North America, at which time the test was renamed the Stanford-Binet Intelligence Scales. Terman (1916) was also the first to utilize the intelligence quotient (IQ) score (Cianciolo & Sternberg, 2004).

IQ was a concept previously developed by William Stern in 1912. To this day, it is measured by dividing a person's mental age (the highest level of successful performance on a test) by his/her chronological age and multiplying this number by 100 (Cianciolo & Sternberg, 2004). In spite of multiple revisions to the Stanford-Binet Intelligence Scales, the most recent of which was in 2003, the test has continued to prove a useful tool in measuring intelligence in children (Cianciolo & Sternberg, 2004).

The First World War brought with it a momentous change in intelligence testing. Due to the need to evaluate large groups of individuals simultaneously, intelligence testing shifted from

individual task performance to group administration of written tests with short instructions. This was also the catalyst for the development of adult intelligence testing in general. Due to the efficiency of these military tests, similar tests were subsequently developed for civilian populations in order to determine such things as educational opportunity and academic achievement (Cianciolo & Sternberg, 2004).

In 1926, British psychologist Cyril Burt advocated for a national testing system that would identify children with higher levels of intelligence and provide equal opportunity in the educational system. Burt (1921, as cited in Fancher, 1985) argued that any testing should begin at the age of eleven, suggesting that this is the age at which intelligence becomes fixed. He was heavily influenced by Galton (1869/2000), believing that genetics played a critical role in intelligence, and later supported this theory with a series of twin studies in which identical twins raised in separate homes had similar IQ scores (Fancher, 1985).

Cyril Burt was later officially accused of using fraudulent data in his research. Although a version of Burt's testing program is still used by British schools today, his conclusions regarding the genetic role in intelligence are not well supported (Fancher, 1985). Kamin (1974, as cited in Fancher, 1985) was one of the psychologists who later investigated the methodology and statistics of Burt's research. He continues to argue for the importance of environmental factors in intellectual development (Fancher, 1985).

One of the individuals heavily involved in early intelligence testing was David Wechsler, who defined intelligence as "the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment" (Wechsler, 1944, p. 3, as cited in Fancher, 1985). His first intelligence test, the Wechsler-Bellevue Intelligence Scale (Wechsler, 1939, as cited in Fancher, 1985), was a performance test consisting of both

verbal and non-verbal questions. Although initially criticized for their inefficiency, multiple revisions led Wechsler to demonstrate the value of performance tests. Today there exist Wechsler Intelligence Scales designed for all age groups (Cianciolo & Sternberg, 2004).

In the midst of this expansion of intelligence testing, one of the most influential theories on the nature of intelligence was developed. British psychologist Charles Spearman (1904) proposed a two-factor model of intelligence, consisting of a general ability named *g* and specific abilities named *s*. He described g as a generalized mental energy which is measured by all intelligence tests, and which is available to the same individual to the same degree in all mental operations. Specific abilities relate to specific mental operations and vary from act to act. Examples include word knowledge, math knowledge, and English proficiency. Essentially, all mental acts require a combination of the two factors g and s; however, Spearman (1904) believed that g was the more important factor in intelligence, since one could easily predict the amount of g used on a task based on the amount of g used on all other tasks. He further suggested that the important differences observed in mental test scores were more likely due to g alone. In this model, then, intelligence is represented by a single mental capability (g) while specific abilities (s) are skills measured by mental tests (Cianciolo & Sternberg, 2004).

Although Spearman's (1904) model of intelligence as a single construct dominated the field for some time, it also sparked a lasting debate (Cianciolo & Sternberg, 2004). Thomson (1939, as cited in Cianciolo & Sternberg, 2004) argued that g is in fact composed of many mental capabilities, skills, and motivations operating simultaneously, rather than the mental energy described by Spearman (1904). Louis Thurstone (1938, as cited in Ruzgis, 1994) defined intelligence as the capacity for abstraction and proposed that it consists of seven primary abilities, including word fluency, verbal comprehension, spatial visualization, number facility,

associative memory, reasoning, and perceptual speed. He formulated these seven abilities based on an extensive factor analysis of test data, which contradicted Spearman's (1904) statistical finding that all mental test scores tended to load on a single factor. In addition, when Thurstone (1938, as cited in Ruzgis, 1994) examined mental test scores of individuals with roughly the same IQ, he found that they differed greatly in their primary abilities, further supporting his theory of primary mental abilities (Cianciolo & Sternberg, 2004).

In 1942, Donald Hebb divided intelligence into two categories, dubbed Intelligence A and Intelligence B. Intelligence A represented the biological component of intelligence, while Intelligence B was generated when Intelligence A interacted with the environment (Hebb, 1942, as cited in Vernon, 1979). Although these distinctions proved valuable in the study of intelligence, it was suggested that Intelligence B could not be measured due to the infinite number of potential confounding variables. Furthermore, Intelligence A was not considered a concrete entity and could not be directly measured (Vernon, 1979).

Phillip Vernon (1950, as cited in Cianciolo & Sternberg, 2004) attempted to consolidate the theories of Spearman (1904) and Thurstone (1938, as cited in Ruzgis, 1994) by proposing a theory in which Spearman's g was at the top of a hierarchy, accounting for the majority of the variance in human intelligence. Below this general factor were group factors divided into three categories: major, minor, and specific. Vernon (1979) also supported Hebb's theory of intelligence, but added a third component, Intelligence C, which he defined as the manifest responses on intelligence tests. Adding this third component to Hebb's theory allowed one to estimate the levels of Intelligences A and B by examining Intelligence C (Vernon, 1979).

Following Vernon's original suggestions regarding g, Guilford (1956, as cited in Cianciolo & Sternberg, 2004) proposed the structure-of-intellect theory, a model of intelligence

absent of any general intellectual capability. Far more complex than any preceding theory, this notion of intelligence consisted of 120 distinct mental abilities. Each ability was based on the combination of three dimensions: content (figural, symbolic, semantic, or behavioural), cognitive product (units, classes, relations, systems, transformations, or implications), and mental operation (cognition, memory, divergent production, convergent production, or evaluation). For example, one of these abilities was *memory for semantic units* (Guilford, 1956, as cited in Cianciolo & Sternberg, 2004). Although the three dimensions proved useful, the complexity of the model made it statistically problematic (Cianciolo & Sternberg, 2004).

Personality theorist Hans Eysenck (1971, 1979) was a huge proponent of Hebb's (1942, as cited in Vernon, 1979) model of intelligence and he further supported Vernon's (1979) addition of Intelligence C. Eysenck (1971, 1979) believed that the most suitable model of intelligence was one which combined Spearman's (1904) g, Thurstone's (1938, as cited in Ruzgis, 1994) primary mental abilities, and the IQ components of speed, persistence, and error-checking. Jensen (1969), a student of Eysenck's, developed his own model of intelligence in which Spearman's (1904) g was separated into two ability sets. Level I abilities included memory functions and simple learning processes while Level II abilities included abstract reasoning and conceptual thought. Today, Jensen continues to be an avid supporter of the hereditary component of human intelligence, mirroring previously controversial research by Galton (1869/2000) and Burt (1921, as cited in Fancher, 1985; Jensen & Miele, 2002).

Jean Piaget (1963) also made a lasting contribution to intelligence theory, specifically within the field of epistemology, focusing on how knowledge is acquired throughout the lifespan. Based on his experience with intelligence testing in children, Piaget came to the conclusion that the intellectual abilities of children are not simply at a lower level than those of

adults, but that they differ entirely in quality. He proposed that intelligence is a form of adaptation and is constructed by the interplay of two complementary processes: assimilation (fitting new information into current cognitive schemes) and accommodation (changing current schemes to absorb new information; Piaget, 1963).

Piaget (1963) further proposed four stages of intellectual development. The first, the sensorimotor stage, lasts for the first two years of life and describes the development of intelligence through motor interactions with the environment. The preoperational stage, lasting until six or seven years of age, describes the emergence of the ability to make mental representations of unseen objects. The concrete operations stage dominates until the age of eleven or twelve and involves deductive reasoning, conservation of number, and the ability to differentiate between perspectives of one's self and others. Finally, the formal operations stage is occupied for the remainder of the lifespan, and is primarily characterized by the ability to think abstractly. Piaget's (1963) theory of intellectual development has gained enormous support among psychologists in recent years (Cianciolo & Sternberg, 2004).

The Current State of Intelligence Theory and Research

Today, the nature of human intelligence is considered one of the most controversial and highly debated areas of psychological theory and research (Solso et al., 2005). Although current research continues to utilize various measures of the intelligence quotient (IQ) developed by Stern in 1912, the concept of IQ is actually one of the most robustly debated topics within intelligence theory. Sternberg (1988) asserts that IQ tests tap the construct that has come to be represented by IQ, which in his opinion does not accurately reflect human intelligence, but rather select types of abilities and knowledge. Sternberg (1988) also identifies some erroneous assumptions which underlie IQ tests: that speed is a component of intelligence; that high

vocabulary is indicative of high intelligence; and that everyone solves test items in the same way, with more intelligent people simply being better at doing so. Gardner (1983), author of the theory of multiple intelligences, concurs, suggesting that the IQ movement is blindly empirical with little concern for the processes involved in intelligence tests. He further describes the IQ test as "the 'shotgun' approach to the assessment of human intellect" (Gardner, 1983, p. 18), noting that tests are usually unrelated to everyday life.

The past two decades have also witnessed an expansion of research on the biological foundations of human intelligence. While Gall's early system of cranioscopy has since been dismissed, a number of studies have consistently suggested a slight positive relationship between head size and IQ scores (*r*s = .08 to .14; Cianciolo & Sternberg, 2004). Vernon, Wickett, Bazana, and Stelmack (2000) found that greater head size is on average related to higher scores on intelligence tests. Vernon et al. (2000) also observed a moderate correlation between IQ and brain volume, a finding which has been supported by MacLullich, Ferguson, Deary, Seckl, Starr, & Wardlaw (2002; *r*s = .35 to .50). Cianciolo and Sternberg (2004) remark, however, that it is not clear whether greater brain volume contributes to higher intelligence scores or whether other factors which cause higher intelligence actually lead to larger brain volume. Furthermore, the relationship is difficult to analyze due to the confounding effects of body size, physical fitness, and gender (Cianciolo & Sternberg, 2004).

Technological advances have allowed for far more sophisticated methods of investigating the biological components of intelligence. Studies using both positron emission tomography (PET) and functional magnetic resonance imaging (fMRI) technologies have consistently revealed that neurological activity during intellectually demanding tasks involves the brain's frontal lobes (Cianciolo & Sternberg, 2004). Another line of research has examined the

relationship between IQ and electroencephalogram (EEG) recordings. Promising results have been observed in tests of the neural efficiency hypothesis (Neubauer & Fink, 2003), which states that individuals with greater intelligence display more efficient brain activity during mental tasks, indicated by less cortical activation. A number of studies have supported this hypothesis (e.g., Grabner, Fink, Stipacek, Neuper, & Neubauer, 2004; Neubauer & Fink, 2003; Neubauer & Fink, 2005), suggesting that smarter individuals make more efficient use of their brains. This has been further supported by the use of the PET scan, although this particular line of research is inconsistent across studies (Cianciolo & Sternberg, 2004; Haier, 2003). Results from fMRI studies are similar but mixed (e.g., Bunge, Ochsner, Desmond, Glover, & Gabrieli, 2001; Seger, Poldrack, Prabhakaran, Zhao, Glover, & Gabrieli, 2000).

Although neurophysiological findings have contributed significantly to the field of intelligence, a great deal of controversy continues to revolve around the definition of intelligence in general (Solso et al., 2005; Sternberg, 1997). The ideas proposed by Spearman (1904), Thurstone (1938, as cited in Ruzgis, 1994), Hebb (1942, as cited in Vernon, 1979), Vernon (1950, as cited in Cianciolo & Sternberg, 2004), Piaget (1963), and others continue to weigh heavily on current intelligence theory and research.

The Theory of Fluid and Crystallized Intelligence (Horn & Cattell, 1966)

One of the leading theories today is the theory of fluid and crystallized intelligence, which was originally proposed by Raymond Cattell and later elaborated by his student John Horn (Cianciolo & Sternberg, 2004). It is now known as the Cattell-Horn theory of intelligence (Horn & Cattell, 1966) and proposes that general intelligence is not simply a single construct, but rather a composition of up to 100 different mental abilities. These abilities manifest in different people

to different degrees, resulting in different levels and types of intelligences. Horn and Cattell (1966) divide these abilities into two categories: fluid and crystallized.

Fluid abilities, denoted by *Gf*, include problem-solving, flexibility of thought, abstract reasoning, and encoding of short-term memories (Cianciolo & Sternberg, 2004). Gf is similar to Hebb's (1942, as cited in Vernon, 1979) Intelligence A, in so much that it represents the biological potential of the individual, independent of environmental influence. Gf has been described as the set of mental abilities which are utilized when one does not already know what to do (Horn & Cattell, 1966). Crystallized abilities, denoted by *Gc*, result from educational and cultural influences. Gc is not, however, entirely comparable to Hebb's (1942, as cited in Vernon, 1979) Intelligence B, as it does not describe environmental influences in general. Rather, it results from the learning that takes place within one's educational and cultural settings. It is Gc that is measured by tests of general knowledge, vocabulary, or other acquired skills. While Gf is primarily affected by physiological influences, Gc is affected by motivation, personality factors, and opportunities in one's life (Horn & Cattell, 1966).

A number of studies have since found significant correlations (*r*s = .45 to .55) between fluid and crystallized intelligence (e.g., Cattell & Horn, 1978; Undheim, 1976). Duncan, Burgess, and Emslie (1995) demonstrated that Gf is closely related to Spearman's (1904) g, supporting Horn and Cattell's (1966) original contentions. As such, it is often placed at the top of a hierarchy with Gc below, emphasizing its magnitude (Cianciolo & Sternberg, 2004). Today, fluid and crystallized intelligence are typically measured using traditional intelligence tests, with specific abilities representing either Gc or Gf (e.g., Crawford, 1991).

The Triarchic Theory of Human Intelligence (Sternberg, 1988)

In 1988, Robert Sternberg offered his triarchic theory of successful human intelligence, which contends that successful intelligence involves a balanced interrelationship between three primary ability sets: analytical, creative, and practical. Analytical abilities enable a person to evaluate, compare, and contrast different pieces of information. Creative abilities, on the other hand, enable a person to create or invent new ideas and discover new concepts. Practical abilities allow people to apply the information that has been learned in various environmental settings (Sternberg, 1988). Success, then, is determined by one's ability to strengthen each of these ability sets while compensating for or correcting any weaknesses (Cianciolo & Sternberg, 2004).

Howard, McGee, Shin, and Shia (2001) tested the structure of Sternberg's model in a sample of students and found that practical abilities predicted greater content understanding and application of problem-solving skills (Howard et al., 2001). Grigorenko and Sternberg (2001) found that all three ability sets were related to higher self-reported measures of adaptiveness in a Russian sample (*r*s = .07 to .23), although creative and analytical abilities were related to lesser degrees. Recently, Sternberg's (1988) theory has been subjected to more practical applications with the development of triarchically-based instruction and assessment programs (Grigorenko, Jarvin, & Sternberg, 2002). Practical abilities have been found to be useful in both non-academic settings (Grigorenko, Meier, Lipka, Mohatt, Yanez, & Sternberg, 2004) as well as classrooms (Williams, Blythe, White, Li, Gardner, & Sternberg, 2002). O'Hara and Sternberg (2001) found that individuals who prefer to "play with" their own ideas score higher on creative performance. Sternberg has also developed a measure of his three abilities, the Sternberg Triarchic Abilities Test (STAT), which has displayed a moderate level of construct validity (Sternberg, Castejón, Prieto, Hautamäki, & Grigorenko, 2001).

Varieties of Intelligence: Social and Emotional

Theories have also been proposed regarding the nature of specific types of intelligence or skill sets. Emotional intelligence, a term originally coined by Wayne Payne (1985), is one of the most widely discussed of these intelligence subtypes. The concept was conceived in the footsteps of Edward Thorndike (1920) who used the term *social intelligence* to describe the extent of one's ability to relate to other people, which he considered distinct from the typically-discussed verbal and mathematical abilities (Thorndike, 1920). Although research was lacking for decades following Thorndike's proposal of social intelligence, the notion was more recently revisited (Salovey & Mayer, 1990). Sternberg (1985) himself concluded that social intelligence is a key factor in determining success in practical situations. More recently, Weis and Sub (2007) demonstrated that social intelligence is in fact distinct from academic intelligence. Although a clear definition and valid measure are lacking (Sternberg, 1988), the concept of social intelligence initiated a critical discussion of interpersonal and intrapersonal ability sets which now underlie theories of emotional intelligence (Goleman, 1995).

Payne (1985) originally defined emotional intelligence as one's ability to relate creatively to fear, pain, and desire, and explored many methods for developing emotional intelligence in one's self and in others (Payne, 1985). The concept was soon thereafter expanded on by Peter Salovey and John Mayer (1990), who formulated a model of emotional intelligence based on the pre-existing body of research on how people appraise, communicate, and utilize emotions. According to Salovey and Mayer (1990), emotional intelligence is a type of social intelligence and is defined as the capacity to understand emotional information and reason with emotions. It is comprised of four primary abilities: (1) the capacity to accurately perceive emotions, (2) the capacity to use emotions to facilitate thinking, (3) the capacity to understand emotional

meanings, and (4) the capacity to manage emotions. Although their linking of emotion and intelligence was heavily criticized, Mayer and Salovey (1993) argue that many intellectual problems contain emotional information that must also be interpreted and processed.

Mayer, Caruso, and Salovey (2000) have further demonstrated that the Salovey and Mayer (1990) model of emotional intelligence meets the standard criteria for intelligence. To begin with, Mayer et al. (2000) argue that their conception of emotional intelligence denotes a set of abilities and not simply preferred behaviours. This is supported by the fact that emotional intelligence can be operationalized using a set of ability tests. Secondly, Mayer et al. (2000) have demonstrated moderate to strong intercorrelations (*r*s = .49 to .94) of the defined abilities, while a factor analysis indicated that the construct was partially distinct from verbal intelligence. These findings suggest that the Salovey and Mayer (1990) model consists of interrelated abilities that are distinct from other types of intelligence. Thirdly, a study of adolescents and adults indicated that emotional intelligence develops over the lifespan (Mayer et al., 2000).

Daniel Goleman (1995), who is currently well-known for the popularization of emotional intelligence, later reorganized and expanded on Salovey and Mayer's (1990) original model. Goleman's (1995) hierarchical model proposes five emotional competencies: (1) the ability to identify and name one's emotional states and to understand the link between emotions, thought and action; (2) the capacity to manage one's emotional states; (3) the ability to enter into emotional states (at will), associated with a drive to achieve and be successful; (4) the capacity to read, be sensitive to, and influence other people's emotions; and (5) the ability to enter and sustain satisfactory interpersonal relationships. Goleman (1995) suggests that while there exists a correlation between IQ and completion of high school, emotional intelligence is actually more predictive of such outcomes. The true value of emotional intelligence in academic and career

success, however, has yet to be accepted or rejected empirically, as findings are still quite mixed (see Austin, Evans, Goldwater, & Potter, 2005; Parker et al., 2004; Van der Zee, Thijs, & Schakel, 2002; Zeidner, Matthews, & Roberts, 2004).

Methods of measurement of emotional intelligence vary greatly in the current literature. Measurement of emotional task performance is often considered the most reliable indicator, as it measures one's emotional intelligence as it manifests. Emotional perception, for example, is usually measured using a series of emotional recognition tasks, in which participants are asked to identify emotions in a series of faces (Mayer et al., 2000). The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) measures the four abilities proposed by Salovey and Mayer (1990) and has been deemed reliable and valid (Mayer, Salovey, Caruso, & Sitarenios, 2003). In contrast, written self-report questionnaires can be used to determine one's perceived emotional intelligence, the score from which is often referred to as one's emotional quotient (EQ). The most widely used self-report measure is the Bar-On Emotional Quotient Inventory (EQ-i), which is composed of interpersonal, intrapersonal, stress management, adaptability, and general mood subscales (Bar-On, 1997). Brackett and Mayer (2003) found that such self-report measures were poorly related to the MSCEIT ability tests (*r*s = .18 to .21), suggesting a potential weakness in self-report measures. This reflects typical correlations between performance and self-report measures of IQ (*r*s = .00 to .35; Paulhus, Lysy, & Yik, 1998).

Like IQ, a relationship may also exist between emotional intelligence and EEG recordings. Freudenthaler, Fink, and Neubauer (2006) examined EEG patterns during an emotional processing task in relation to interpersonal emotional management abilities, measured by a previously established scale. Significant differences were observed between the EEG patterns of those with high and low interpersonal emotional management skills. Findings suggest

that individuals with higher emotional intelligence also display more efficient neural processing of emotional information in the cortex (Freudenthaler et al., 2006), although this line of research has not been applied to intrapersonal abilities.

The Theory of Multiple Intelligences (Gardner, 1983)

In his book *Frames of Mind*, Howard Gardner (1983) proposed the theory of multiple intelligences (often abbreviated as MI theory), which described intelligence not as one single entity, but as seven independent primary intelligences, including linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, intrapersonal, and interpersonal intelligences. As he claims, his theory was developed based on a "confluence of a large body of evidence from a variety of sources" (Gardner, 1983, p. 8).

Gardner (1993) defines an intelligence as "a computational capacity – a capacity to process a certain kind of information – that originates in human biology and human psychology. An intelligence entails the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community" (p. 6). He goes on to say that problem-solving allows one to locate the appropriate path to goal attainment in a certain situation, while the formation of a cultural product allows one to capture and share knowledge, ideas, beliefs, or feelings. In his theory, Gardner (1983, 1993) only considers skills and abilities which are universal within the human species. A distinction is also made between domain and intelligence. Gardner (1993) defines a domain as "any organized activity in society in which individuals can be ranked in terms of expertise" (p. 65). Therefore any occupation, art form, craft, or sport is considered a domain, and it is in these domains that we observe individual behaviours and make inferences about forms of intelligence. Gardner (1983) has further developed a list of eight criteria which must be met in order for a potential candidate to be considered an intelligence.

The first criterion for an intelligence is potential isolation by brain damage. Gardner (1983) contends that for any set of abilities or skills to be considered an intelligence, it must demonstrate neurological autonomy from other intelligences and skill sets. In effect, there must be cases of its isolation by neuropsychological studies or cases of its destruction by localized brain lesions. Gardner (1983) also suggests that this may be the single most indicative piece of evidence for the existence of multiple, distinct human intelligences. The existence of idiot savants, prodigies, and other exceptional individuals constitutes Gardner's (1983) second criterion, which he claims is the second most persuasive piece of evidence next to brain damage. Prodigies are individuals who demonstrate above-average ability in one or more skill sets. In contrast, idiot savants are those who demonstrate below-average levels of performance in most abilities, but display exceptional, above-average performance in one spared skill set. Like brain lesions, such exceptional individuals indicate the autonomous nature and neurological foundations of human intelligences (Gardner, 1983).

Gardner's (1983) third criterion states that an intelligence must have an identifiable core operation or set of operations. This criterion is further described as "the existence of one or more basic information-processing operations or mechanisms, which can deal with specific kinds of input" (Gardner, 1983, p. 64). Examples of core operations include sensitivity to pitch in musical intelligence and the ability to imitate others in bodily-kinesthetic intelligence. Gardner (1983) states that it is crucial to identify these core operation sets and prove that they are separate.

For the fourth criterion, Gardner (1983) contends that a distinct and identifiable developmental history should be observable in all individuals, from those who are below-average to those who are normal and even gifted. On these developmental paths are early stages which all novice individuals experience, most likely at an early age. At the other end are stages of very

high competence and performance, which are likely only observable in individuals with exceptional talent, ability, or specialized training. Reminiscent of Darwin's (1871) views on the origins of human intelligence, Gardner's (1983) fifth criterion is an evolutionary history and evolutionary plausibility. This requires that an intelligence have some evolutionary antecedents. Some of these capacities may be shared with other organisms, such as primate social organization. On the other hand, specific mental abilities may be isolated in other species yet combined in humans, such as in the case of musical intelligence. Also of interest are rapid periods of growth in human prehistory that might be attributed to the development of a certain intelligence.

Supportive findings from experimental psychological tasks form the sixth criterion for an intelligence. This requires empirical support from cognitive testing, which helps explain the details of specific mental operations and mental processing. This also allows for the study of how different abilities interact, interfere, or transfer between contexts, which can indicate the extent to which abilities are related (Gardner, 1983). The seventh criterion is support from psychometric findings. In this case, results from IQ tests can be incorporated into Gardner's (1983) theory of multiple intelligences, as they provide further information on the relationship between specific abilities. Essentially, if certain abilities measured by an IQ test correlate highly with one another, it is logical to assume that they represent core operations of the same intelligence. Gardner (1983) notes, however, that intelligences which involve manipulation of the environment (e.g., bodily-kinesthetic intelligence) are overlooked by IQ tests.

Lastly, Gardner (1983) contends that an intelligence must display susceptibility to encoding in a symbol system. Symbol systems are defined as "culturally contrived systems of meaning which capture important forms of information" (Gardner, 1983, p. 66). Examples

include languages, mathematic symbols, and pictures. Gardner (1983) suggests that symbol systems provide a utility or a cultural arena for certain mental abilities. On the other hand, he suggests that symbol systems may have required some raw mental ability to evolve in the first place. Nevertheless, Gardner (1983) contends that a primary characteristic of any human intelligence is its "natural gravitation toward embodiment in a symbolic system" (p. 66).

Gardner (1983) also makes note of what does *not* constitute an intelligence. One example he provides is the capacity to process auditory sequences. While many researchers and experimentalists have suggested that this is a prime candidate for an intelligence, cases of brain injury have shown that the capacity to process musical sequences is located in a different part of the brain than the capacity to process linguistic sequences. Gardner (1983) concludes that this is not a separate intelligence simply because it does not demonstrate autonomy. Instead, it seems that the capacity to process auditory sequences is actually composed of more specific abilities which form the core operations of more than one intelligence. Similar cases exist with intuition and common sense. Many individuals display a heightened or above-average sense of intuition, yet when examined more closely, it is clear that specific and autonomous types of intuition exist amongst the intelligences. For example, one may display high intuition in social matters and very low intuition in musical capacities.

In addition, Gardner (1983) contends that intelligences are not based solely on a single sensory system. That is, no sensory system alone accounts for a single intelligence or ability set. Rather, each intelligence combines different senses in different ways. The way in which an intelligence is used should also be overlooked, as it is not a requirement that an intelligence only be used for righteous purposes. In fact Gardner (1983) suggests that it is often the opposite case; that logical-mathematical and interpersonal intelligence, for instance, are often used for purposes

that many would deem immoral and unethical. As such, the evaluation of an intelligence's application is not an issue. Gardner (1983) makes an important note about the difference between "know-how" (procedural knowledge of how to execute a task) and "know-that" (propositional knowledge about the procedures involved). The multiple intelligences proposed by Gardner (1983) should be viewed as sets of procedural knowledge. Finally, Gardner (1983) warns that the intelligences in his theory are nothing more than "useful fictions" (p. 70) for discussing sets of interrelated mental abilities. They exist only as scientific constructs and should not be thought of as physical entities, as this has yet to be verified (Gardner, 1983).

Linguistic Intelligence. The core abilities which compose linguistic intelligence include: a sensitivity to the meaning of words (i.e., semantics); a sensitivity to the order and arrangement of letters and words (e.g. phonology, spelling, grammar, syntax); a sensitivity to the sounds of words (e.g., rhythms and inflections); and a sensitivity to the many functions of language (i.e., pragmatics). Other important uses noted by Gardner (1983) include the ability to use language to convince others of a desired course of action, the capacity to use mnemonics to facilitate memorization of information, and the capacity for metalinguistics. Gardner (1983) adds that pragmatics include input from some of the other intelligences, such as interpersonal intelligence, and the case for an autonomous linguistic intelligence is most convincing when looking at phonological and syntactic abilities. For a more detailed review of linguistic intelligence, see Gardner (1983, pp. 73-98).

Logical-Mathematical Intelligence. Logical-mathematical intelligence consists of the capacity to analyze problems logically, carry out mathematical operations, and investigate issues scientifically. It includes the ability to detect patterns, reason deductively, and think logically, and is most often associated with scientific and mathematical ways of thinking. Gardner (1983)

relies heavily on Piaget's (1963) stage theory of intellectual competence for both descriptions of these abilities as well as support for the developmental history of logical-mathematical intelligence. He reviews Piaget's (1963) theory in detail and defines his formal operations stage as the expert end-state for this ability set (Gardner, 1983). For a more detailed review of logical-mathematical intelligence, see Gardner (1983, pp. 128-169).

Spatial Intelligence. The core abilities of spatial intelligence include the capacity to perceive the world accurately, the capacity to perform transformations and modifications upon one's initial perceptions, and the ability to recreate aspects of one's visual experience (even in the absence of the stimuli in question). While these abilities all appear to include some visual perception, Gardner (1983) suggests that this is not so, as there are documented cases of blind individuals who still demonstrate high spatial abilities using tactile senses. All abilities are useful in orienting oneself in a new environment, comparing or contrasting two forms, or being attentive to balance and composition, as in the case of artwork. For a more detailed review of spatial intelligence, see Gardner (1983, pp. 170-204).

Musical Intelligence. The core operations which comprise musical intelligence include the capacities for musical composition, performance, and appreciation, accompanied by skills in the recognition of musical pitch, tone, and rhythm. Most of these elements require that an individual is capable of hearing, yet this is not always the case. In fact, deaf individuals are typically capable of recognizing rhythmic aspects of music in movement and motion. In spite of some subjective problems in the perception of music, research has shown that nearly all people are able to agree upon their perception of *good* music. For a more detailed review of musical intelligence, see Gardner (1983, pp. 99-127).

Bodily-Kinesthetic Intelligence. Gardner (1983) only discusses two core operations involved in bodily-kinesthetic intelligence: the capacity to control one's bodily motions and the capacity to handle objects skillfully. Included in these capacities are the abilities to judge timing, force, extent of movements, and to subsequently make the appropriate physical adjustments. Although Western culture tends to draw a sharp distinction between the mental and the physical, Gardner (1983) suggests that this is not the case in most cultures. For a more detailed review of this intelligence, see Gardner (1983, pp. 205-236).

Intrapersonal Intelligence. According to Gardner (1983), the core capacity of intrapersonal intelligence is the ability to access one's own feelings and affects. This is accompanied by the capacity to discriminate among these feelings, to label them, and to draw upon them in order to guide behaviour. Basic capacities, therefore, include the ability to distinguish pleasure from pain and to become more or less involved in a situation. Higher abilities include detecting, symbolizing, and distinguishing between more complex sets of emotions. Many similarities can be observed between Gardner's (1983) intrapersonal intelligence and aspects of Goleman's (1995) definition of emotional intelligence.

Interpersonal Intelligence. Interpersonal intelligence is essentially the external application of intrapersonal abilities. Included is the capacity to notice and make distinctions among other individuals, particularly their emotions and mood states, temperaments, motivations, and intentions. At a more extreme end, it also includes the capacity to influence others and convince them to behave according to one's desires. Gardner's (1983) interpersonal intelligence is largely comparable to Thorndike's (1920) social intelligence. For a more detailed review of intrapersonal and interpersonal intelligence, see Gardner (1983, pp. 237-276).

Naturalist Intelligence. After much deliberation, Gardner (1993) eventually accepted an eighth intelligence on his list of multiple intelligences. Naturalist intelligence enables human beings to recognize, categorize, and draw upon features of the environment, whether these features be plants, animals, mountains, or cloud formations. These abilities are not restricted to vision alone, but can be based on any of the senses, including audition, as in the case of classifying bird calls. Gardner (1983) suggests that in developed countries, naturalist abilities have simply taken a unique form; that our consumer culture is based on the naturalist intelligence, being used each time we shop for groceries or buy one car rather than another.

Moral Intelligence. Gardner (1997, 1999) has also considered a moral intelligence as a potential candidate in his model. He doubts, however, the possibility of delineating a moral domain from other domains and establishing moral intelligence as an autonomous construct. According to Gardner (1999), the moral domain "is a concern with those rules, behaviours and attitudes that govern the sanctity of life - in particular, the sanctity of human life and, in many cases, the sanctity of any other living creature and the world they inhabit" (p. 70). He further contends that morality is more an issue of personality and character than it is an issue of intelligence, therefore denying its place in multiple intelligence theory (Gardner, 1999).

Existential Intelligence. Consideration of an existential intelligence stemmed from earlier claims of a spiritual intelligence. Reportedly, Gardner (1993) devoted a year of study to the investigation of this topic, coming to the conclusion that a spiritual intelligence did not meet his eight criteria. In spite of this, one facet of spirituality proved a promising candidate for Gardner (1993): existential intelligence. He describes this as "the intelligence of big questions" (Gardner, 1993, p. 20), based on the human tendency to contemplate the most fundamental questions of life. Gardner (1993) contends that an existential intelligence scores reasonably well on his eight

criteria, noting that such issues arise in every culture and that children often raise these questions at an early age. Individuals with exceptional existential abilities can be noted throughout history, such as religious leaders and philosophers. Nevertheless, Gardner (1993) hesitates to include existential intelligence in his list, maintaining that evidence is lacking as to possible brain localization. He is often quoted as stating that until such evidence is found, he will continue speaking of "eight and a half intelligences" (Gardner, 1993, p. 21).

Criticisms, Praise, and Recent Research. At first read, many questions and issues arise with Gardner's (1983) original theory of multiple intelligences. To begin with, in his book *Frames of Mind*, Gardner (1983) pays very little attention to his sixth and seventh criteria for an intelligence. Even the core operations of each intelligence are often vaguely defined or simply hinted at. White (1997) agrees that many questions arise regarding the eight criteria, the answers for which are not made available by Gardner (1983). The greatest question, according to White (1997), is why these criteria are relevant in the first place. Gardner (1993) himself admits "that the selection (or rejection) of a candidate intelligence is reminiscent more of an artistic judgement than of a scientific assessment. Borrowing a concept from statistics, one might think of the procedure as a kind of 'subjective' factor analysis" (p. 63). Although Gardner (1983) stresses the importance of isolation due to brain damage, it is impossible to determine the relevance of each of the remaining criteria. Gardner (1983) himself adds that a candidate intelligence need not qualify on each and every criterion to be included in his theory.

Gardner (1983) exhausts a great deal of energy noting famous individuals who have exemplified exceptional ability in each intelligence. What he does not do, however, is spend very much time describing the intelligences in individuals of normal or average ability. Sternberg (1988) makes note of this setback, stating that "finding examples of average people in Gardner's

system of intelligence is much harder" (p. 6). He further questions the ability of multiple intelligence theory to explain how typical people function intelligently on a day-to-day basis. Sternberg (1988) suggests that in examining the nature of intelligence, it is more important to look at typical cases than it is to look at unusual or extreme ones. He adds that while Gardner (1983, 1993) has done relatively well in providing evidence for his own theory, he has not been able to disprove other theories of intelligence (Sternberg, 1988).

Gardner's (1983) claim that his multiple intelligences are autonomous and independent is also highly refuted by opposing theorists and researchers. Sternberg (1988) notes that a number of factorial analyses have shown that Gardner's eight intelligences are actually interrelated. He offers the example of the high correlation that is observed between logical-mathematical and spatial intelligences, making it difficult to actually test for these separately. Sternberg (1988) contends that "an intelligent system has to work together" (p. 78), suggesting that mental self-management would break down if ability sets were truly independent.

The more relevant issue is whether Gardner's (1983) ability sets should be considered intelligences at all. Sternberg (1988) believes that most of these proposed intelligences are nothing more than talents, particularly musical and kinesthetic abilities. He maintains that someone with no musical ability can function quite well in society, while someone with linguistic deficits will surely have trouble functioning normally. Sternberg (1988) further proposes that an intellectual ability is a mental component without which we cannot function normally, while the word talent should be reserved for abilities which are not necessary for normal functioning.

Morgan (1996) examined the relationship between Spearman's (1904) g and Gardner's (1983) multiple intelligences, concluding that Gardner (1983) had not discovered new

intelligences, but rather reframed and reorganized what had been previously described as cognitive styles. In this view Gardner's (1983) multiple intelligences would simply be construed as aspects or factors of general intelligence or g, similar to Eysenck's (1979) previous consolidation of Spearman's (1904) g and Thurstone's (1938, as cited in Ruzgis, 1994) primary mental abilities. Other theorists (e.g., Zohar & Marshall, 2000) propose a model of intelligence composed of a hierarchy of abilities, with IQ at the bottom, emotional intelligence above, and either moral or spiritual intelligence at the top, depending on the model. Zohar and Marshall (2000) suggest that Gardner's (1983) multiple intelligences are simply variations of this hierarchy of primary abilities. A factor analysis by Visser, Ashton, and Vernon (2006) revealed that a number of Gardner's (1983) intelligences loaded substantially on a general g factor of intelligence. Visser et al. (2006) suggest that such findings indicate that purely cognitive abilities in Gardner's (1983) theory are simply factors of a general intelligence, while other abilities better reflect aspects of motor and sensory ability as well as personality.

Nonetheless, Gardner's (1983) theory of multiple intelligences has proven useful in many contexts. Sternberg (1988) himself states that the theory represents a new and interesting view of mental abilities and skill sets, and it is with educators and educational theorists that multiple intelligence theory resonates the most. Gardner (1993) discusses the implications for educational settings in his book *Multiple Intelligences: New Horizons*. One major implication is the ability of multiple intelligence theory to provide educators with a variety of approaches for teaching (Gardner, 1993). Kornhaber (2001) states that multiple intelligence theory "validates educators' everyday experience: students think and learn in many different ways" (p. 276).

In spite of such potential practical implications, research on multiple intelligence theory is limited, primarily due to the lack of valid tests to measure the various intelligences. This is a

contributing factor to the lack of empirical support for Gardner's (1983) theory in general (Sternberg, 1988). Gardner (1993) believes that current IQ tests focus solely on linguistic and logical-mathematical intelligences. In effect, any traditional and/or current research on linguistic and mathematical abilities is referring to the same two intelligences proposed by Gardner (1983). Although he has been hesitant to create assessment scales for his multiple intelligences (Gardner, 1993), valid and reliable measures have been developed (e.g., the Multiple Intelligences Development Assessment Scales [MIDAS]; Shearer, 1996, 2001a, 2001b, 2006a).

In general, the scientific community at large has long accepted the presence of linguistic, logical-mathematical, and spatial intelligences (Sternberg, 1988). These are the ability sets traditionally measured by IQ tests (Gardner, 1993), and as a result, there is little (if any) current research on whether or not these abilities actually exist. Rather, research on these abilities tends to take place in the cognitive domain of psychology, which looks at the processes behind such abilities. In terms of the additional (and non-traditional) intelligences proposed by Gardner (1983), research is deficient. Stark (2004) found that singers scored significantly higher on both musical and linguistic intelligence, supporting findings by Lynn and Gault (1986) who observed a relationship between musical and verbal abilities. This further contrasts with Gardner's (1983) assertion that musical and linguistic abilities are independent, although Helmbold, Rammsayer, and Altenmuller (2005) found no such relationship.

Research on Gardner's (1983) personal intelligences is far more expansive, primarily due to the overlap between these and both emotional and social intelligences. For example, most current studies which examine emotional intelligence divide the construct into intrapersonal and interpersonal abilities (e.g., Freudenthaler & Neubauer, 2005). In spite of the conceptual overlap, however, emotional intelligence and Gardner's (1983) personal intelligences are not identical

constructs. Shearer (2006b) examined the relationship between Gardner' (1983) seven original intelligences and emotional intelligence. Only low to moderate correlations were observed between emotional intelligence and the interpersonal and intrapersonal intelligences (*r*s = .29 and .45, respectively), suggesting limited overlap between the constructs (Shearer, 2006b).

There is a significant amount of literature on multiple intelligence theory in general. The majority of this research has involved self-estimates of Gardner's (1983) proposed intelligences. Self-estimated measures of intelligence, as opposed to more objective measures, remain controversial to this day due to the often exaggerated and over-estimated responses from participants (see Rammstedt & Rammsayer, 2002). Nevertheless, cross-cultural studies (e.g., Chan, 2004; Furnham, Tang, Lester, O'Connor, & Robert, 2002; Furnham, Wytykowska, & Petrides, 2005; Neville, 2000) have demonstrated that people tend to view logical-mathematical, verbal, and spatial intelligences as the best predictors of their overall intelligence, perhaps reflecting the historically over-emphasized importance of IQ.

Conclusions: Multiplicity, Semantics, and Criteria

Unfortunately, the lack of empirical evidence for MI theory beyond that discussed in Gardner's (1983) *Frames of Mind* equates with a lack of support for the theory in general. Yet Howard Gardner (1983) was neither the first nor the last to dispute Spearman's (1904) concept of a single intelligence factor. Thurstone's (1938, as cited in Ruzgis, 1994) theory of primary abilities, Horn and Cattell's (1966) fluid and crystallized abilities, and Sternberg's (1988) triarchic theory of intelligence all offer compelling theoretical, and in some cases empirically supported, alternatives to g. Furthermore, the current viability of theories of emotional intelligence (e.g., Goleman, 1995; Salovey and Mayer, 1990) questions both the plausibility and the utility of a general intelligence factor. Nonetheless, whether there is a single intelligence

factor or a set of multiple intelligences (or some combination of the two) remains one of the greatest debates in the field of intelligence.

As was suggested by Morgan (1996), Sternberg (1988), and Gardner (1983) himself, this debate may be better described as a matter of semantics. Should the various ability sets of human beings be labeled intelligences? Or would the word intelligence be better left for the general capacity of human beings to think logically and rationally in the domains of language and mathematics? Are many of the ability sets described by Gardner (1983) in essence nothing more than human talents as Sternberg (1988) suggested? Or are Gardner's (1983) multiple intelligences simply interrelated components of a general intelligence, as findings from Visser et al. (2006) would imply? It might also be suggested that such distinctions are irrelevant; that in spite of semantics, Gardner's (1983) theory and others continue to provide us with a better understanding of various psychological constructs; that there is still something to be gained from the identification of bodily-kinesthetic or existential skill sets; and that the consideration of such non-traditional intelligences may prove invaluable for the education of our children.

While the verdict continues to be out on such issues regarding the nature of human intelligence, Gardner's (1983) theory provides the psychological community with a critical toolset: criteria for the identification of additional intelligences. While these criteria have been subject to debate themselves, it is the inconsistent application of such criteria by Gardner (1983) which has been more heavily debated (e.g., White, 1997). Other than Gardner (1983), few have attempted to define the criteria for intelligence.

Mayer et al. (2000) discussed three basic criteria for an intelligence that have come to be accepted in the academic community: (1) an intelligence must reflect mental performance as opposed to preferred ways of behaving; (2) an intelligence should describe a set of abilities that

are moderately intercorrelated with one another; and (3) an intelligence should develop as age and experience increase. Sternberg (1997) later offered his own three criteria for an intelligence based on his triarchic theory: (1) an intelligence must be relevant to any environmental context; (2) an intelligence must be necessary for purposeful adaptation to or shaping or selection of any environmental context; and (3) an intelligence must consist of a set of mental abilities, as opposed to physical, motor, or sensory abilities. Parallels can easily be drawn between these sets of criteria and Gardner's (1983) eight, which suggests that Gardner's (1983) criteria may simply be more thorough. Other authors have agreed that intelligence must be goal directed and involve adaptive, problem-solving skills (e.g., Chiu, Hong, & Dweck, 1994; Pinker, 1997).

Additional criteria for an intelligence have been proposed, but in less formal ways. Depending on one's perspective, criteria can be derived from nearly all definitions of intelligence encountered thus far. Thurstone's (1938, as cited in Ruzgis, 1994) definition implies the capacity for abstract reasoning as a criterion for intelligence. Wechsler's (1944) definition implies that an intelligence must allow an individual to deal effectively with his/her environment, a criterion which is reflected in both Gardner's (1983) and Sternberg's (1997) criteria. Similarly, Piaget (1963) would likely include adaptive capacity as a criterion. An examination of Horn and Cattell's (1966) fluid and crystallized abilities would lead one to include the facilitation of problem-solving on this list. The definition by Binet and Simon (1916) would further imply the involvement of certain judgement skills in any intelligence. Hebb's (1942, as cited in Vernon, 1979) Intelligences A and B would suggest the criteria of a biological component as well as a set of behaviours which result when this potential interacts with the environment.

Taking all definitions and criteria into account, a number of common criteria can be derived, free of any one individual's perspective. An intelligence should: (1) include a set of

interrelated mental abilities (distinct from behaviours, experiences, etc.); (2) develop over the lifespan; (3) facilitate adaptation and problem-solving in a particular environmental context; (4) allow an individual to reason abstractly and make appropriate judgements; and (5) demonstrate a biological component or foundation in the brain. Needless to say, there will always exist certain individuals who demonstrate superior or inferior performance on a particular set of abilities. Empirical support from either psychometrics or experimental tasks is, of course, highly valuable as well. Perhaps further theoretical exploration of these criteria will contribute to a more consensual definition and model of human intelligence.

Although semantics are an important issue in the ongoing debate of multiple intelligences, they need not hinder the continuing investigation of potentially unidentified mental abilities, skill sets, or even additional intelligences, any of which would considerably enhance our current view of the human mind. New and innovative models like Gardner's (1983) theory of multiple intelligences, as nontraditional as they may be, should be embraced and considered for their potential contribution to the ever-widening field of human intelligence.

Rethinking Claims of Spiritual Intelligence

One potential intelligence in particular merits further consideration: spiritual intelligence. Although Gardner (1993) decided against its inclusion in his theory of multiple intelligences, a number of theorists and researchers have recently argued for its recognition as an autonomous human intelligence or skill set (e.g., Amram, 2007; Emmons, 2000a; Nasel, 2004; Noble, 2000, 2001; Vaughan, 2002; Wolman, 2001; Zohar & Marshall, 2000). Some have cited support according to Gardner's (1983) eight criteria, while others have taken alternate routes. While many of these theories are conceptually deficient and therefore unconvincing in the broader

context of intelligence theory, they combine to provide an indispensable foundation for the discussion of this potential construct.

It is first necessary, however, to address the flaws present in Gardner's (1993) original arguments against a spiritual intelligence. Gardner (1993) argued that an intelligence should not be confounded with an individual's phenomenological experience, noting that for most, spirituality involves certain feelings of relatedness to a higher being. He does not view these feelings as "indicators of an intelligence" (Gardner, 1993, p. 20). Nevertheless, Gardner (1993) himself makes note of the phenomenological experiences involved in a high level of mathematical intelligence, specifically feelings of flow while solving complex mathematical problems. In his original description of musical intelligence, Gardner (1983) also points out the emotionality often involved in music and the effects music can have on one's mood state. Surely there is a similar degree of emotionality involved in the expression of spatial intelligence through the visual arts. The personal intelligences are also highly confounded with phenomenological experiences, the abilities of which include the manipulation and regulation of one's emotional states (Gardner, 1983).

This argument, it seems, can be used to dispute many of the intelligences that Gardner (1983) defines as fundamental to his theory. In spite of this, his eight intelligences continue to score well on his criteria for one reason: rather than focusing on the accompanying phenomenological experiences, he focuses on mental abilities instead (as one should when discussing human intelligence). He does so due to the inherent psychological distinction which exists between phenomenological experiences and mental abilities. Even Salovey and Mayer's (1990) model of emotional intelligence is able to make this distinction, despite the obvious phenomenological experiences related to this *emotional* ability set. Therefore, it seems that the

problem lies not with the feelings related to a potential spiritual intelligence, but rather with Gardner's (1993) spontaneous and inconsistent decision to focus on feelings rather than mental abilities when considering this construct. It will be argued that spiritual intelligence consists of a set of mental abilities distinct from any related feelings or visceral reactions.

Secondly, Gardner (1993) concluded that for many individuals, spirituality is indistinguishable from a belief in religion and God (or some equivalent force). One inherent problem in this argument is the lack of distinction made among spiritual intelligence, spirituality, and religiosity. Gardner (1993) appears to readily equate *spiritual intelligence* with *spirituality* and *religiosity*. This is a considerable error, one that could be compared to equating *music* with *musical intelligence* or *language* with *linguistic intelligence*. Rather than attempting to transform such diverse domains into an intelligence, one must extract those aspects which are indicative of a core set of mental abilities. Gardner (1983) accomplished this task with all of his other intelligences, but appears to have failed in his analysis of a spiritual intelligence. The fact that *spirituality* is often indistinguishable from one's beliefs (religious or otherwise) says nothing whatsoever of a *spiritual intelligence*. Simply put, these two constructs are not one in the same. While this distinction may be one of semantics, it is critical in the discussion of a spiritual intelligence and will be revisited shortly.

The turn of the millennium saw an explosion of publications on the topic of spiritual intelligence. Most notable was a series of articles published in the *International Journal for the Psychology of Religion*, which devoted an entire issue to the subject in 2000. This series of articles was led by Robert Emmons (2000a), who offered "evidence for spirituality as a set of interrelated abilities" (p. 3), essentially making the same semantic error made by Gardner (1999), in that spirituality is proposed as a type of intelligence. This is highlighted by Mayer (2000), who

notes that Emmons' (2000a) definition of spiritual intelligence may be nothing more than a relabeling of spirituality. Emmons (2000b) subsequently clarified his position, stating that what he has described is in fact a set of skills or abilities *associated with* spirituality.

Emmons' (2000a) goal was to provide support for a spiritual intelligence according to Gardner's (1983) eight criteria. He first offers five core components of spiritual intelligence:

> (a) the capacity for transcendence; (b) the ability to enter into heightened spiritual states of consciousness; (c) the ability to invest everyday activities, events, and relationships with a sense of the sacred; (d) the ability to utilize spiritual resources to solve problems in living; and (e) the capacity to engage in virtuous behaviour or to be virtuous (to show forgiveness, to express gratitude, to be humble, to display compassion). (p. 10)

According to Emmons (2000a), these capacities have been valued in the majority of cultures around the world. The first two core abilities are discussed in similar terms, both essentially describing the capacity to "engage in heightened or extraordinary forms of consciousness" (p. 10). In this model, transcendence represents the ability to surpass physical matter and develop a deeper awareness of a divine being and/or one's self, often resulting in the ability to sense synchronicity. Heightened spiritual states include a sense of oneness or unity as well as contemplative prayer. Emmons (2000a) contends that individuals possessing a high degree of spiritual intelligence are skilled at entering these heightened states of consciousness. Gardner (2000), on the other hand, argues that this ability simply reflects heightened control over one's physical body, and is therefore more reflective of his bodily-kinesthetic intelligence.

Emmons (2000a) reframes his third core ability of spiritual intelligence as *sanctification*, which he describes as the ability "to set apart for a special purpose – for a holy or a godly purpose" or "a recognition of the presence of the divine in ordinary activities" (p. 11). According

to Emmons (2000a), sanctification and its consequential sense of meaningfulness and fulfillment can facilitate problem-solving, planning, and personal goal attainment. Gardner (2000) indicated significant concern over this particular component, questioning the grounds on which one would decide what is considered sacred as opposed to profane.

The fourth component of Emmons' (2000a) model is further described as "religious and spiritual coping" (p. 12). Emmons (2000a) cites literature which has suggested the usefulness of spiritual and religious resources in the coping process as well as in problem-solving. While this is a criterion for intelligence which has been suggested by a number of theorists (e.g., Gardner, 1983; Horn & Cattell, 1966; Sternberg, 1997), it hardly denotes a core ability or component of spiritual intelligence. In response to Emmons' (2000a) model, Gardner (2000) himself highlighted this problem, stressing the importance of differentiating between descriptive and prescriptive abilities. While the first three components of Emmons' (2000a) model are descriptive, coping and problem-solving are prescriptive components of all intelligences.

A similar problem arises with the fifth and final component of this model. The capacity to consistently engage in virtuous behaviours seems to stray from mental ability entirely, as Emmons (2000a) has described behaviours rather than abilities of the mind. It has been strongly suggested by intelligence theorists (e.g., Gardner, 1983; Mayer et al., 2000; Sternberg, 1997) that an intelligence must be clearly distinguishable from preferred ways of behaving. Gardner (2000) adds that Emmons' (2000a) inclusion of behaviours which he considers to be admirable, rather than capacities which exist in all people to some extent, undermines the structure of intelligence. Mayer (2000) concurred, stating that many of these qualities may simply result from life experience or inherent temperaments rather than intellectual potential. In reaction to the above-mentioned criticisms, Emmons (2000b) later modified his model to exclude this fifth component.

Emmons (2000a) supports the evolutionary plausibility of spiritual intelligence, citing anthropologists, psychologists, biologists, and theologians who have argued for the role of religion in the evolution of both human culture and individual behaviours and processes. He cites recent research which has suggested a potential genetic heritability of religious attitudes, similar to that seen for personality traits. Although emphasizing the lack of research, Emmons (2000a) also draws attention to distinct neural systems in the limbic system which have been related to religious and mystical experiences (e.g., oneness, unity).

In terms of support from psychometrics, Emmons (2000a) points out the number of self-report measures of spirituality and religiosity that have found various spiritual attitudes and states to be independent of other mental processes. Beyond this, however, little evidence is offered. When examining the development of spiritual intelligence across the lifespan, Emmons (2000a) highlights stage theories of faith and spiritual development as well as the varying levels of sophistication involved in spiritual abilities. In support of exceptional individuals, Emmons (2000a) mentions the Catholic mystics St. Theresa of Avila and St. John of the Cross as examples. There is little mention, however, of spiritual intelligence in the daily lives of average people. Finally, Emmons (2000a) argues that religious symbols clearly provide support for susceptibility of spiritual intelligence to encoding in a symbol system.

One general and noteworthy problem with Emmons' (2000a) model of spiritual intelligence is its foundation in religion rather than spirituality. His frequent references to "the sacred" and "sanctification" exemplify this preoccupation. In fact, Emmons (2000a) appears to equate spirituality with religiosity, providing a great deal of support for spiritual intelligence based on research with religious experiences and behaviours. Emmons (2000a) was not the first to make this error. Bowling (1999) defined spiritual intelligence as knowledge of the sacred,

based on select early Jewish and Christian writings. This is yet another important conceptual distinction that must be made when discussing spiritual intelligence or spirituality in general, and will be more closely inspected later. Gardner (2000) contends that religion is best described as a domain in which spiritual intelligence is expressed. He also suggests that an intelligence should allow one to carry out specific computations, an aspect unsupported by Emmons (2000).

Mayer (2000) further criticized Emmons' (2000a) model of spiritual intelligence for its lack of focus on actual mental performance. He stated that a person with any intelligence must be able to solve a specific set of problems that cannot be solved without a high level of the particular intelligence. Mayer (2000) added that although some cognition is present in Emmons' (2000a) model, such cognition must be primary. Furthermore, within the realm of cognition, he suggested that it is abstract reasoning that must be primary in any definition of intelligence. According to Mayer (2000), only two of Emmons' (2000a) core operations likely involve some degree of abstract reasoning: sanctification and spiritual coping. Above all else, Mayer (2000) maintained that what Emmons (2000a) is describing has less to do with heightened intelligence or ability than it does with heightened consciousness or awareness.

Emmons' (2000a) model was further criticized by Kwilecki (2000), an expert in religious studies whose greatest criticism is Emmons' (2000a) lack of "a discriminate definition of adaptiveness or effective problem solving" (p. 45). She further criticized the model for its lack of empirical support, suggesting that adaptiveness should be measured in terms of "consequences in this world" (p. 45). Kwilecki (2000) concluded her review by emphasizing her skepticism as to whether or not *religion* can be accurately captured through any theoretical construct like intelligence, making the error of equating spirituality with religion.

Following the publication of this special issue of the *International Journal for the Psychology of Religion,* Emmons' (2000a) model of spiritual intelligence was supported and expanded by Kathleen Noble (2000, 2001). Describing spiritual intelligence as "an innate human ability" (p. 3), Noble (2001) contends that her research agrees with Emmons' model and adds two additional core abilities:

> (1) the conscious recognition that physical reality is embedded within a larger, multidimensional reality with which we interact, consciously and unconsciously, on a moment-to-moment basis; and (2) the conscious pursuit of psychological health, not only for ourselves but for the sake of the global community. (p. 46)

Noble (2000) further adds that spiritual intelligence includes "an openness to unusual and diverse experiences broadly labeled 'spiritual'" (p. 3), as well as a continuous attempt to understand the meaning of these experiences in the various aspects of one's life and "the awareness that the whole is always greater than the sum of its parts, no matter how cherished a part might be" (p. 3).

Based on interviews of nine participants, Noble (2000) concluded that spiritual experiences were vivid reminders of transcendent aspects of consciousness and were necessary for the development of spiritual intelligence, offering a potential solution to the interrelationship between spiritual intelligence and phenomenological experiences. While this issue will be readdressed later in greater detail, such a proposal may contribute to our understanding of the development of spiritual intelligence, which may be fueled by phenomenological spiritual experiences. This is comparable to the social interactions and experiences which act as milestones in the development of the personal intelligences in Gardner's (1983) theory.

Noble (2001) also stresses the importance of a high level of spiritual intelligence for one's psychological health. In particular she notes its ability to increase resilience, suggesting

that those with higher spiritual intelligence are better able to adapt and overcome adversity by relying on inner strengths. In spite of some valuable conceptual contributions, Noble (2000, 2001) provides little reference to external empirical support for her additional core abilities. The second ability, "the conscious pursuit of psychological health" (Noble, 2001, p. 46), does not imply mental capacity whatsoever, but instead describes a common behavioural outcome of a high spiritual intelligence. In effect, Noble (2000, 2001) appears to have strayed from some critical concepts in intelligence theory.

Psychologist and proponent of the integration of psychological and spiritual development, Frances Vaughan (2002), agrees with Noble's (2000, 2001) contention that phenomenological experiences of a spiritual nature may contribute to the development of a spiritual intelligence. In addition, Vaughan (2002) views spiritual intelligence as involving the following: the capacity for a "deep understanding" (p. 19) of existential issues and questions, such as "Who am I?" "Why am I here?" and "What really matters?"; the capacity to recognize multiple levels of consciousness; the "awareness of spirit as the ground of being" (p. 19); and the awareness of one's relationship to the transcendent, to all people, and to the earth. While she goes into little detail about each of these abilities, basing them on her experience as a psychotherapist, Vaughan (2002) believes that spiritual intelligence exists as a potential in all people and can be cultivated by a variety of practices or training. She also emphasizes the relationship between spiritual intelligence and adaptation to stressful events (Vaughan, 2002).

Richard Wolman (2001) further emphasizes the core component of existential thinking in a spiritual intelligence. He defines spiritual intelligence as "our human capacity to ask ultimate questions about the meaning of life" (p. 1), but adds the capacity "to experience simultaneously the seamless connection between each of us and the world in which we live" (p. 1). He proposes

that spiritual intelligence can exist in two states: a state of being which can be described by subjective experience alone or a set of discrete mental abilities. It is the former, of course, which is problematic to intelligence theorists (e.g., Gardner, 1983; Sternberg, 1997) who strongly support a definition of intelligence free of phenomenological experience. Wolman (2001), on the other hand, attempts to include "the capacity for a particular kind of experience" (p. 119) in his interpretation of spiritual intelligence, blurring the line between mental ability and other cognitive processes. Spiritual intelligence, according to Wolman (2001), involves more than a set of mental abilities, a position which abandons practically all previously established criteria for intelligence (e.g., Gardner, 1983; Mayer et al., 2000; Sternberg, 1997).

Wolman (2001) adds to his model of spiritual intelligence the ability to sense a spiritual dimension of life. In addition, spiritual intelligence allows one to solve particular types of problems, primarily those of a spiritual or moral nature. In contrast to Kwilechi's (2000) contention that adaptiveness and problem-solving need to be operationalized in terms of real-world outcomes, Wolman (2001) suggests that there are no right answers when it comes to spiritual problem-solving, emphasizing again the subjective nature of his definition. Nevertheless, Wolman (2001) agrees with Noble (2001, 2002) and Vaughan (2002) that spiritual intelligence exists as a potential and innate human ability which can be developed with training and experience. Like others before him (e.g., Emmons, 2001a), Wolman (2001) makes the error of equating spirituality with spiritual intelligence.

Spiritual intelligence has also been described as the ultimate intelligence by Zohar and Marshall (2000), who place it at the top of a hierarchy, with emotional intelligence below and rational intelligence (IQ) below that. Relying loosely on limited neurological findings, Zohar and Marshall (2000) suggest that spiritual intelligence (which they refer to as SQ) represents the

brain's tertiary process of unitive thinking. This tertiary process combines the lower processes of rational and emotional intelligence in order to "reframe or reconceptualize our experience…and thus transform our understanding of it" (Zohar & Marshall, 2000, p. 65), allowing for higher-order cognition of a spiritual and moral nature.

While a specific set of mental abilities is not defined, Zohar and Marshall (2000) stress the utility of spiritual intelligence in solving problems of meaning, value, and those of an existential nature, concurring with Vaughan (2002) and Wolman (2001). Spiritual intelligence also facilitates decision-making and the recognition of choices which will be more meaningful, suggesting a potential means of adaptation and problem-solving. Zohar and Marshall (2000) relate spiritual intelligence to moral reasoning, suggesting that it allows us to "play with the boundaries" (p. 5), "gives us our moral sense" (p. 5), and is used "to wrestle with questions of good and evil" (p. 5) It further allows us "to be creative, to change the rules and to alter situations" (p. 5). While spiritual intelligence may assist one in dealing with issues of a moral or existential nature, to say that spiritual intelligence gives us our moral sense is premature. As noted by Gardner (1999), morality is more an issue of personality than one of intelligence.

According to Zohar and Marshall (2000), indications of a highly developed spiritual intelligence include:

> the capacity to be flexible (actively & spontaneously adaptive); a high degree of self-awareness; a capacity to face and use suffering; a capacity to face and transcend pain; the quality of being inspired by vision and values; a reluctance to cause unnecessary harm; a tendency to see the connections between diverse things (being 'holistic'); a marked tendency to ask 'Why?' or 'What if?' questions and to seek 'fundamental' answers; [and] …possessing a facility for working against convention. (p. 15)

Many problems can be found in this list of indicators. The capacity to be flexible seems more closely related to personality than cognitive ability. Self-awareness appears more characteristic of emotional intelligence or Gardner's (1983) intrapersonal intelligence. These and the remaining indicators are more likely outcome variables of a high degree of spiritual intelligence. Zohar and Marshall (2000) have avoided a critical task: the establishment of a core set of mental abilities.

Nasel (2004) has offered his own definition of spiritual intelligence, describing it as "the application of spiritual abilities and resources to practical contexts. People use spiritual intelligence when they draw on their spiritual abilities and resources to make meaningful decisions, deliberate over existential issues, or attempt problem solving in daily life" (p. 4). Nasel's (2004) perspective reflects that of Emmons (2000a), Wolman (2001), and Zohar and Marshall (2000), but also attempts to incorporate traditional Christian values and New Age spirituality. His model of spiritual intelligence comprises two separate factors: *existential questioning* and *awareness of divine presence*, essentially combining the "conceptualization and expression of spiritual intelligence from the perspective of individuals who have committed themselves to traditional Christianity, and of those who are adherents of New Age or popular individualistic spirituality" (p. 5).

Although this results in a more limited view of spiritual intelligence, Nasel (2004) tends to focus on the application of spiritual intelligence for meaning, purpose, and existential understanding. He also suggests that "spiritual intelligence is more closely related with intuition, insight, and wisdom than with secular education and factual knowledge" (p. 45). This may be true, yet Nasel (2004) goes on to suggest that spiritual intelligence involves not only cognitive components, but also components related to experience and personality, exceeding intelligence criteria like many before him (e.g., Wolman, 2001).

More recently, a grounded theory approach was undertaken by Amram (2007) in order to investigate a spiritual intelligence. Amram's (2007) underlying assumptions reflected that of traditional intelligence theorists: that spiritual intelligence "can be differentiated from spiritual experience (e.g., a unitary state) or spiritual belief (e.g., a belief in God)" (p. 1). His preliminary research involved 71 interviews of individuals who were described as adaptively embodying spirituality in daily life. Participants, many of whom were spiritual teachers, encompassed 10 major spiritual traditions, ranging from Christianity and Buddhism to Taoism and "Eclectic Personal Integration." All were asked to describe their spirituality in terms of daily practices, particularly as they draw on their spirituality for daily functioning. Open coding was then employed to identify themes within the interviews (Amram, 2007).

Seven major themes were identified: (1) meaning (experiencing meaning and purpose in daily activities); (2) consciousness (trans-rational knowing, mindfulness, and practice); (3) grace (trust, love, and reverence for the sacred); (4) transcendence (holism, nurturing relationships and connections); (5) truth (acceptance, forgiveness, and openness to all truth); (6) peaceful surrender to Self (egolessness, accepting one's true nature); and (7) inner-directed freedom (liberation from attachments and fears, discernment, integrity). Although this grounded theory of spiritual intelligence provides immense insight, Amram (2007) does not proceed to apply any criteria to his seven major themes so as to justify their manifestation as an intelligence. As a result, these seven major themes can be more accurately and broadly defined as the manifestation of a *lived* spirituality (i.e., a spirituality that is put into daily practice). Many aspects do not, however, constitute cognitive ability.

An additional debate emerges in light of Gardner's (1993) preference for an existential intelligence over a spiritual intelligence: which one more accurately reflects a discrete set of

mental abilities? Generally speaking, the above-mentioned authors (e.g., Nasel, 2004; Vaughan, 2002; Zohar & Marshall, 2000) tend to include existential thinking in their models of spiritual intelligence. This issue was examined in greater detail by Halama and Strizenec (2004), who considered whether we are dealing with a spiritual intelligence, an existential intelligence, or both. Based on previous literature in the field of spirituality and existential psychology, Halama and Strizenec (2004) concluded that the existential and spiritual intelligences are "related and overlapping constructs with some common as well as unrelated aspects" (Halama & Strizenec, 2004, p. 15). It is argued in the current paper that existential abilities are actually part of the broader, overlying construct of spiritual intelligence, a relationship not considered by Halama and Strizenec (2004). As will be seen from the following definitions, the broader construct of spirituality is typically described as comprising some existential component(s).

Factoring out Religiosity: Some Conceptual Distinctions

Let us now make some important (and long overdue) conceptual distinctions. Wulff (1991) observed that the majority of humanity tends to describe spirituality in religious terms, making discussion of spirituality very confounding, even from a psychological or scientific perspective. In his famous series of lectures, *The Varieties of Religious Experience: A Study in Human Nature*, William James (1902/2002) distinguished between institutional religion and personal religion. Institutional religion was described as consisting of rituals, theology, ceremony, and institutionalized organizations. In contrast, James (1902/2002) defined personal religion as "the feelings, acts, and experiences of individual men in their solitude, so far as they apprehend themselves to stand in relation to whatever they may consider divine" (p. 36).

Moberg (1970) later made a very similar distinction, differentiating between personal and institutional orientations of religion. An institutional orientation focused on group-oriented

behaviours (e.g., attending church) and organizational rituals and activities, while a personal orientation included an individual's values, beliefs, attitudes, and any private religious activities (e.g., private prayer). Others (e.g., Allport, 1961; Hergenhahn & Olson, 1999; Pargament, 1997) have also distinguished between intrinsic and extrinsic religiosity, the former referring to an internalized and altruistic motivation for religiosity, typically with the goal of developing meaning and purpose. Extrinsic religiosity refers to an external and self-serving motivation, one that is based on guilt, fear, and/or social pressures. Such distinctions have provoked critical discussion and stressed the disparity between varying aspects of religiosity. A new term would ultimately emerge in the literature which would more accurately reflect (as well as liberate from dogmatic constraints) the personal domain of religion: *spirituality*.

Prior to the emergence of *spirituality* within psychological literature, the words *religion*, *religiosity*, and/or *religiousness* were more commonly used to describe all spiritual aspects of the human psyche, which is evident throughout James' (1902/2002) writings on the topic. While religiosity may have been equated with spirituality at one time (an error which persists today in some arenas), psychologists now make sharp distinctions between the two. Koenig, McCullough, and Larson (2000) define religion as "an organized system of beliefs, practices, rituals and symbols designed (a) to facilitate closeness to the sacred or transcendent (God, higher power, or ultimate truth/reality), and (b) to foster an understanding of one's relation and responsibility to others in living together in a community" (p. 18). In contrast, they define spirituality as "the personal quest for understanding answers to ultimate questions about life, about meaning, and about relationship to the sacred or transcendent, which may (or may not) lead to or arise from the development of religious rituals and the formation of community" (p. 18).

King, Speck, and Thomas (2001) add that religion is a framework for a system of beliefs and values, while spirituality involves "a person's belief in a power apart from their own existence. It is the sense of a relationship or connection with a power or force in the universe that transcends the present context of reality. It is more than a search for meaning or a sense of unity with others. Some people use the word of God, others may be less specific" (p. 1015-1016). Sinnott (2002) defines spirituality as "one's personal relation to the sacred or transcendent, a relation that then informs other relationships and the meaning of one's own life" (p. 199), while religious practices "may be the external sign of a spiritual orientation, or simply a set of culturally cohesive practices, beliefs, and habits" (pp. 199–200). Spirituality has also been defined as "the self's existential search for ultimate meaning through an individualized understanding of the sacred" (Wink & Dillon, 2002, p. 79).

Love (2002) further maintained that all religions encompass three main components: (1) the quest for the "ultimate," (2) story and symbol, which result from the need to express religious experiences, and (3) doctrine and dogma, which result from philosophical articulation of religious experiences (p. 357). In contrast, Love (2002) noted Parks' (2000, p. 16) description of spirituality as a "personal search for meaning, transcendence, wholeness, purpose, and the realization of spirit as the animating essence at the core of life" (p. 358).

While many additional definitions of spirituality have been proposed, the afore-mentioned cover the most basic and common components. These definitions resemble James' (1902/2002) personal religion and Moberg's (1970) personal orientation, with the addition of a few broadening concepts, including meaning, existential questioning or understanding, and the transcendent. The construct of spirituality has further been divided into two types: existential spirituality, which refers to a meaning and purpose oriented perspective unrelated to any widely

accepted beliefs, and religious spirituality, which refers to a higher power- or God-oriented perspective involving organized religious practices (Matheis, Tulsky, & Matheis, 2006). Again, such a division highlights the distinction between personal and social motivation.

From a collective perspective (and for the purposes of this thesis), religiosity is best summed up as a set of behaviours (social or private, including rituals), values, and attitudes that are based on previously established religious doctrine (including stories and symbols) and institutionalized organization. Religious behaviours often involve a personal quest for the "ultimate" or the "divine," but this is neither universal nor absolute. Spirituality, on the other hand, is best defined as an unbounded set of personal drives, behaviours, experiences, values, and attitudes which are based on a quest for existential understanding, meaning, purpose, and transcendence. In addition, this personal quest typically involves the apprehension of a spiritual depth or nonmaterial dimension to reality. The personal nature of spirituality is stressed, in contrast to the more social nature of religiosity.

As Worthington and Sandage (2001) note, "religion and spirituality are intimately connected" (p. 473); indeed for many people they are. Such interconnectedness can develop in a number of ways. One may develop a high level of spirituality as a result of religiosity, or one may turn to the religion which best reflects his/her spirituality, possibilities that were suggested by Koenig et al. (2000). Following either of these events, one can maintain aspects of both spirituality and religiosity or abandon either one, often due to conflict that might arise between social and personal attitudes. Regardless of potential interconnectedness between the two constructs, they remain quite distinct. Furthermore, there exist many individuals for whom such interconnectedness has not occurred; for whom either religiosity or spirituality is the only option.

Where, then, does spiritual intelligence fit in? In relation to spirituality, it is proposed that spiritual intelligence describes the mental abilities which underlie many components of spirituality. As was suggested by Vaughan (2002) and Noble (2000, 2001), spiritual experiences likely contribute to the continuous development of a spiritual intelligence. In addition, heightened spiritual abilities leave one more open to spiritual experiences, creating a feedback loop of sorts between spiritual abilities and experiences. Spiritual behaviours and drives are likely outcome variables of a high level of spiritual intelligence, while spiritual beliefs, values, and attitudes may arise from spiritual experiences, heightened spiritual intelligence, or a combination of both. Religions, on the other hand, are symbol systems for conceptualizing aspects of spiritual intelligence, as was maintained by Emmons (2000a). A more detailed explanation of this theory will be offered at a later time.

Prior to proposing a definition and model of spiritual intelligence, it should be noted that a variety of misleading connotations have been attached to the word *spiritual*, particularly as it has been used by supporters of the New Age movement in the West. While there may be many valid elements of this movement, it has also resulted in the use of the word *spiritual* to describe such things as astrology, crystals, and even crop circles and UFOs. Although no judgement shall be passed on such interests, it must be made perfectly clear that the use of the word spiritual in this thesis does not involve such extraneous matters. Nevertheless, after the thorough consideration of alternative options (e.g., metaphysical, cosmic, transcendent, existential), *spiritual* has been deemed the most appropriate descriptor for this intelligence. This is primarily due to the preference for the word *spirituality* in the current literature and its established relation to a potential spiritual intelligence. An existential intelligence is far too limiting, and as already seen, existentialism is a typical component of both spirituality and spiritual intelligence.

By basic definition, *spiritual* means "having to do with the human spirit as opposed to physical things" (Oxford University Press, 2001, p. 878). This is the definition that should be assumed throughout this thesis, along with any additional meaning that might be derived from the afore-mentioned definition of spirituality. The word *spirit* is derived from the Latin word *spiritus*, which means "breath" or "soul." While many scientists may object to the use of such a word, it should be pointed out that the word *psychology* is derived from the ancient Greek word *psyche*, which also means "soul." Today, the word spirit is defined as "the part of the person that consists of their character and feelings rather than their body" (Oxford University Press, 2001, p. 878), and so stresses a nonmaterial focus, which accurately reflects this intelligence.

A Definition and Model of Spiritual Intelligence

The following definition of spiritual intelligence aims to more accurately reconceptualize this construct. Spiritual intelligence is defined as *a set of mental capacities which contribute to the awareness, integration, and adaptive application of the nonmaterial and transcendent aspects of one's existence*, leading to such outcomes as deep existential reflection, enhancement of meaning, recognition of a transcendent self, and mastery of spiritual states. Four core components are proposed to comprise spiritual intelligence: (1) *critical existential thinking*, (2) *personal meaning production*, (3) *transcendental awareness*, and (4) *conscious state expansion*.

Let us examine this definition in greater detail. As it has been well-established, it is crucial that any intelligence describe a set of mental capacities or abilities which are interrelated (Gardner, 1983; Mayer et al., 2000; Sternberg, 1997). While this will later be investigated empirically, the interrelationship of these abilities is made clear by two common qualities: (1) they are intrinsically spiritual in nature and (2) they are based on nonmaterial and transcendent aspects of reality. These are the uniting principles of these particular mental abilities. It will be

demonstrated that these components are in fact mental capacities or abilities, as opposed to preferred ways of behaving.

Critical Existential Thinking. The first component of spiritual intelligence is referred to as *critical existential thinking*, defined as *the capacity to critically contemplate the nature of existence, reality, the universe, space, time, death, and other existential or metaphysical issues*. The word *existential* is most simply defined as "having to do with existence" (Oxford University Press, 2001, p. 312). Therefore, from a basic perspective, *existential thinking* refers to thinking about one's existence. Based on the complex and diverse facets of existence, it can then be inferred that thinking about one's existence involves thinking about such matters as life and death, reality, consciousness, the universe, time, truth, justice, evil, and other similar issues. As previously established, such existential thinking is commonplace in definitions of spirituality (e.g., Koenig et al., 2000; Matheis et al., 2006; Wink & Dillon, 2002) as well as spiritual intelligence (Nasel, 2004; Vaughan, 2002; Wolman, 2001; Zohar & Marshall, 2000), supporting its inclusion in the current model.

In many of these definitions, such existential issues are described as the "ultimate questions" of life (e.g., Kiesling, Montgomery, Sorell, & Colwell, 2006; Vaughan, 2002). Nasel (2004) described this capacity as "deliberation of existential issues and questions of ultimate concern (for example, death, and afterlife), and inquiry into the meaning and origin of life" (p. 56). This mirrors Gardner's (1993) description of existential intelligence as "the intelligence of big questions" (p. 20). It is further argued that critical existential thinking can be applied to any problem or issue in life, since any object or event can be viewed in relation to one's existence.

Some definitions also discuss a "quest for understanding answers" (Koenig et al., 2000, p. 18) to these ultimate questions (e.g., Kiesling et al., 2002; Noble, 2000). It should be noted

here that such a "quest" or striving for answers represents behaviour rather than ability. For this reason, this mental capacity must be restricted to contemplation only (which can include questioning such issues as well). The behaviour of striving for answers to existential questions (which might involve, for example, reading literature on existential topics) would be better described as a correlate of this particular capacity.

Many of these authors (e.g., Koenig et al., 2000; Nasel, 2004; Noble, 2000; Wolman, 2001; Zohar & Marshall, 2000) further define existential contemplation as involving meaning and purpose in life. This is commonly inferred in the discussion of existential matters in general (e.g., Dyck, 1987; Garo, 2006; Lavoie & de Vries, 2004; Simmons, 2006; Smith-Pickard, 2006), and by no means does this thesis refute the inclusion of meaning and purpose in the discussion of one's existence. Nevertheless, when looking at this issue from the perspective of mental ability, some conceptual differences arise. While one can contemplate both existence and meaning, meaning requires an additional level of contemplative and reflective depth. In addition to *thinking about* meaning and purpose, one must *construct* meaning and purpose based on his/her experiences. Meaning and purpose require appraisals which are far more personalized and internal and therefore comprise a distinct capacity in the current model.

Halama (2003, as cited in Halama & Strizenec, 2004) proposed four potential components of an existential intelligence: the ability to perceive adequate value and meaning in concrete situations; the ability to form adequate hierarchies of values and goals; the ability to manage and assess goal achievement; and the ability to influence and help others in finding purpose and meaning in life. The ability to find meaning in life is reserved for its own capacity in the current model, while helping other individuals to find meaning is better described as behaviour and essentially involves one's own meaning-producing capacity. While goal

achievement may be related to existential abilities, it is difficult to distinguish from behaviour. Furthermore, one can set goals within a variety of domains beyond those which are existential.

A handful of authors have fully supported Gardner's (1993) suggestion of an existential intelligence (e.g., Halama & Strizenec, 2004; Shearer, 2006c; Simmons, 2006; Tupper, 2002), lending additional support to this particular capacity. To a large extent, aspects of cognition are inherent in the discussion of existential tendencies, with frequent references to "existential thinking" (e.g., Dyck, 1987; Garo, 2006; Smith-Pickard, 2006) and "existential contemplation" (e.g., Lavoie & de Vries, 2004) in the literature. Some, like Simmons (2006), refer to the "thoughtful reflection" (p. 1) involved in existential contemplation, while others refer to "existential reasoning" (e.g., Evans & Wellman, 2006). References to thinking and reasoning on an existential level help us to more readily infer the presence of such a mental capacity. Pishkin and Thorne (1975) also observed a cognitive factor in a measure of existential attitudes.

As with any mental capacity, individual differences in ability are assumed to exist, and a capacity for existential thinking is no different. In reference to individuals who contemplate such issues as the universe and God, Maslow (1964) distinguished between the "questioning, probing [people]" and "the superficial, the moment-bound…, those who are totally absorbed with the trivial" (p. 56). He added that "we wind up with adults, on the one hand, and children, on the other" (Maslow, 1964, p. 57). Maslow (1964) is asserting that there are some individuals who are more advanced in their ability to contemplate existential matters, suggesting that theologians and philosophers occupy the higher end states. Gardner (1993) himself noted the historical incidence of individuals skilled at existential reasoning.

Yet even within a more normative sample of individuals, differences in the capacity for existential thinking are likely present. Shearer (2006c), author of the MIDAS, which measures

Gardner's (1983) multiple intelligences, has developed a preliminary scale for measuring an existential intelligence. Although this preliminary scale has been found to be reliable and valid, Shearer (2006c) maintains that whether or not it is accurately describing one's abilities (as opposed to an interest in existential matters) remains to be seen. Nevertheless, a propensity for or interest in existential thinking is reflective of an ability to engage in such thinking, without which the tendency to do so would be far less probable. Shearer (2006c) identifies individuals who score strong, moderate, and low on existential intelligence, supporting individual differences in existential abilities. Self-estimates of intelligence have also revealed that perceived existential intelligence is a significant predictor of perceived overall intelligence ($\beta = .18$, $p < .001$; Furnham et al., 2002), following closely behind perceptions of verbal, logical, and spatial intelligence. This suggests a potential relationship between existential thinking and IQ.

It is further argued in the present model that such existential thinking must be *critical*; that it must involve deep contemplation and analysis of such issues. Simply asking questions does not demonstrate complete mastery of this ability. One must be able to contemplate such existential issues using *critical thinking*, and in some cases come to original conclusions or personal philosophies regarding existence and reality, perhaps integrating scientific knowledge and personal experience. This more accurately reflects a form of mental computation, which was suggested as a necessary component of intelligence by Gardner (2000). It also requires a larger degree of abstract reasoning, as will be seen in the following definitions of critical thinking. Abstract reasoning is critical in definitions of intelligence and is far more indicative of mental ability, as was suggested by Mayer (2000).

Many definitions of critical thinking have been offered. Chance (1986) defined critical thinking as "the ability to analyze facts, generate and organize ideas, defend opinions, make

comparisons, draw inferences, evaluate arguments and solve problems" (p. 6). It was more recently defined as "the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication" (Scriven & Paul, 1992). Based on these definitions, it is clear that *critical thinking* involves far more ability or skill than simply *thinking*. For this reason, this particular capacity is referred to as *critical existential thinking*, an expression also used by Garo (2006), in order to fully denote its analytical and computational qualities. This should also help to better differentiate between individuals who simply have passing thoughts or questions regarding existential issues and those who are able to analyze the issues and come to conclusions of their own. Research has typically demonstrated a significant relationship between critical thinking and measures of mental ability and intelligence (Clifford, Boufal, & Kurtz, 2004; Westbrook & Sellers, 1967).

Personal Meaning Production. The second component of this model is *personal meaning production*, which is defined as *the ability to construct personal meaning and purpose in all physical and mental experiences, including the capacity to create and master a life purpose*. Like existential thinking, personal meaning is frequently noted as a component of spirituality (e.g., Kiesling et al., 2006; King et al., 2001; Koenig et al., 2000; Sinnott, 2002; Wink & Dillon, 2002; Worthington & Sandage, 2001), requiring its consideration in a model of spiritual intelligence. Nasel (2004) would concur, suggesting that spiritual intelligence "involves contemplation of the symbolic meaning of personal events and circumstances, in order to find purpose and meaning in all life experiences" (p. 52). Emmons' (2000a) inclusion of "sanctification" in his model of spiritual intelligence is essentially a form of personal meaning production.

Personal meaning has been defined as "having a purpose in life, having a sense of direction, a sense of order and a reason for existence" (Reker, 1997, p. 710). Although this perspective allows one to identify the relationship between meaning and existential thinking, there is a critical difference: having a "reason for existence" (Reker, 1997, p. 710) goes beyond simply thinking about existence, and herein we find a separate and distinct mental capacity.

Reker's (1997) definition also notes the relationship between meaning and purpose, with a life purpose being an important aspect of personal meaning. In fact, meaning is most simply defined as "a sense of purpose" (Oxford University Press, 2001, p. 559). In effect, it is critical that a capacity to create or derive meaning includes the ability to construct purpose as well, which has also been noted in the above-mentioned definitions of spirituality. While one may be able to derive purpose from daily events and experiences, one may also be able to define a purpose for his/her life. This likely involves more coherent and creative forms of meaning production. The *mastering* of a purpose refers to one's ability to infer his/her purpose in all events and experiences. This is essentially another form of meaning creation, one that relates directly to a predefined life purpose or life definition.

Due to the frequent inclusion of these matters under the existential umbrella, personal meaning may often be equated with existential meaning, as it is often referred within the existential literature. It has also been referred to as "spiritual meaning" (Meddin, 1998) and "religious meaning" (Krause, 2003) in other facets of research. Nonetheless, meaning of any kind (regardless of its target or source) can be considered in the examination of this capacity.

While definitions and terminology vary, Meddin (1998) identifies a cognitive component of personal meaning, defined as "an integrative organizing principle (or set of principles) which enables one to make sense (cognition) of one's inner life and outer environment" (p. 164), which

closely resembles Zohar and Marshall's (2000) description of the brain's tertiary processes. A cognitive component was also suggested by Wong (1989), who defined personal meaning as "an individually constructed cognitive system, that is…capable of endowing life with personal significance and satisfaction" (p. 517). It is the cognitive component which allows one to derive, create, and "endow with" meaning that ultimately must represent the capacity for personal meaning production. Wong (1989) also speaks of "creating" personal meaning, suggesting the presence of such a mental ability.

Krause (2004) adds that meaning comprises "values, a sense of purpose, goals, and reflection on the past" (p. 295). A seemingly infinite number of sources of meaning have been described in the literature, including social roles (McCall & Simmons, 1966), relationships, meeting basic needs, personal growth, leisure activities, personal achievement (Reker & Wong, 1988), reminiscence, commitment, optimism, religiosity (Wong, 1989), work, leisure, and even grand-parenting in older adults (Thompson, 1992). It has also been argued that dreams can be a source of personal meaning (States, 1992; Taylor, 2001). An intense review of the literature leads one to conclude that there is no limit to the number of sources available from which one can construct meaning. For this reason, the ability to create meaning in *all* mental and physical experiences occupies the highest level of this particular ability. Maslow (1964) himself stated that "serious people of all kinds tend to be able to 'religionize' [or to endow with spiritual meaning] *any* part of life, *any* day of the week, in *any* place, and under all sorts of circumstances" (p. 31).

In his model of spiritual intelligence, Emmons (2000a) raises the issue of synchronicity, suggesting that transcendence often leads to the ability to sense synchronicity in life. It is important to address this topic in any model or theory related to spirituality, as it is a frequently

mentioned component of the broader construct. In his description of synchronicity, Jung (1960/1973) stated that "events in general are related to one another on the one hand as causal chains, and on the other hand by a kind of *meaningful cross-connection*" (p. 11). He further described synchronicity as "*meaningful coincidence*" (Jung, 1960/1973, p. 10), of which meaning serves as an "acausal connection" (Jung, 1960/1973, p. 10) between events which have no cause-and-effect relationship. Fordham (1973) later remarked that "it is of no significance whether the separate events in a meaningful sequence are caused or not, for it is the meaning of the entire group, the sequence, that Jung emphasized" (Jung, 1960/1973, p. vi). It is suggested that Emmons' (2000a) ability to sense synchronicity is simply personal meaning production in disguise. Coincidence, it is argued, is yet another potential source of personal meaning, as Jung (1960/1973) himself seemed to be suggesting.

It can be inferred from tests of meaning (i.e., those that look at cognitive, affective, and behavioural aspects of meaning as well as sources of meaning) that people vary in terms of their capacity or ability to derive or create meaning and purpose. Various measures of personal meaning have found that people differ in this construct (e.g., Mascaro & Rosen, 2005; Reker, 1997; Zika & Chamberlain, 1992). Since these measures tap aspects of meaning related to mental ability, and since mental capacity is hypothesized to underlie one's level of meaning, it is highly plausible that individual differences exist in this particular ability.

Transcendental Awareness. The third factor, *transcendental awareness,* is defined as *the capacity to identify transcendent dimensions of the self (e.g., a transpersonal or transcendent self), of others, and of the physical world (e.g., non-materialism, holism) during the normal, waking state of consciousness, accompanied by the capacity to identify their relationship to one's self and to the physical.* At first glance, many may prematurely dismiss the appropriateness

of any suggested mental capacity which contains the word *transcendental*. As such, it is necessary to examine this word in greater detail. *Transcendent* is defined as "going beyond normal or physical human experience" or "existing apart from and not subject to the limitations of the material universe" (Oxford University Press, 2001, p. 972). It is the former definition that most accurately reflects this capacity, as it is an awareness of that which is beyond the physical or material. The word *transcendental* is actually a more appropriate descriptor, as it is not the awareness itself that is transcendent. Rather, it is an awareness of *that which is transcendent*.

Transcendent aspects of life are commonplace in definitions and theories of spirituality. Koenig et al. (2000) define spirituality as "the personal quest for understanding answers to ultimate questions about life…and about relationship to the sacred or transcendent" (p. 18). King et al. (2001) contend that spirituality involves "a person's…sense of a relationship or connection with a power or force in the universe that transcends the present context of reality" (p. 1015-1016). Similarly, Sinnott (2002) defines spirituality as "one's personal relation to the sacred or transcendent" (p. 199). In their development of the Spiritual Orientation Inventory, Elkins, Hedstrom, Hughes, Leaf, and Saunders (1988) identified the *transcendent dimension* as one of the nine main components of spirituality. Martsolf and Mickley (1998) also highlighted transcendence as a noteworthy component of spirituality, describing it as the experience, awareness, and appreciation of a transcendent dimension to life beyond the self.

Although this may be the least understood of all the capacities, the robust presence of the transcendent in spirituality literature requires its consideration in a model of spiritual intelligence. In terms of actual mental ability (rather than experiences or attitudes), only one candidate arises from the above definitions: *awareness* (Martsolf & Mickley, 1988). Some definitions hint at such awareness (e.g., King et al., 2001), while others discuss generally the

transcendent dimension (Elkins et al., 1988) and the ability to sense one's relationship to it (Koenig et al., 2000; Sinnott, 2002). In effect, if we are to name the mental ability which underlies the transcendent aspects of spirituality, it must be the ability to recognize or perceive these transcendent dimensions and one's relationship to them.

Others have concurred. Pascual (1990) proposed that transcendental awareness, particularly the awareness of a transcendental self, is a key factor involved in what he called creative-spiritual intelligence. Emmons (2000a) also described the capacity for transcendence as a core ability of spiritual intelligence, which he defined as the ability to surpass physical matter and develop deeper awareness of a divine being and/or one's self. Wolman (2001) described this more broadly as the ability to sense a spiritual dimension of life. Noble (2001) later added to Emmons' (2000a) model, proposing the ability to recognize "that physical reality is embedded within a larger, multidimensional reality" (p. 46). This is similar to what James (1902/2002) had previously described as the perception of "being in a wider life than that of this world's selfish little interests; and a conviction, not merely intellectual, but as it were sensible, of the existence of an Ideal Power" (pp. 298-299). Nasel (2004) referred more specifically to "transcendent awareness" (p. 53) as a component of spiritual intelligence.

In many ways, the current definition of transcendental awareness combines these capacities. Unlike Emmons' (2000a) definition, however, the current model does not require a deeper awareness of a divine being, as this is far too exclusive. Instead, it simply requires the ability to recognize transcendent dimensions of reality and of the self. While this may or may not be related to the belief in a divine being, Noble's (2001) description of a "multidimensional reality" (p. 46) is likely more accurate.

In his review of personal accounts of the transcendent, William James (1902/2002) believed that "such cases…seem sufficiently to prove the existence in our mental machinery of a sense of present reality more diffused and general than that which our special senses yield" (p. 72). Here James seems to be referring directly to the ability to sense or recognize the transcendent in life. In regards to such perceptions of reality, James (1902/2002) states:

> They are as convincing to those who have them as any direct sensible experiences can be, and they are, as a rule, much more convincing than results established by mere logic ever are. One may indeed be entirely without them; probably more than one of you here present is without them in any marked degree; but if you do have them, and have them at all strongly, the probability is that you cannot help regarding them as genuine perceptions of truth, as revelations of a kind of reality which no adverse argument…can expel from your belief. (p. 83)

James is suggesting that the ability to perceive the transcendent varies from individual to individual, a contention which further supports its inclusion as a mental capacity. Moreover, he is arguing that this perception is as real to the individual as that achieved by the physical senses.

In 1971, Maslow introduced the concept of *self-actualization*, which is the process of the *I* becoming more aligned with the *self* and abandoning the *ego* (Pelletier, 1996). Within contemporary literature, the *self* is typically referred to as the superior center of the personality, existing beyond the *ego* and the *I*. It is open to realities which transcend the ego and can serve as a nearly inexhaustible source of creativity and compassion (Pelletier, 1996). "It is possible for every human being to develop a personal relationship with his or her Self, and exteriorize that relationship in every facet of his or her life" (Hamel, Leclerc, & Lefrançois, 2003, p. 6). In contrast, the *ego* consists of "thoughts, emotions, and sensations that define our personal

universe through the fear of losing our physical and psychological identity" (Hamel et al., 2003, p. 6). The *I* represents the essence of one's individual existence (i.e., one's identity) and is capable of free will and self-awareness (Hamel et al., 2003).

Hamel et al. (2003) have described an additional process of *transcendent-actualization*, which they define as "a self-realization founded on an awareness and experience of a Spiritual Center, also called the Inner Being or the Self" (p. 4). Csikszentmihalyi (1993) also distinguished between self-actualization and *self-transcendence*, suggesting that self-actualization is a prerequisite for self-transcendence. He referred to the *transcendent self*, describing successful individuals as *transcenders* who "move beyond the boundaries of their personal limitations by integrating individual goals with larger ones, such as the welfare of the family, the community, humanity, the planet, or the cosmos" (p. 219). Today, the literature often refers to a *transegoic self* (Washburn, 1990, 1995; White, 2002) or a *transpersonal self* (e.g., Cook-Greuter, 2000; Hamel et al., 2003) in order to describe the process of overcoming the ego and living according to one's true spiritual nature.

Authors tend to concur with Csikszentmihalyi (1993) by referring to this process as *self-transcendence*, which has also been defined as "the ability to move beyond self-centered consciousness, and to see things…with a considerable measure of freedom from biological and social conditioning" (Le & Levenson, 2005, p. 444). This is similar to Cook-Greuter's (2000) discussion of a unitive stage of ego development, in which individuals are better able to integrate their transcendent experiences and develop "a profound and compassionate understanding of the human condition" (p. 236). Although the terms *transpersonal self*, *transegoic self*, and *transcendent self* are often discussed interchangeably, *transcendent self* is the preferred phrase in the current paper, as it most accurately reflects the awareness of a spiritual center or self. The

recognition and awareness of a transcendent self is a key component of transcendental awareness. While high intrapersonal and emotional abilities likely contribute to such awareness, it undoubtedly requires additional awareness of the nonmaterial and transcendent.

Maslow (1971) further described *metacognition* as the realization of a unitive consciousness, a key concept to understanding self-actualization. *Metamotivation*, on the other hand, involves a realization of values related to an actualized self. Together, metacognition and metamotivation comprise self-actualization. Hamel et al. (2003) recently identified four components of metacognition and metamotivation (based on an extensive literature review and meta-analysis), two of which are of grave interest to the establishment of transcendental awareness as a mental ability.

The first component of metacognition is *in-depth perception*, which is defined as the "ability to discern and explore the different aspects of one's life and life in general, going beyond appearances" (Hamel et al., 2003, p. 11). Essentially, Hamel et al. (2003) are describing an ability to recognize transcendent aspects of life, including "a deep knowledge of…personal resources and boundaries, a meaningful knowledge of the reality facilitated by viewing the object from different angles, and a perception of realities that ordinary consciousness cannot perceive but that are common in contemplation" (p. 12). The second component is *holistic perception*, defined as the "ability to perceive one's life and life in general from a viewpoint independent of numerous attachments" (Hamel et al., 2003, p. 11). It is further described as "an apprehension of reality with all its contradictions and incompatibilities, a global integrative vision of the essential core of beings and events, and a perception of the reality independent of fears, desires, and beliefs" (Hamel et al., 2003, p. 12).

Together, these components describe cognitive abilities of perception and awareness associated with this capacity. It can be seen that Maslow's metacognition involves not only awareness of the self but also of deeper, nonmaterial aspects of reality and of the physical world. These components further suggest an ability to perceive things holistically, as was previously suggested by Zohar and Marshall (2000) as an aspect of spiritual intelligence. The meta-analysis by Hamel et al. (2003) provides significant support for the cognitive ability to recognize and perceive transcendent aspects of life. More recently, Lukey and Baruss (2005) found that transcendent beliefs are associated with greater intelligence, further suggesting a potential intellectual component underlying transcendence.

It may be beneficial at this time to review what is meant by the term *transcendent dimension.* In the current model, this refers to any aspect of reality that is beyond the physical. In terms of transcendent aspects of individuals, it should be clear that the concept of the transcendent or transpersonal self serves as the best example. In terms of physical reality, we have encountered a holistic dimension (Hamel et al., 2003; Zohar & Marshall, 2000) as well as a deeper dimension which is beyond appearances (Hamel et al., 2003), which could be called a *nonmaterial* dimension. *Interconnectedness,* which involves the perception of relationships which transcend the physical, may also serve as an example. This is a common component of spirituality (Martsolf & Mickley, 1998), and can involve connectedness to other people (Clark, 2002; Fisher, 1998; Kinjerski, 2005; Martsolf & Mickley, 1998; Montero & Colman, 2000; Vaughan, 2002), nature (Bellotti, 2006; Fisher, 1998; Martsolf & Mickley, 1998; Vaughan, 2002), and more generally, the universe and/or reality (Fisher, 1998; Martsolf & Mickley, 1998).

It is apparent that there is some overlap between personal meaning production and transcendental awareness. Personal meaning is, to a large degree, a transcendent aspect of human

life. Nevertheless, although personal meaning production may rely somewhat on an awareness of nonmaterial aspects of life, it is also far more than perception or awareness. It relies primarily on the ability to construct meaning and purpose in daily events and experiences, setting it apart from transcendental awareness. In addition, one is often able to derive meaning from one's awareness of transcendent aspects of life. Some overlap is acceptable, however, as these mental abilities should be moderately interrelated (Gardner, 1983; Mayer et al., 2000).

Maslow (1964) was a strong advocate for the scientific study of transcendent aspects of human life. More than four decades ago, he concluded "very confidently that these concepts are not mere hallucinations, illusions, or delusions, or rather, more accurately, that they need not be. They can and do have referents in the real world" (Maslow, 1964, p. 44). His conclusions were based primarily on his study of altered states of consciousness and peak experiences (to be examined subsequently). He added that "the big lesson…is that mystery, ambiguity, illogic, contradiction, mystic and transcendent experiences may now be considered to lie well within the realm of nature" (p. 45), suggesting that a science which ignores issues so critical to the human experience is insufficient (Maslow, 1964). Decades earlier, James (1902/2002) could find "no philosophic excuse for calling the unseen…world unreal" (p. 561) and made frequent references to the "reality of the unseen" (p. 61). Today, it need be reminded that the word *empirical* is an adjective for describing that which is "based on observation or experience rather than theory or logic" (Oxford University Press, 2001, p. 292). As such, we cannot rule out human experiences simply due to a lack of scientific investigation, as this says nothing of their empirical value.

It should be made clear at this point that such transcendental awareness is kept distinct from heightened states of consciousness in the current model, as it was to some degree in Emmons' (2000a) model. While we are dealing with heightened awareness, we are not dealing

with altered states of consciousness such as pure consciousness, oneness, unity, or timelessness, all of which were described by James (1902/2002) as mystical states and by Maslow (1964) as peak experiences. Although select qualities may overlap, significant differences remain, particularly in neurophysiological activity. Transcendental awareness is limited to that which occurs during the normal, waking state of consciousness. As such, it describes the capacity to recognize transcendent dimensions of reality in objects, activities, experiences, and events on a daily basis.

Conscious State Expansion. The final component of spiritual intelligence is *conscious state expansion*, defined as *the ability to enter and exit higher/spiritual states of consciousness (e.g. pure consciousness, cosmic consciousness, unity, oneness) at one's own discretion (as in deep contemplation, meditation, prayer, etc.)*. It is first critical to understand what is meant by the terms *consciousness* and *state of consciousness*.

From a very general perspective, consciousness is defined as "one's awareness of something" or "the state of being [aware of and responding to one's surroundings]" (Oxford University Press, 2001, p. 185). From a psychological perspective, however, consciousness is far more complex than this. Solso et al. (2005) offer the following definition: "Consciousness is the awareness of environmental and cognitive events such as the sights and sounds of the world as well as one's memories, thoughts, feelings, and bodily sensations" (p. 141). Tart (1975) differentiates between awareness and consciousness, contending that "*awareness* refers to the basic knowledge that something is happening, to perceiving or feeling or cognizing in its simplest form. *Consciousness* generally refers to awareness in a much more complex way; consciousness is awareness as modulated by the structure of the mind" (chap. 3, para. 2). From a psychological perspective, the distinction between transcendental awareness and conscious state

expansion is well supported. Nevertheless, the two capacities would likely interrelate, with experiences of higher states of consciousness contributing to one's transcendental awareness.

A *state of consciousness* can be defined as "a unique *configuration* or *system* of psychological structures or subsystems" (Tart, 1975, chap. 5, para. 16). The term essentially serves to describe the various organizations of human consciousness, some of which, like the sleeping and dreaming states, are well documented and seen as part of the normal human experience (Solso et al., 2005; Tart, 1975; Vaitl et al., 2005). These states are often described as levels of consciousness, in order to comparatively specify the amount of awareness (which can include self-awareness, environmental awareness, spiritual awareness, or some combination of these) and arousal involved. For example, the sleeping and dreaming states of consciousness would be considered lower levels of consciousness compared to the ordinary waking state, as one's field of awareness is narrowed (Vaitl et al., 2005). Lucid dreaming is viewed as a slightly higher level of consciousness compared to the dreaming state (Tart, 1975), although Gackenbach (1989) argues that "lucid dreaming is but a starting point or perhaps only a bridge to what has been called higher states of consciousness" (Introduction, para. 1).

The normal state of consciousness has been described as "having one's mental faculties in an active and waking state" (Natsoulas, 1978, p. 912). The term *altered state of consciousness* is used to describe a state which delineates from the ordinary waking state (Natsoulas, 1978; Tart, 1975; Vaitl et al., 2005) and can involve either lowered or heightened awareness (Tart, 1975; Vaitl et al., 2005). Such alterations of consciousness can occur spontaneously or as the result of physical stimuli, psychological processes, mental exercises, disease, or drugs (for a detailed review of the sources/causes of altered states of consciousness, see Vaitl et al., 2005). A *higher*

or *heightened* state/level of consciousness refers to a mental configuration in which one's awareness is greater than that experienced during the normal waking state (Tart, 1975).

It is important to understand that such higher states involve different mental configurations and altered brain activity compared to the waking state (Cahn & Polich, 2006; Tart, 1975; Vaitl et al., 2005), making them more than just heightened awareness. (Although transcendental awareness might be seen as involving heightened awareness, it is defined as occurring during the ordinary waking state.) A growing body of research has demonstrated significant differences in brain functioning between all levels and states of consciousness, including those associated with religious/spiritual experiences and meditation (for a review, see Cahn & Polich, 2006; Vaitl et al., 2005).

Regardless of such findings, however, Walsh and Shapiro (2006) point out that "Western psychology recognizes few additional states beyond the usual waking and sleep states, and many of these additional states – such as intoxication or delirium – are dysfunctional" (p. 232). Nevertheless, other disciplines (e.g., meditative psychologies, yoga, shamanism) strongly contend that "whole families of functional nonordinary states, such as states marked by heightened concentration [and] insight" (Walsh & Shapiro, 2006, p. 233), exist.

James (1902/2002) described such higher states as *mystical* and contended that "our normal waking consciousness, rational consciousness as we call it, is but one special type of consciousness, whilst all about it…there lie potential forms of consciousness entirely different" (p. 422). Maslow (1964) later described such states as *peak experiences*, which he defined as awe-inspiring experiences, accompanied by the following characteristics: the perception of the universe as "integrated and unified" (p. 59), the perception of a place or belonging in the universe, a view of the world as beautiful and "more detached from human concerns" (p. 61),

ego-transcendence and a lack of selfishness, a loss of fear and anxiety, and a "lack of consciousness of time and space" (p. 63). He further described higher states as a "poignantly emotional, climactic, autonomic response to the miraculous, the awesome" (p. xiv). For Maslow (1964), these states were comparable to those which had been described by religious mystics, and he often referred to them as *core-religious experiences* and/or *transcendent experiences*.

More recently, d'Aquili and Newberg (2000) formulated a list of common characteristics of spiritual/mystical experiences based on their extensive research on physiological correlates. They include the progressive increase of unity, the progressive sense of transcendence or "otherworldliness," the progressive incorporation of the self in the experience, and the progressive objective belief that the mystical or spiritual experience is real.

Much of the literature continues to refer generally to such higher states as *mystical* (e.g., Gackenbach, 1992), reminiscent of James' (1902/2002) lectures. The term *cosmic consciousness* describes the awareness of the order of the entire universe, accompanied by a sense of eternity (Bucke, as cited in James, 1902/2002, p. 434). It was further described by Maslow (1964) as involving "an attention-widening so that the whole cosmos is perceived as a unity, and one's place in this whole is simultaneously perceived" (p. 78). Other higher states include *unity*, *unitive consciousness*, and *oneness*, which involve the perception that all aspects of life are components of the same integrated and unified whole (James, 1902/2002; Maharishi, 1969; Maslow, 1964). In such unitive states, the self-other dichotomy vanishes (d'Aquili & Newberg, 1993). *Pure consciousness*, on the other hand, refers to "a silent state of inner wakefulness with no object of thought or perception" (Alexander, Chandler, & Boyer, in press, p. 1). Gackenbach (1992) describes pure consciousness as the "central psychospiritual state of consciousness" (chap. 1, para. 1) to which all other transpersonal experiences lead. Maharishi Mahesh Yogi (1969), an

Eastern master of meditative practices, has posited additional states of transcendental consciousness (a state of restful alertness) and God consciousness (involving an appreciation for creation).

Electroencephalogram (EEG) studies have found that increased theta power, increased alpha power, and anterior-posterior coherence are recorded during reports of pure consciousness (e.g., Farrow & Hebert, 1982; Travis, 2001). Experiences of ecstasy during meditation have been associated with increased activity in the temporal lobes (Persinger, 1983). In assessments of deep states of meditation, alpha desynchronization and fast beta rhythms are common (for a review, see Cahn & Polich, 2006). Maharishi's (1969) transcendental meditation is marked by early alpha induction, decreased alpha frequency, increased alpha amplitude, increased alpha coherence, theta bursts, and an overall maintenance of a low-arousal state without progression toward sleep (e.g., Banquet, 1973; Taneli & Khrane, 1987; Wallace, 1970; Williams & West, 1975; for a review see Cahn & Polich, 2006). As Cahn and Polich (2006) note, however, there are discrepancies in the findings. To date, there has been no standardized phenomenological description of higher states of consciousness, as characteristics vary depending on the meditation/relaxation technique employed and the type of state examined (Cahn & Polich, 2006). Whether or not these changes represent altered states of consciousness is still unclear and subject to debate (Vaitl et al., 2005).

Higher states of consciousness are deeply rooted aspects of religion and spirituality. As James (1902/2002) noted, the cultivation of higher states has been a critical component of nearly all the major religions, including Hinduism, Buddhism, Islam, and Christianity. Beyond religion, higher states have also played an integral role in Eastern yogic and meditative practices (James, 1902/2002). Both James (1902/2002) and Maslow (1964) also described the historical

occurrence of such higher states in personal religious/spiritual experiences as well as deep contemplation. Today, experiences of higher consciousness are commonly referred to as spiritual (Menon, 2005; Tart, 1975) and/or psychospiritual (Gackenbach, 1992), and they often serve as critical components of an individual's spirituality and/or religiosity (Gackenbach, 1992; James, 1902/2002; Maslow, 1964; Menon, 2005; Tart, 1975). As such, it is necessary to consider a potential mental ability which might underlie the experience of these higher states.

There is no doubt that higher states of consciousness are phenomenological experiences, frequently described as "states of feeling" (James, 1902/2002, p. 414). As such, the mere experience of such states cannot constitute a mental ability, as this would be contradictory to the concept of intelligence (Gardner, 1983; Mayer et al., 2000; Sternberg, 1997). As previously suggested, higher states of consciousness can be spontaneously produced or triggered by environmental stimuli (James, 1902/2002; Maslow, 1964; Vaitl et al., 2005). In such cases, similar difficulty arises in the identification of a mental capacity. Although some individuals are more likely to experience these spontaneous or environmentally-induced states (James, 1902/2002; Maslow, 1964), this could be due to a number of other factors, such as thin boundaries (Jawer, 2005), environmental conditions, or sensory deprivation (Vaitl et al., 2005).

What is far less debatable is the mental capacity for entering these higher states at one's own discretion. Vaitl et al. (2005) identified a set of altered states of consciousness which are triggered by one's own mental exercises, as in meditation and relaxation. Over a century earlier, James (1902/2002) made a similar observation, noting that "the oncoming of mystical states may be facilitated by preliminary voluntary operations" (p. 415). He also described a "methodical cultivation" (p. 436) of such higher states in various religions, and suggested that the Indian tradition of yoga involves, among other things, an "intellectual concentration" (p. 436). In

addition to peak experiences, Maslow (1964) also described the *plateau experience*, defined as "serene and calm, rather than a poignantly emotional, climactic, autonomic response" (p. xiv). He added that "the high plateau-experience always has a…cognitive element" and "is far more voluntary" (p. xiv). Despite the distinction, he later suggested that peak experiences are "to some extent under our own control" (Maslow, 1964, p. 32) as well.

More recent psychological literature has reported individuals who are highly skilled at entering higher states of consciousness (e.g., Holmes, Solomon, Cappo, & Greenberg, 1983; Lehmann et al., 2001). Lehmann et al. (2001) investigated an advanced subject who was able to apply various mental techniques in order to enter distinct meditative states at will. In this particular case, EEG activity (specifically gamma activity) was significantly related to the nature of the meditative technique employed.

The ability to enter higher states of consciousness at one's own discretion represents a formidable candidate for mental capacity. It is further proposed that one's ability to exit these states (therefore controlling the amount of time spent in them) at one's own discretion is yet another aspect of this capacity. Complete control over entering and exiting higher states would therefore represent the high end-state of this ability. Emmons' (2000a) model of spiritual intelligence also supports the inclusion of this ability, which he describes as the capacity to "engage in heightened or extraordinary forms of consciousness" (p. 10).

Gardner (2000) argues that the ability to enter higher states of consciousness simply reflects heightened control over one's physical body, and is therefore more reflective of bodily-kinesthetic intelligence. Although some physical control is necessary in most established methods of meditation and relaxation (e.g., controlled breathing; Cahn & Polich, 2006; James, 1902/2002; Maslow, 1964; Vaitl et al., 2005), a cognitive component is quite evident as well.

Vaitl et al. (2005) describe "the ability to maintain concentration" (p. 107), "the ability to refrain from goal-directed and analytic thoughts" (p. 108), and "the ability to tolerate and accept unusual or paradoxical experiences" (p. 108) as integral aspects of relaxation alone. These, as well as James' (1902/2002) suggestion of "intellectual concentration" (p. 436) and Maslow's (1964) observation of "abstract perception" (p. 79) strongly suggest the presence of a mental capacity. Lazar et al. (2000) have also defined meditation as voluntary regulation of attention, suggesting that cognitive control is primary. Just as Gardner's (1983) interpersonal intelligence requires aspects of linguistic intelligence, entering higher states of consciousness may involve some degree of bodily intelligence. It is contended here, however, that the cognitive capacities are paramount.

His extensive investigation of higher states of consciousness led Maslow (1964) to conclude that "all or almost all people have or can have peak-experiences" (p. 29). Maslow further stressed that these experiences are not bound to any particular race, religion, or class. As such, it may be inferred that the ability to enter these states is also unbounded. As Sternberg (1988) suggested, one should be able to find examples of average people when examining intelligences and mental capacities. This ability likely exists in all individuals to some degree, further supporting its inclusion as a mental capacity. It is also essential that our continuing examination not be limited to any particular religion, philosophy, or meditative technique. Walsh and Shapiro (2006) note that a variety of meditations exist, all of which vary according to the type of attention, the relationship to cognitive processes, and the goal of the practice.

Adaptive Applications

Whether discussing spiritual intelligence in general or each capacity in particular, a number of adaptive applications can be postulated. Many studies have supported the adaptive

role of spirituality, and it is from these studies that the adaptive role of spiritual intelligence can be generally inferred.

In particular, research has suggested a positive relationship between spirituality and adaptability in individuals suffering from physical health problems (Miller & Thoresen, 2003). In large samples of cancer patients (specifically those suffering from malignant melanoma), reliance on spiritual beliefs has been associated with more active cognitive coping styles and lower psychological distress (Baider et al., 1999; Holland et al., 1999). In the same year, Brady, Peterman, Fitchett, and Cella (1999) found that spiritual well-being was significantly related to quality of life in cancer patients to the same degree as physical well-being. Furthermore, spiritual well-being was associated with the ability to enjoy life in spite of symptoms (Brady et al., 1999). In a study of women suffering from breast cancer, Cotton, Levine, Fitzpatrick, Dold, and Targ (1999) observed a similar relationship between spiritual well-being and quality of life, although this relationship dissipated after controlling for demographics and adjustments styles. Nevertheless, Ben-Arye, Steinmetz, and Ezzo (2007) note the expressed needs of female patients to address their spiritual well-being while coping with breast cancer, which has been further supported in cross-cultural case reports (Simon, Crowther, & Higgerson, 2007).

Findings are not limited to cancer patients. Spiritual well-being and spiritual-based coping strategies have been associated with higher quality of life in individuals suffering from spinal cord injuries (Matheis et al., 2006; Nissim, 2003), HIV/AIDS (Simoni, Martone, & Kerwin, 2002), high blood pressure (in men only; Tartaro, Luecken, & Gunn, 2005), and fibromyalgia (Anema, 2006). In many of these studies, spiritual-based coping demonstrated a more significant relationship with quality of life when compared to other coping strategies (Matheis et al., 2006, Simoni et al., 2002), including those that were religious in nature (Matheis

et al., 2006). Kim, Heinemann, Bode, Sliwa, and King (2000) have also observed moderate correlations (*r*s = .24 to .52) between spiritual well-being and both life satisfaction and emotional well-being in patients undergoing medical rehabilitation. Kirby, Coleman, and Daley (2004) found that spirituality moderated the negative effects of frailty in an elderly sample.

Similar relationships have been observed between spirituality and mental health. Fournier (1998) found that spiritual well-being played a significant role in stress reduction and adaptability among suicide survivors, independent of other coping methods. Spirituality has also been found to improve adaptability and resilience among families suffering from parental loss (Greeff & Human, 2004) as well as self-esteem in gay, lesbian, and bisexual individuals (Yakushko, 2005). In terms of substance abuse, Kohn (1984) contended that spirituality plays a significant role in recovery from alcoholism. A more recent study concurred, finding significant correlations between aspects of spirituality and substance abuse recovery ratings (*r*s = .29 to .55; Piedmont, 2004). Spiritual-based coping appears to be applicable in less critical circumstances as well. Duffy and Blustein (2005) observed positive relationships (*r*s = .23 to .26) between career adaptability and both spirituality and intrinsic religiosity.

It is clear that some relationship exists between positive health and spirituality, to the extent that spirituality has been described as a critical component of health-related adaptability (Jones, 1991). Furthermore, there appear to be forms of coping which are spiritual in nature. It is contended that these coping strategies and problem-solving techniques are in fact adaptive applications of spiritual intelligence. Although research has demonstrated relationships between adaptability and such constructs as spirituality (generally) and spiritual well-being, it is suggested that these relationships are indirect; that rather, it is spiritual intelligence which is

acting as a moderator in many of these correlations. A more significant relationship would likely be observed between high levels of spiritual intelligence and adaptability.

The following questions then arise: What is the nature of these coping strategies and problem-solving methods? How exactly do they act upon stressful situations? What role is being played by abstract reasoning, if any? Are there unique crises or stressors which spiritual intelligence alone can overcome? These questions will be better answered by examining the adaptive applications of each component of spiritual intelligence. With regard to specific, spiritual problems, Nasel (2004) identified the following:

> deliberation over existential questions, such as the existence of an afterlife; search for meaning in life; concern over how to pray or meditate effectively; development of a sense of purpose in life; development of a relationship with oneself; becoming attuned to a higher power and its role in one's life. (p. 48)

These issues represent a formidable set of problems which can be overcome by a spiritual intelligence. Each of the four mental capacities can be applied to these spiritual problems to varying degrees, and as it will be demonstrated, each capacity is highly adaptive in a variety of stressful situations.

Critical Existential Thinking. There are particular situations for which the ability of critical existential thinking is highly valuable: the existential neurosis and the existential crisis or vacuum. An *existential neurosis* is "characterized by the belief that one's life is meaningless, by the affective tone of apathy and boredom, and by the absence of selectivity in actions (Maddi, 1967, p. 313). Maddi (1967) further distinguished the existential neurosis from both depression and neurasthenia. Frankl (1969) later referred to noogenic neuroses, which originate in spiritual or moral conflicts.

Frankl (1969) also referred to the slightly less severe mental state of *existential frustration*. An *existential vacuum* can result from a loss of meaning in life or "the frustration of the will to meaning" (Frankl, 1969, p. 45). Today, the term *existential crisis* (also referred to as *spiritual crisis*) is more commonly employed, which refers not only to a state of meaninglessness, but also a state of intense psychological discomfort regarding questions about existence (Gerwood, 1998; Hilpert, 1987; Martz, 2004; Yalom, 1980). Yalom (1980) contends that such crises can result from isolation, groundlessness and lack of direction, and/or the inevitability of death.

Regardless of the source of the crisis, it is clear that the ability to contemplate and analyze issues of an existential nature would be highly valuable in its resolution. A difficulty in contemplating one's existence would simply add to the existential frustration described by Frankl (1969). In contrast, the ability to critically analyze one's existential frustration – to question the source of the crisis, to probe its nature, and to seek a resolution to the vacuum – would simply act as a coping mechanism and source of problem-solving in such a crisis. Furthermore, there is little speculation as to the level of abstract reasoning involved in critical existential thinking, for the subject matter itself is immensely abstract. To ponder such abstractness as the nature of reality, time, death, and existence intrinsically involves a high level of abstract reasoning, particularly when one must make judgments and appraisals involving such matters. In turn, existential thinking would contribute to one's general abstract reasoning abilities.

The adaptive role of critical existential thinking is not limited specifically to crises of an existential nature. Existential crises have been seen to occur within the wider contexts of other life crises, including physical disability (e.g., Martz, 2004) and illness (e.g., Gregoire, 1983; Sand & Strang, 2006), dementia (Albinsson & Strang, 2003), substance-related disorders

(Gerwood, 1998), trauma (e.g., Goddard, 2004), rapid cultural change and migration (Madison, 2006; Stones & Philbrick, 1980), midlife crises (Dillinger, 2003), and job loss (Hilpert, 1987). A great deal of research has suggested that overcoming the existential crisis aids in the resolution of the larger crisis within which it occurs (e.g., Gerwood, 1998; Goddard, 2004; Welwood, 1982) by strengthening the will of the individual and cultivating hardiness or *existential courage* (Maddi, 2004). Booth (1973) proposed that the resolution of an existential crisis actually results in spontaneous recovery in some cancer patients. As such, many have advocated for a greater focus on existential matters in both physical and psychological therapies (e.g., Boston & Mount, 2006; Gibbs & Achterberg-Lawlis, 1978; Hammer, 2003; McDougall, 1995; Van Kaam, 1969).

Although existential crises may be occurring within or in relation to other life crises, the resolution of the existential crisis has been seen to play a role in the resolution of the parallel life crisis. This is critical and suggests that the ability to contemplate existential issues can serve as a source of adaptation in a variety of situations. The arousal of existential anxiety and frustration in critical situations leads to the need for such critical existential thinking, as it seems imperative that the existential crisis be resolved. Furthermore, it appears that the resolution of the existential crisis (which requires critical existential thinking) serves as a buffer against the stress of the parallel life crisis (Gerwood, 1998; Goddard, 2004; Maddi, 2004).

It is suggested, then, that critical existential thinking can serve as a multifaceted source of adaptation, coping, problem-solving, and abstract reasoning, particularly in crises of an existential nature or in those crises which arouse such existential anxieties and questions. This is accomplished by allowing an individual to critically analyze such issues and circumstances, thereby more readily solving the existential frustration and averting its side effects. It is further contended that there is no limit to such application, as any problem can be approached from an

existential perspective or related to one's existence. In addition, the development of a personal philosophy on life can provide unique insight into problems and dilemmas that might not otherwise be available.

Personal Meaning Production. Meaning production plays an equally valuable and adaptive role during an existential or spiritual crisis. As previously stated, one of the primary characteristics of an existential crisis, existential neurosis, or existential frustration is a sense of meaninglessness (Frankl, 1969; Maddi, 1967). Frankl (1969) further described an existential vacuum as "the frustration of the will to meaning" (Frankl, 1969, p. 45). Therefore it is quite reasonable to suggest that a high capacity for personal meaning production would be quite adaptive in dealing with such existential problems. In fact, if this ability were highly cultivated, it would likely prevent such a crisis or vacuum from ever fully developing, as it would provide an individual with seemingly endless sources of personal meaning and purpose.

Additional research suggests that the ability to construct or derive meaning from one's environment is adaptive in a variety of situations. Mascaro and Rosen (2005) found significant and positive correlations between measures of hope and both implicit and explicit measures of personal meaning (rs = .48 to .79). In contrast, negative relationships were observed between measures of personal meaning and both depression and neuroticism (rs = -.34 to -.58). Longitudinal analyses found that personal meaning accounted for significant amounts of variance in hope (βs = .14 to .31, $p < .05$) and depression (βs = -.14 to -.20, $p < .05$) beyond that explained by baseline measures and the Big Five personality factors, suggesting that meaning plays a significant role in both the enhancement of hope and prevention of depression (Mascaro & Rosen, 2005). A year later, Mascaro and Rosen (2006) confirmed that measures of personal and spiritual meaning were negatively correlated with depression. They also found that meaning

moderated the relationship between daily stress and depression; when spiritual meaning was low, the relationship between stress and depression was high. Mascaro and Rosen (2006) suggest that spiritual meaning acts as "a buffer against the effects of stress on well-being" (p. 183).

Studies of terminally ill cancer patients have revealed that spiritual well-being, particularly being able to maintain a sense of personal meaning, acts as a buffer against clinical depression, hopelessness, suicidal ideation, and desire for hastened death (Breitbart et al., 2000; Nelson, Rosenfeld, Breitbart, & Galietta, 2002), supporting findings by Mascaro and Rosen (2006). As Breitbart (2005) maintains, "being able to sustain a continuing sense of meaning during cancer illness and treatment contributes to improved quality of life and reduced psychological distress" (p. 238). A number of studies have also found significant relationships between personal meaning and both psychological and physical health in old age (e.g., Fry, 2000; Reker, 1997; Reker, Peacock, & Wong, 1987; Zika & Chamberlain, 1992). Bartone (2005) has extended such investigation into the realm of military psychology, arguing for the importance of personal meaning as a buffer against existential frustration in military operations.

As previously suggested, personal meaning production is hypothesized to underlie measures and indicators of meaning. It is argued that in order for meaning to reach a level at which it acts as a buffer against stress, an individual must demonstrate a high capacity for personal meaning production. As such, these studies are observing yet another adaptive application of meaning production, for without this ability, a high level of meaning would be difficult to attain.

It is proposed that when faced with stress, personal meaning production acts as a coping method by allowing an individual to construct meaning and purpose within the stressful situation, thereby transforming the stressor and reducing its negative impact. Once meaning is

derived from a stressful situation, further distress is likely averted. Similarly, when faced with a dilemma, personal meaning production can lead to a meaning-based solution (i.e., a solution that considers the meaning and purpose of the dilemma) and therefore act as a method of problem-solving as well. Attaching purpose to problems and decisions deepens their meaning and provides additional direction, increasing the likelihood that an individual will attain preset goals (Reker [1997] suggested that goal-direction is a critical component of personal meaning). Like critical existential thinking, there is little doubt as to the abstract reasoning employed in such meaning construction, as meaning itself is a complex abstraction.

Transcendental Awareness. Although the evidence is not as readily available, there are ways in which transcendental awareness would be highly adaptive in an existential or spiritual crisis. Maddi (1967) suggested that one possible source of an existential neurosis is a *premorbid identity*, which "stresses qualities of man that are, among those he has, the ones least unique to him both as opposed to other species and to other men" (p. 315). Maddi (1967) elaborated:

> …the identity is insufficiently humanistic. Such an identity leads the person to consider himself to be nothing more than *a player of social roles and an embodiment of biological needs.* I must stress that the difficulty is not so much that man is not these two things, but that what he is in addition to them finds little representation in identity. (p. 315)

Maddi (1967) was suggesting that a lack of awareness of a deeper or transcendent self often contributes to an existential neurosis. As such, it can be postulated that the perception of a transcendent self would be highly adaptive in a crisis of existential nature.

There is evidence to suggest that the perception of a transcendent self is adaptive in other situations as well. In a sample of 125 men and women over 85 years of age, Nygren et al. (2005) observed significant correlations between the Self-Transcendence Scale (which measures

expanded boundaries of the self; Reed, 1989) and measures of resilience, sense of coherence, and purpose in life. Coward and Reed (1996) had earlier suggested that such a relationship exists, contending that the process of self-transcendence (i.e., involving the perception of a transcendent self) leads to healing in serious illness and disability among aging adults.

Findings are not limited to the elderly. Self-transcendence has recently demonstrated a positive relationship with quality of life among young and middle-aged HIV/AIDS patients (e.g., Mellors, 1999; Stevens, 2000). Among middle-aged adults, Ellermann and Reed (2001) observed an inverse relationship between self-transcendence and depression. In a Taiwanese sample, Huang (2000) found significant relationships between self-transcendence and personal growth, positive relations with others, purpose in life, and life satisfaction.

Yet the more general perception of a nonmaterial dimension in life is equally adaptive. Piedmont (2004) found that spiritual transcendence, particularly universality and connectedness (two aspects related to holistic and nonmaterial perception), played a significant role in substance abuse recovery. Coward and Reed (1996) also argued that self-transcendence improves well-being by increasing "awareness of wholeness and integration among all dimensions of one's being" (p. 1).

It is suggested that the awareness of something more than the physical or material acts as a highly effective coping mechanism in any crisis, existential or otherwise. Holistic perception, described by Coward and Reed (1996) as "awareness of wholeness," would further act as a method of coping by allowing an individual to perceive his/her life as integrated and connected, thereby buffering against depression and hopelessness that can result from loneliness and disengagement. The perception of nonmaterial aspects of life adds to this sense of wholeness, providing additional sources of personal meaning. It is further suggested that the perception of

the transcendent and nonmaterial invokes a sense of security – a source of coping when confronted with stress.

Maddi (1967) suggested that the identity of one's self as a mere "embodiment of biological needs" (p. 315) is maladaptive. It is contended that the perception of one's physical environment as a mere embodiment of physical and material processes is equality maladaptive. One is not completely disconnected from one's environment. As such, Maddi's (1967) argument can be expanded to include one's environment.

Not only are individuals able to gain additional meaning from transcendental awareness, but they are also able to draw on this awareness for inner strength when material and physical sources seem unavailable. The perception of a transcendent self would add greatly to such inner strength. Unique means of problem-solving can be employed by utilizing holistic perception – by considering all aspects and facets of a dilemma, including those aspects that are nonmaterial, enabling a more complete and accurate perspective of the problem. This provides an individual with a greater assortment of adaptive solutions – those which are nonmaterial, transpersonal, and holistic in nature. Like personal meaning production, abstract reasoning is embedded in transcendental awareness, and is both a prerequisite and a product of this capacity.

Conscious State Expansion. In regards to peak experiences, Maslow (1964) made the following suggestions regarding their adaptive nature:

> It is my strong suspicion that even one such experience might be able to prevent suicide, for instance, and perhaps many varieties of self-destruction, e.g., alcoholism, drug-addiction, addiction to violence, etc. I would guess also, on theoretical grounds, that peak-experiences might very well abort 'existential meaninglessness,' states of valuelessness, etc., at least occasionally. (p. 76)

Although Maslow (1964) provided a starting point, current research on the adaptive nature of higher states is somewhat limited, with the majority based on transcendental meditation.

Transcendental meditation involves the use of specific sounds (called mantras) to achieve a state of restful alertness without active thinking, known as transcendental consciousness (Maharishi, 1969). Although debated among researchers, studies have tended to demonstrate a link between experiences of transcendental consciousness and positive psychological health (e.g., Alexander, Chandler, Langer, Newman, & Davies, 1989; Alexander, Rainforth, & Gelderloos, 1991; Alexander, Robinson, Schneider, Orme-Johnson, & Carlisle, 2005; Gelderloos, Hermans, Ahlscrom, & Jacoby, 2001; Holmes et al., 1983), particularly relaxation, stress-reduction, and prevention of stress-related outcomes.

From a physical perspective, transcendental meditation has been associated with lower physiological arousal and reduced physiological indicators of stress (e.g., Barnes, Schneider, Alexander, & Staggers, 1997; Holmes et al., 1983; MacLean et al., 1997; Schneider et al., 1995). In a sample of elderly individuals, Alexander et al. (1989) observed longitudinal improvements in treatment efficacy, systolic blood pressure, and longevity in those who practiced transcendental meditation compared to a control group. A number of control studies have also demonstrated positive effects of transcendental meditation on cardiovascular health, including prevention and higher success rates for treatment of cardiovascular disease, reductions in blood pressure and myocardial ischemia (among other risk factors), and mortality (e.g., Alexander et al., 1989, 1996; Fields et al., 2002; Kondwani, 1998; Schneider et al., 1995; Walton et al., 2002; Wenneberg et al., 1997; Zamarra, Schneider, Besseghini, Robinson, & Salerno, 1996).

As previously noted, relaxation is inherent in any meditative practice, regardless of whether or not the goal is to produce altered states of consciousness (Cahn & Polich, 2006; Vaitl

et al., 2005). Although many of the afore-mentioned studies revealed significant differences between transcendental meditation and mere relaxation techniques (e.g., progressive muscle relaxation or relaxation alone; e.g., Alexander et al., 1989, 1991; Kondwani, 1998; Schneider et al., 1995), it is difficult to pinpoint the actual cause of the health-related benefits, leaving us with three general possibilities: (1) the act (technique, method, etc.) of entering the higher state yields positive effects, (2) the experience of the higher state yields positive effects, or (3) both the technique and the experience yield positive effects. Whatever the case, a heightened ability to enter higher states (1) involves some sort of voluntary cognitive process and (2) leads to the experience of a higher state. As such, the afore-mentioned research findings lend evidence to highly adaptive applications of this capacity. Although the exact "how" and "why" will have to remain unanswered, this ability appears to lead to stress reduction.

We can further postulate that this capacity would serve as a valuable coping method when faced with a stressor or crisis (existential, spiritual, or otherwise) due to its anxiety-reducing effects. The related relaxation would also serve to clear one's mind and focus one's thoughts, allowing for efficient means of problem-solving, decision-making, and reasoning. In fact, Alexander et al. (1989) found that both mindfulness and transcendental meditation improved cognitive flexibility, which they defined as the ability to adjust to more adaptive responses as required. According to findings by Alexander et al. (1991) and Nidich, Seeman, and Dreskin (1973), experiencing higher states of consciousness may also contribute to the self-actualization process. If so, this is yet another potential application of conscious state expansion.

Development over the Lifespan

There is little question as to whether or not spiritual intelligence develops over the human lifespan. As will be demonstrated, both theory and empirical evidence support the development

of spirituality, and it can be inferred from this literature that spiritual intelligence is also developing over the lifespan, underlying aspects and components of spirituality.

Although many theorists and researchers suggest that spiritual development does not begin until the years of adolescence and young adulthood (e.g., Helminiak, 1987; Parks, 1986, 2000), some argue that such development begins in childhood. Fowler's (1981) theory of faith development proposes that spiritual development begins at birth, mirroring Piaget's (1963) theory of development up until the years of childhood, when faith is characterized by a belief in universal justice, reciprocity, and anthropomorphic deities. Although little empirical evidence has been offered to support Fowler's (1981) theory, it would require an early development of existential thinking and meaning production.

Unfortunately, empirical research on childhood spirituality is quite lacking (Benson, Roehlkepartain, & Rude, 2003). Between 1969 and 1977, British biologist Hardy (1977) collected over 4000 reports of spiritual experiences. Of these reports, Robinson (1977) investigated the experiences that occurred in childhood, finding that 23% occurred before the age of five, with the remainder occurring between the ages of five and fifteen. Others (e.g., Hoffman, 1992, 1998; Maxwell & Tschudin, 1990; Nye, 1998) have collected similar reports of childhood spiritual experiences, demonstrating that "children are capable of having genuine spiritual experiences of divine presence, oneness and interrelatedness, energy pulsating in living and nonliving objects, self as not physical, a sense of continuity between life and death, and much more" (Piechowski, 2001, p. 2). Some of these experiences have been observed in gifted children (Lovecky, 1998; Morelock, 1995; Piechowski, 1998).

Piechowski (2001) noted common themes in these reported experiences, including states of oneness and timelessness as well as a sense of self beyond physical reality (and in some cases

beyond this lifetime). Such experiences are highly suggestive of emerging abilities of transcendental awareness and conscious state expansion. In fact, in many of these reports, children described their own techniques for entering higher states of consciousness (Piechowski, 2001). Hay and Nye (1998) identified children aged six to ten years who could describe such strategies, which included mental and physical withdrawal, focusing on breathing, silent gazing, prayer, and contemplating or questioning one's origins and the origins of the world. Not only are these techniques suggestive of conscious state expansion, but they also involve some level of critical existential thinking.

Gackenbach (1992) maintains that the whole range of higher states of consciousness can be experienced by children, in some cases at an adult level. In fact, she suggests that this evidence may be indicative of *consciousness savants* (children who are exceptionally skilled at entering higher states; Gackenbach, 1992), which would be more specifically supportive of Gardner's (1983) second criterion for intelligence. Hay and Nye (1998) have further proposed that children have a natural spiritual inclination, expressed as *relational consciousness*, which is described as an intentional and natural means of relating to the world, to all things animate and inanimate, to the divine, to others, and to the self. Evans and Wellman (2006) note that research indicates a childhood potential for existential reasoning which is contingent on the development of theory of mind. Although research is limited, it suggests that aspects of spiritual intelligence are emerging in childhood.

Research and theory are far more extensive on the development of spirituality in adolescence and early adulthood. Fowler (1981) proposed a stage of adolescence marked by conformity to faith, during which previously-established belief systems dominate. According to Parks (1986, 2000), between the ages of 17 and 30, individuals develop in their meaning-making

abilities, becoming more aware of their conception of reality and shifting towards virtuous behaviours. Helminiak (1987) described a five-stage model of spiritual development, which begins with externally-based and conformist meaning-making in adolescence.

Many authors have argued that adolescence is the time when most individuals first encounter issues of an existential nature, including purpose and meaning (e.g., Chessick, 1996; Damon, Menon, & Bronk, 2003; Ellsworth, 1999; Fitzgerald, 2005; Fry, 1998; Hacker, 1994). It has been suggested that this occurs due to a combination of two events: (1) the development of abstract reasoning during adolescence (Batten & Oltjenbruns, 1999; Piaget, 1963); and (2) personal identity formation (Erikson, 1968) and the related need to define one's self in adolescence, which may mirror an existential crisis (Fitzgerald, 2005; Scharfstein, 1978; Schlesing, 2005).

Cook and Oltjenbruns (1982) found evidence of significant development in such existential skills between the junior high level and the high school level, noting major differences in the complexity and depth of questions regarding death. Hill and Foster (1996) have suggested that the specific development of hypothetico-deductive reasoning in adolescence also contributes to existential reasoning abilities; and life crises such as sibling bereavement appear to act as a source of further spiritual development (Batten & Oltjenbruns, 1999). In female adolescents in particular, a yearning for meaning may serve as an additional spiritual catalyst (Bruce & Cockreham, 2004). Lavoie and de Vries (2004) found that existential contemplation appears to be present in adolescents and young adults, but remains unresolved in the context of identity development.

Fowler's (1981) model of faith development describes young adulthood as a time of personal responsibility for existential attitudes. According to Helminiak's (1987) model, early

adulthood is characterized by a conscientious stage, which involves a restructuring of one's life based on one's own personal existential views. The two final stages of his model, compassionate and cosmic, deal with the development of more realistic perspectives of one's self and reality, with self-actualization as a potential outcome (Helminiak, 1987). Alexander et al. (1990) have proposed a theory which accounts for peak or spiritual experiences across the lifespan, suggesting that such experiences describe postrepresentational stages of human development beyond Piaget's (1963) formal operations stage. Hamel et al. (2003) have also outlined the development of transcendent-actualization, which describes an individual's growth towards a transpersonal self. A model of existential development has been proposed by Adams (2006), which describes a move towards a greater understanding of one's existence.

Jung (1964) contended that around midlife, individuals typically begin to turn inward and explore the more spiritual aspects of the self, which culminates and leads to higher levels of self-realization. Wink and Dillon (2002) conducted a longitudinal study of spiritual development, finding an increase in spirituality from late-middle adulthood to older adulthood. Men also displayed a high level of stability in their level of spirituality from middle to late adulthood, while women displayed more fluctuation around middle age (Wink & Dillon, 2002). Fowler's (1981) model describes a fifth stage of development which reflects a mid-life crisis, characterized by the realization of religious paradoxes and the meaning behind spiritual symbols. His final stage involves some form of enlightenment or "universalizing" faith (Fowler, 1981).

The majority of the literature on spiritual development has focused on individuals in the late stages of life. Erikson's (1982) theory of ego development originally described later adulthood as a time to attain a sense of integrity, wisdom, and satisfaction with one's life. Some have suggested that the evolution of one's identity continues beyond this stage, into a period of

gerotranscendence, which is characterized by a resolution of one's past and the preparation for death (Tornstam, 1989, 2005). In fact, Erikson's wife recently updated her husband's original theory to include gerotranscendence as a ninth stage of development (Erikson & Erikson, 1996). According to J. Erikson (1996), the challenge at this stage is the decline in physical and mental abilities often experienced in old age, the resolution of which leads to death acceptance.

Tornstam (1989, 2005) adds that gerotranscendence is further characterized by the following: a redefinition of the perception of such things as time, space, objects, life, and death, which would require a high level of critical existential thinking; an increased sense of affinity with past and future generations, which would require personal meaning production; the transcendence of the ego, of the self, of the physical body, and of material or superfluous interests, requiring a high level of transcendental awareness; and an increase in time spent meditating on life, which may involve methods of conscious state expansion. Essentially, Tornstam (1989, 2005) is describing a phase of human life which involves development towards transcendence, a more "cosmic" outlook, and a reformulation of existential thoughts, which undoubtedly require a moderate to high level of spiritual intelligence. Nevertheless, a factor analysis by Bruyneel, Marcoen, and Soenens (2005) revealed that gerotranscendence is more significantly related to level of spirituality than to age, suggesting that one need not be in the later stages of human development to reach such levels of transcendence or death acceptance.

Gerotranscendence has also been related to increased levels of meaning in old age (Bram, Bramsen, Tilberg, Ploeg, & Deeg, 2006). Other studies have revealed similar correlations between indicators of successful aging (e.g., psychological health, physical health) and measures of personal meaning in the elderly (e.g., Fry, 2000; Reker, 1997; Reker et al., 1987; Zika & Chamberlain, 1992). In particular, Reker et al. (1987) observed that life purpose and future meaning were positively related to perceived psychological and physical well-being in older

adults (*r*s = .21 to .59), while indicators of an existential vacuum were negatively related to well-being (*r*s = -.14 to -.49). Fry (2000) also observed a significant relationship between psychological well-being and both will to meaning and life purpose in the elderly (*r*s = .42 to .57). Although these findings are supportive of the adaptive nature of personal meaning, they also speak to a highly developed ability in old age to derive personal meaning from one's life.

When viewed chronologically, the literature is highly supportive of the development of spiritual intelligence across the lifespan. Childhood appears to be spotted with spiritual experiences, some of which actually result from developing abilities of conscious state expansion, transcendental awareness, and premature existential thinking. During adolescence and young adulthood, we see an expansion of all spiritual capacities, resulting in part from identity formation and the emergence of abstract reasoning. Development continues throughout adulthood, as abilities deepen and contribute to the awareness of a transpersonal or transcendent self following self-actualization. Finally, in later adulthood, we see abilities peak in many individuals as death approaches.

This is not to say, however, that abilities cannot peak in earlier stages of human development. As suggested by Noble (2000, 2001) and Vaughan (2002), spiritual experiences throughout the lifespan contribute to the individual development of spiritual intelligence. Although the research has demonstrated that both traumatic events and existential crises contribute to such development (e.g., DeCarvalho, 2000; Decker, 1993; Van Kamm, 1969), the catalysts are by no means exclusively negative. Deslauriers (2000) has stressed the critical role of dreamwork in the development of both emotional and spiritual capacities, including metaphoric thinking, increased empathy, and better understanding of the mind-body connection. He adds that dreams provide an effective medium for spiritual forms of self-actualization and the

attainment of meaning, whether that meaning is produced immediately or following contemplation (Deslauriers, 2000). It is maintained that dreamwork is one of many positive experiences which may contribute to the development of spiritual intelligence.

Evidence, although limited, also suggests the existence of individuals (both children and adults) who are gifted and/or highly skilled in their spiritual abilities (Emmons, 2000a; Gackenbach, 1992; Holmes et al., 1993; Lehmann et al., 2001; Lovecky, 1998; Morelock, 1995; Piechowski, 1998). Gardner (1997, 1999) himself suggested that examples of individuals with a high spiritual intelligence are easy to find, noting philosophers, theologians, and religious/ spiritual leaders throughout history. Whether or not true end-states actually exist remains unknown, as too little is understood about their full potential. Furthermore, modern and developed societies tend not to foster spiritual or existential abilities. As such, it would be premature to attempt to define, in detail, the end-state performances of each of the abilities. Nevertheless, general notions of end-states have been suggested.

Biological Foundations

The evidence for biological foundations of spiritual intelligence is by far the most lacking. For Gardner (1993, 1999), this lack of biological or neurological evidence is enough to reject any potential intelligence, regardless of the amount of evidence from alternative sources. Although neurological evidence is highly valuable in the establishment of a new intelligence, the rejection of an intelligence (or *any* psychological construct) based solely on this criterion is premature and ultimately short-sighted, as valuable concepts might be lost in the process. Furthermore, the establishment or simple proposal of any new psychological construct typically leads to further investigation, including that of biological and neurological aspects. Regardless of

the debate, there are theory and evidence emerging which suggest potential biological and neurological components of spiritual intelligence.

As previously discussed, research has revealed altered brain activity during heightened states of consciousness (e.g., Cahn & Polich, 2006; Farrow & Hebert, 1982; Persinger, 1983; Travis, 2001; Tart, 1975; Vaitl et al., 2005), particularly those achieved by meditation. Beyond EEG recordings, recent research by Andrew Newberg and Eugene d'Aquili has revealed far more substantial biological mechanisms of spiritual states of consciousness. Neuroimaging studies have demonstrated that cerebral blood flow increases in particular regions of the brain during meditation. These activated regions include the cingulate gyrus, inferior and orbital frontal cortex, dorsolateral prefrontal cortex, and thalamus, which reflect more focused concentration and increased cortical activity (in a sample of Tibetan Buddhists; Newberg et al., 2001). When examining verbal-based meditative practices during religious prayer, Newberg, Pourdehnad, Alavi, and d'Aquili (2003) observed cerebral blood flow increases in the prefrontal cortex, inferior parietal lobes, and inferior frontal lobes. Newberg and Iversen (2003) noted the additional involvement of neurotransmitters, hormones, and the autonomic nervous system in meditation, suggesting that a consistent pattern of neurological activation occurs during higher states of consciousness. d'Aquili and Newberg (1999) further contend that all unitary experiences of consciousness are rooted in neuroanatomy and neurophysiology.

Neurophysiologist V. S. Ramachandran (1998) has conducted extensive research on individuals with epilepsy, noticing that most patients describe their seizures in ways which are nearly identical to religious or spiritual experiences. Epileptic accounts regularly include reports of divine light, ultimate truth, rapture, and oneness with a divine creator, leading many epileptics to become obsessed with religious spirituality (Ramachandran, 1998; Zohar & Marshall, 2000).

Such intense spiritual experiences in epileptics have been associated with increased electrical activity in a collection of neurons in the temporal lobes, suggesting that this may be the neurological seat of spiritual experiences in general (Ramachandran, 1998; Zohar & Marshall, 2000).

Michael Persinger (1983) has supported this relationship, demonstrating that mystical and spiritual experiences (including out-of-body experiences, spiritual auditory and visual experiences, and peacefulness) can be artificially induced by temporal lobe stimulation, a finding that has been replicated in other studies (e.g., Gloor, 1972; Horowitz & Adams, 1970; Mandell, 1980). Persinger (1983) has consequently hypothesized that all religious and spiritual experiences result from spontaneous and natural stimulation of this region of the brain. Ramachandran, Blakeslee, and Sacks (1999) examined the neurological activity of healthy individuals, finding that spiritual experiences were indeed related to heightened temporal lobe activity, as in epileptics. In fact, even exposure to spiritual words and topics tended to increase electrical activity in this region. They concluded that the tendency toward religious/spiritual belief and experience may be 'hard-wired' into the human brain (Ramachandran et al., 1999).

Persinger (1983) has noted that both the amygdala and the hippocampus, two structures in the limbic system, have been associated with one's perception of self in relation to time and space, which may have additional implications for the awareness of a transcendent self. The limbic system is also closely linked to the temporal lobes, which, when stimulated, appear to have strong emotional effects via the limbic system (Persinger, 1983). This indicates a strong potential for long-term emotional effects of spiritual and religious experiences, which are commonly reported following experiences of higher states of consciousness (Zohar & Marshall, 2000). Although intense and widespread stimulation of the amygdala evokes fear and anxiety,

more subtle stimulation has been found to cause peak experiences and an intense sense of meaningfulness (Persinger, 1983).

As a result of this research and its potential implications, this collection of neurons in the temporal lobes has been dubbed the "God spot" or the "God module" (Zohar & Marshall, 2000) in popular press. In spite of this, researchers warn against coming to any conclusion as to whether or not some transcendent dimension of reality is actually being experienced during these spiritual states (Zohar & Marshall, 2000). At most, they suggest that "this 'God spot' has evolved in the brain to fulfill some evolutionary purpose" (Zohar & Marshall, 2000, p. 95), perhaps to cultivate religious belief and therefore human cooperation and societal order.

Zohar and Marshall (2000) add that "the 'God spot' may be a necessary condition for SQ [spiritual intelligence], but it cannot be a sufficient condition" (p. 112), noting that the temporal lobes have only been associated with spiritual *experiences*, not abilities. They propose a model which equates spiritual intelligence with the brain's tertiary processes (a concept proposed by Arieti, 1964), building on Freud's primary and secondary processes. Here, rational intelligence (IQ) represents the brain's serial or linear (secondary) processes while emotional intelligence represents its associative (primary) processes. Spiritual intelligence represents a higher capacity for unitive thinking – essentially a capacity to "reframe or recontextualize our experience, and thus an ability to transform our understanding of it" (Zohar & Marshall, 2000, p. 65). Tertiary processes also give rise to holistic thinking, personal meaning, and the perception of oneness and interconnectedness. For a more detailed review of this theory, see Zohar and Marshall (2000, chapters 3-5). Stevens (2002) later proposed a similar model in which spirituality represents the brain's tertiary process.

In spite of some apparent limitations (e.g., lack of confirmatory studies, contradictory findings), these theories posit an intriguing relationship between spiritual intelligence and the brain. Empirical evidence suggests that spiritual/religious experiences and their related sensations (e.g., meaningfulness) display biological foundations in the temporal lobes and limbic system (Gloor, 1972; Horowitz & Adams, 1970; Mandell, 1980; Persinger, 1983; Ramachandran, 1998; Ramachandran et al., 1999).

It is difficult, however, to relate these findings to those by Newberg et al. (2001, 2003) regarding meditative states. It may be, as Newberg et al. (2001) pointed out, that the difference here is control; that increased temporal lobe activity is related to spontaneous spiritual/religious experiences, while increased frontal lobe activity is related to controlled meditative states and the ability to enter such higher states of consciousness. Whatever the case, findings by Newberg et al. (2001, 2003) regarding frontal lobe activity clearly speak more directly to mental ability, as opposed to phenomenology, which must be kept distinct from human intelligence. On the other hand, research is insufficient at this time to rule out the role of other brain regions. With a more clearly conceptualized definition of spiritual intelligence, such neurophysiological exploration may be made easier.

Evolutionary Plausibility

Although not common amongst theorists, evolutionary plausibility was suggested as an intelligence criterion by Gardner (1983) and is of particular interest when considering the role of spiritual intelligence in the history of our species. Gardner (1983) also suggested that this is more an issue of scientific speculation than empirical evidence, yet it is important nonetheless.

As noted throughout this thesis, spiritual intelligence underlies aspects of spirituality, and although highly interrelated, they are not the same constructs. Religions, on the other hand, are

symbol systems for conceptualizing aspects of spiritual intelligence, as was maintained by Emmons (2000a). Just as languages developed in order to express linguistic abilities; as social greetings and gestures developed to express aspects of social or interpersonal abilities (Gardner, 1983), religions developed in order to better express evolving spiritual abilities (and their products) in human beings. As is surely clear to any reader, aspects of spirituality involve extremely abstract concepts, making social communication of spiritual thoughts and abilities between individuals very difficult (James, 1902/2002; Maslow, 1964).

As such, it is suggested that this ability set's intense susceptibility to encoding in a symbol system contributed to the development of religions. The mere difficulty in forming visual representations of spiritual concepts makes this particular intelligence more susceptible to the utility of symbol systems. Religious doctrine evolved, in part, out of the need for clearer mental representations of the products of spiritual intelligence. Examples of these symbols abound: the Buddha, the Star of David, Jesus Christ, the crucifix, Allah, God, the Vedas, the Christian Bible, Shiva, Vishnu, dharma, Heaven and Hell, nirvana, the menorah, the Holy Trinity, angels, the Quran, ancient Greek and Roman mythology, and even hymns and prayers. These religious symbols, as well as their parent doctrines, aid in the contemplation of spiritual experiences and behaviours that result from spiritual intelligence. Furthermore, they allow for the communication of such thoughts and experiences. This is supported by Love's (2002) contention that religious symbol and story develop out of a need to express experiences to others. As suggested by Koestler (1960, as cited in Maslow, 1964), "because the experience is inarticulate, has no sensory shape, color, or words, it lends itself to transcription in many forms" (p. 353).

This is not to say, of course, that this is the *only* reason that religions evolved. It is, however, a very important one. It is unlikely that religions would have developed and succeeded

at all without a spiritual intelligence, which acts to better frame religious symbols that alone carry a reasonable level of abstractness. James (1902/2002) himself suggested that mystical experiences were the foundation of religion, from which we can extract the role of conscious state expansion. As Love (2002) suggested, philosophical articulation and reflection of spiritual experiences lead to religious doctrine and dogma. It seems that such symbol systems can occur quite readily and independently, as we see today in the emergence of new religious doctrines (e.g., Scientology), New Age spirituality, and even personal philosophies resulting from an individual need to express the products of spiritual intelligence.

Gardner (2000) more recently added that religion is best described as a domain (defined as a social activity in which individuals are ranked according to expertise) in which spiritual intelligence is expressed, which is likely the case for the social and organizational aspects of religions. In addition, domains are often highly interrelated with symbol systems (Gardner, 1983). To contrast the two, domains provide a utility or a cultural arena for certain mental abilities, while symbol systems require some raw mental ability to evolve in the first place (Gardner, 1983). This leaves us with the following conclusions: Religious doctrines likely developed as symbol systems for representing spiritual abilities and their products, while the overarching construct of religiosity, as it has been defined in this thesis, is best described as a domain or social arena for spiritual intelligence.

Csikszentmihalyi (1993) further suggested the following evolutionary contributions of spirituality, from which we can infer the evolutionary value of spiritual intelligence:

> Spiritual activity aims at producing harmony among conflicting desires, it tries to find meaning among the chance events of life, and it tries to reconcile human goals with the

> natural forces that impinge on them from the environment. It increases complexity by clarifying the components of individual experience such as good and bad… (p. 239)

Here, a broader role of spirituality becomes clear, beyond the social benefits of religion.

Additional evolutionary roles can be postulated, particularly when examining the adaptiveness of spiritual intelligence. The development of these mental abilities would have provided further means of coping, problem-solving, and decision-making that would have been highly valuable in our daily lives. Those higher in spiritual intelligence would have displayed an advantage over competing human beings in physical health, mental health, longevity, and resilience (see the evidence for adaptive applications of spiritual intelligence), increasing the likelihood of passing on genetic information to subsequent generations.

As Rossano (2006) states, archaeological evidence suggests that our spiritual and religious evolution developed quite rapidly when our species transitioned to an almost exclusively egalitarian lifestyle. This likely corresponded to an evolutionary "jump" in spiritual intelligence as well, suggesting that a greater need for such spiritual abilities may be related to the establishment of more permanent human societies. This concurs with Weisskopf's (1963) suggestion that the existential crisis is a more recent psychological phenomenon and is particularly common in Western cultures. The removal of basic survival concerns may have given way to deeper existential contemplation and greater needs for meaning and purpose, contributing to the development of such abilities in our species.

Bering (2006) proposed that the unique social systems and environments which developed in our species led to "an organized cognitive 'system' dedicated to forming illusory representations of (1) psychological immortality, (2) the intelligent design of the self, and (3) the symbolic meaning of natural events" (p. 454). Put more simply, Bering (2006) contends that our

social environment led to an increase in existential and spiritual cognizance. He had previously proposed a similar model, suggesting that the capacity for theory of mind (i.e., the ability to attribute mental states to oneself and to others) has evolved and expanded into the existential domain, involving philosophical-religious reasoning, personal meaning, and the perception of the transcendent (Bering, 2002). This suggests unique means by which aspects of spiritual intelligence may have evolved.

The evidence for adaptive applications of spiritual intelligence suggests, at the least, that spiritual intelligence played an adaptive role in the evolution of our species. Emerging evidence for biological foundations (e.g., Newberg et al., 2001, 2003; Persinger, 1983; Ramachandran, 1998) further supports this role (Zohar & Marshall, 2000). It may be that this role is still developing; that spiritual intelligence should be considered a newly evolving capacity in the human race, whose full potential has not been realized. Nevertheless, it is highly plausible that the evolution of spiritual intelligence was a prerequisite for the evolution of human religion and spirituality in general. As such, the potential evolutionary role of this capacity is extensive.

Relating Spiritual Intelligence to other Theories and Models

It should be emphasized that it is not the goal of this thesis to fit spiritual intelligence into another model of human intelligence (e.g., Gardner's Theory of Multiple Intelligences). Although other models may have been drawn on for intelligence criteria, no where is it suggested that spiritual intelligence is a component or aspect of one particular theory. Nonetheless, it is critical to explore how spiritual intelligence might *potentially* fit in or relate to other models of human intelligence.

As it has already been demonstrated, spiritual intelligence satisfies most of Gardner's (1983) criteria for an intelligence, and would fit quite nicely into his MI theory. In terms of

Sternberg's (1988) Triarchic Theory of Intelligence, spiritual intelligence would obviously involve some combination of analytical, creative, and practical abilities. Analytical abilities would be employed in critical existential thinking, personal meaning production, and transcendental awareness. Creative abilities would likely be utilized in all capacities to varying degrees, while practical abilities would be involved in adaptive applications of all capacities as well as conscious state expansion (Sternberg, 1988).

Spiritual intelligence can also be related to Horn and Cattell's (1966) theory of fluid and crystallized abilities. According to this model, fluid abilities (Gf) would reflect the individual biological potential for spiritual intelligence. Evidence for biological foundations (e.g., Newberg et al., 2001, 2003; Newberg & Iversen, 2003; Persinger, 1983; Ramachandran, 1998; Ramachandran et al., 1999) of spiritual intelligence suggests that this potential exists in human beings. Specifically, Gf would involve the potential ability of the individual to reason abstractly regarding existential issues, meaning, and other aspects of spiritual intelligence, and to utilize spiritual abilities in problem-solving. It would also help to explain the mental flexibility involved in spiritual intelligence. As mentioned earlier, all capacities involve a high degree of abstractness, and would therefore both require and contribute to mental flexibility.

Crystallized abilities (Gc), on the other hand, would represent those aspects of spiritual intelligence that are learned in educational and cultural settings (Horn & Cattell, 1966). Certainly the ability for critical thinking in general would contribute to one's ability to analyze and critically contemplate existential issues. Beyond this, however, there is very little offered by our educational systems that would contribute to one's spiritual intelligence. The primary source of crystallized abilities would consequently be one's culture, and this would vary greatly from one cultural setting to another. Cultivation of meaning production and transcendental awareness

would likely be influenced by one's openness to new experiences and the degree to which parental figures allow for open discussion of such concepts. Early church attendance and/or exposure to religious texts might also initiate critical existential thinking. Conscious state expansion would develop more readily in cultures for which such practices (e.g., meditation) are commonplace (e.g., Eastern cultures). Beyond these specific examples, cultures and/or family units that embrace creativity, imaginative thinking, and a nonmaterial value system would also cultivate higher levels of spiritual intelligence. According to Horn and Cattell's (1966) model, varying degrees of spiritual intelligence would result from the interaction of Gf and Gc.

Earlier models can also be related. In Spearman's (1904) model, the capacities comprising spiritual intelligence would represent specific abilities or skills, while the overarching *g* would represent human intelligence as a general mental energy. Thomson (1939, as cited in Cianciolo & Sternberg, 2004), on the other hand, would posit spiritual abilities as components of such a general intelligence factor, while Thurstone (1938, as cited in Ruzgis, 1994) would likely argue that spiritual abilities are combinations of his seven primary abilities. According to Guilford's (1956, as cited in Cianciolo & Sternberg, 2004) structure-of-intellect theory, spiritual capacities would similarly involve various aspects of the dimensions of content, cognitive product, and mental operation.

As previously discussed, Zohar and Marshall (2000) have proposed a model of human intelligence in which spiritual intelligence is positioned at the top of a hierarchy, representing the brain's tertiary processes. Below spiritual intelligence is emotional intelligence (and aspects of social intelligence), representing associative or primary processes. At the bottom of the hierarchy is rational intelligence or that which is represented by IQ, resulting from the brain's secondary processes. Essentially, this resembles a humanistic or holistic approach to psychology, which

typically integrates factors on the physical, mental, emotional, and spiritual levels (Sultanoff, 1997). If Zohar and Marshall's (2000) model of human intelligence were expanded according to this holistic approach, some form of bodily intelligence would need to be placed at the bottom of the hierarchy. The resulting model would by far represent the most integrative perspective on human intelligence to date.

Measuring Spiritual Intelligence

An important matter in any intelligence or human ability is its measurement. Emmons (2000a) made the following statements regarding the measurement of this intelligence. "There exists no measure of spiritual intelligence, per se. I am skeptical that an adequate self-report measure could be easily constructed; on the contrary, it would be quite ill-advised to attempt to gauge someone's 'spiritual IQ'" (p. 15). Zohar and Marshall (2000) concurred, stating that "unlike IQ, which is linear, logical and rational, spiritual intelligence cannot be quantified" (p. 276). Wolman (2001) tended to agree:

> The evaluation of spiritual intelligence is, in my opinion, a fruitful endeavor if we seek to measure one person against another and judge him or her in the same fashion that we measure analytical intelligence, verbal intelligence, or even emotional intelligence. At this point it seems to me that the best we can do is to describe the various ways in which people experience their spirituality and exercise their spiritual intelligence. If we can find a useful way to agree on the concept of spirituality and spiritual intelligence, then we can begin to devise ways in which the construct can be carefully and thoughtfully tested in the arena of empirical evidence. (p. 118)

Following his argument against the construct's measurement, Wolman (2001) suggested the use of his own Psycho-Matrix Spirituality Inventory (PSI) to measure spiritual intelligence,

seemingly contradicting his preceding statement. Despite such arguments, neither Emmons (2000a) nor Wolman (2001) were able to formulate theories of spiritual intelligence which satisfied popular intelligence theory.

Halama and Strizenec (2004) suggest that aspects of spiritual intelligence are already being measured by various subscales and items of spirituality scales, particularly those which measure cognitive aspects of spirituality. One example mentioned by Halama and Strizenec (2004) is MacDonald's (2000) Expressive Spirituality Index, which contains a "Cognitive Orientation to Spirituality" dimension. This situation reinforces the need for these constructs to be more clearly defined.

Emmons (2000a) further suggested that "ability-based measures would be more promising" (p. 15) than self-report measures. We know this is the case, and has been demonstrated empirically in comparisons of self-report and performance indicators of emotional intelligence (e.g., Brackett & Mayer, 2003; Mayer, Salovey, Caruso, & Sitarenios, 2003). This is not to say, however, that there is no value whatsoever to self-report measures of intelligence, including a spiritual intelligence. As Emmons (2000a) also recommended, "a consensus on the scientific viability of the construct must first be established…before measurement efforts are undertaken" (p. 15). It is argued, however, that the development, employment, and continuing refinement of any self-report measure make critical contributions to the further understanding of the underlying psychological construct, even if it exists only as a potential. Most importantly, perhaps, is the utility of such a process for testing the structure of the current model via factor analysis. Although a consensus may not have been reached, this thesis has established spiritual intelligence as a viable psychological construct. It should be reminded that after a century of

serious philosophical and scientific inquiry, no clear consensus exists on human intelligence in general (Solso et al., 2005; Sternberg, 1997), yet IQ testing endures.

If one were to develop a self-report measure of spiritual intelligence, many items could be borrowed from pre-existing spirituality measures (Halama & Strizenec, 2004), while others would have to be developed based on empirically-founded conceptualizations of the target construct (Clark & Watson, 1995). One important issue in the development of such an item pool would be the differentiation between indicators of mental ability and indicators of behaviour, experience, and attitudes. It is critical that any intelligence be kept distinct from these extraneous factors (Gardner, 1983; Mayer et al., 2000; Sternberg, 1997), and a self-report measure would have to conform to this standard. Although a useful starting point for the construct's measurement, the long-term goal, as Emmons (2000a) suggested, should be the development of performance task measures of spiritual intelligence (if at all possible), as these would most accurately reflect the target construct.

To date, two self-report measures of spiritual intelligence have been developed. The earliest was developed by Nasel (2004), who argued that spiritual intelligence can be gauged by examining "subjective descriptions of [an individual's] spirituality, belief system, values, goals, and spiritual experiences (and personal interpretations of these), and the way in which these have been applied and have contributed to personal development" (Nasel, 2004, p. 75). Although many of these aspects of life may in fact relate to spiritual intelligence, this solution to the measurement of spiritual intelligence is problematic, as it leaves little distinction between spirituality in general and a spiritual intelligence. It also conflicts with traditional intelligence theory, which requires the severance of intelligence from experience, behaviour, and attitude (Gardner, 1983; Mayer et al., 2000; Sternberg, 1997).

In spite of such recommendations, Nasel (2004) developed a scale to reflect the "affective, cognitive, and experiential capacities and resources representative of spiritual intelligence" (p. 76). The 17-item Spiritual Intelligence Scale (SIS) taps two dimensions of spiritual intelligence (as demonstrated by means of factors analysis): *existential questioning* and *awareness of divine presence.* Nasel (2004) noted that items were designed to reflect traditional Christian values and beliefs as well as aspects of New Age individualistic spirituality. Although the SIS was found to be a valid and reliable psychometric measure, the two factors displayed differing relationships to alternate measures of spirituality, with *awareness of divine presence* correlating strongly with indicators of Christian religiosity. Although it was the researcher's goal to tap Christian manifestations of spiritual intelligence, this yields a limited utility of the SIS, particularly in its cross-cultural and cross-denominational applications. Nevertheless, many SIS items appear promising in their more direct assessment of mental *ability*, particularly those related to *existential questioning*. *Awareness of divine presence*, on the other hand, may simply be a denominational expression of transcendental awareness. Nasel's (2004) SIS may serve as a valuable starting point for the development of a more inclusive measure of spiritual intelligence.

A second self-report measure of spiritual intelligence was developed by Amram and Dryer (2007), based on Amram's (2007) seven dimensions of spiritual intelligence. The Integrated Spiritual Intelligence Scale (ISIS) is composed of 83 items measuring 22 subscales: Beauty, Discernment, Egolessness, Equanimity, Freedom, Gratitude, Higher-self, Holism, Immanence, Inner-wholeness, Intuition, Joy, Mindfulness, Openness, Practice, Presence, Purpose, Relatedness, Sacredness, Service, Synthesis, and Trust. Although the list is long, Amram and Dryer (2007) attempted to compensate by organizing the 22 subscales into five theoretically-derived domains: Consciousness, Grace, Meaning, Transcendence, and Truth. The

internal consistency, reliability, and convergent validity of the ISIS were all well-demonstrated in preliminary studies (Amram & Dryer, 2007).

Although a short-form version of the ISIS is offered to damper the original scale's time commitment, the high number of subscales (composed of only 3 to 4 items each) makes this measure quite complex in terms of practical interpretation. More problematic, perhaps, is the lack of attention paid to mental *ability*, as opposed to behavioural and personality attributes. Although some items attempt to tap ability, they do so in relation to preferred behaviours (e.g., "I draw on deep trust or faith when facing day-to-day challenges"). Others tap attitudes (e.g., "I feel that my work is an expression of love"), values (e.g., "Being right is important to me"), and personality (e.g., "I am driven and ruled by fears"). It also becomes difficult to separate the Joy subscale from one's mood state; the subscales of Practice and Service from behaviour; or the subscale of Openness from personality.

Nevertheless, a handful of items appear to be more direct indicators of a spiritual ability set (e.g., "I derive meaning from the pain and suffering in my life") and may prove valuable in the measurement of spiritual intelligence. This is not to say, however, that Amram and Dryer's (2007) ISIS is not a viable measure as a whole. The Integrated Spiritual Intelligence Scale may be best described as a measure of outcomes and correlates of spiritual intelligence, and is therefore simply a less direct measure of the construct.

The development of the SIS (Nasel, 2004), the ISIS (Amram & Dryer, 2007), and Wolman's (2001) recommended use of the PSI to measure spiritual intelligence all speak to the need for a more valid measure of spiritual intelligence. While these previous measures come very close to the construct's accurate measurement, they fail in one critical way: in addition to mental ability, they are also inventories of attitudes, values, behaviours, personality traits, and

experiences. Unfortunately, this leaves the target construct more closely resembling the broader domain of spirituality, which is altogether unsatisfactory. In addition to such empirically based attempts, the recent appearance of internet-based spiritual intelligence measures in popular culture suggests a need for more accurate conceptualization and measurement.

Outcome Variables and Correlates

There are aspects of spirituality that perhaps many would argue have been mistakenly excluded from this model of spiritual intelligence (e.g., forgiveness, death acceptance, compassion, altruism, wisdom). It is the current contention that these aspects constitute outcome variables and correlates of spiritual intelligence. That is, indicators of these constructs are greater in individuals with a high level of spiritual intelligence. As such, it is suggested that a well-developed spiritual ability set contributes to higher levels of particular mental and affective attributes.

This is an appropriate explanation for Emmons' (2000a) virtuous behaviours, which were ultimately removed from his original model. They included forgiveness, a humbled world perspective, and the expression of gratitude and compassion, all of which are outcome variables of spiritual intelligence. A similar explanation can be offered for many of Zohar and Marshall's (2000) indications of spiritual intelligence: flexibility, the quality of being inspired by vision and values, a reluctance to cause unnecessary harm, and field-independence (possessing a facility for working against convention). Noble's (2000/2001) "conscious pursuit of psychological health, not only for ourselves but also for the sake of the global community" (p. 46) would also fall under the umbrella of outcome variables, as would aspects of Amram's (2007) seven dimensions of spiritual intelligence. The afore-mentioned are particularly important examples and occur

frequently in the spirituality literature. These authors have felt compelled to involve them in theories of spiritual intelligence due to their seemingly inseparable relationship with spirituality.

The psychological literature has suggested a variety of other potential outcome variables and correlates of spiritual intelligence, including but not limited to: a cherished system of beliefs and values (Martsolf & Mickley, 1998), peacefulness, integrity, mindfulness (Amram, 2007), living life on a moment-to-moment basis (i.e., living in the moment; James, 1902/2002), love, wisdom, service to one's fellow human beings, altruism (Vaughan, 2002), enjoyment of and wonder for the natural environment (Fisher, 1998), creativity (Pascual, 1990), openness to experience (Noble, 2000), adaptability and resilience (Duffy & Blustein, 2005; Greeff & Human, 2004), high self-esteem (Yakushko, 2005), improved quality of life and life satisfaction (Anema, 2006; Luecken, & Gunn, 2005; Matheis et al., 2006; Nissim, 2003; Simoni, Martone, & Kerwin, 2002; Tartaro et al., 2005), more active coping styles (Baider et al., 1999; Holland et al., 1999), metapersonal self-construal (DeCicco & Stroink, 2007), death acceptance (Reker et al., 1987), goal seeking and goal attainment (Halama, 2003, as cited in Halama & Strizenec, 2004; Reker et al., 1987), hope, decreased depressive symptoms (Mascaro & Rosen, 2005), and successful aging (Kirby et al., 2004).

Exactly how spiritual intelligence is related to each variable varies from construct to construct. Take the example of death acceptance. Critical existential thinking allows an individual to deeply contemplate death, while personal meaning production aids in the deriving of meaning and purpose from the impending event. Transcendental awareness allows an individual to take comfort in the perception of "more" to his/her life than just biological and physical processes. Finally, conscious state expansion contributes to transcendental awareness

while also providing adaptive means of reflection and relaxation, overcoming the distress associated with the current circumstances and allowing for complete acceptance.

While there likely exist many other correlates, the emerging framework suggests that spiritual intelligence leads to positive outcomes on physical, mental, emotional, and social levels. It should be noted, however, that spiritual intelligence need not result only in positive outcomes. As Gardner (1983) suggested, any ability set can be used for either positive or negative outcomes, and the viability of an intelligence should not be judged based on this factor. The same can be said for spiritual intelligence, as negative outcomes are indeed possible (Emmons, 2000a; James, 1902/2002). For example, one's focus on transcendent dimensions of reality could become so extreme that physical dimensions are ignored, leading to disengagement from many aspects of daily living. Similarly, one could spend too much time in higher states of consciousness, disengaging from daily life and thinning boundaries between states of consciousness. Although additional examples are available, a high level of spiritual intelligence appears to be positive for most.

Since spiritual abilities underlie aspects of spirituality, established measures of spirituality would be expected to correlate highly with spiritual intelligence, as would any measure of spiritual behaviours, experiences, or attitudes. The same can be said for measures of personal meaning and transcendence, which would relate more specifically to the capacities of personal meaning production and transcendental awareness. Nevertheless, such relationships are not expected to be absolute, as there exist individuals who display more extrinsic forms of spirituality (James, 1902/2002), based primarily on social factors rather than underlying capacities. As such, a high level of spirituality does not intrinsically equate with a high level of spiritual intelligence.

Distinguishing between cognitive abilities and their outcome variables aids in the understanding of spirituality in general. At present, all of these variables (abilities, behaviours, attitudes, experiences, traits, etc.) are grouped together under the very broad construct of spirituality, creating a "dump bin" of sorts for this field of research, leading to scientific confusion and semantic mayhem. This thesis has attempted to clear up much of this confusion by more accurately conceptualizing spiritual intelligence and its relationship to spirituality.

Conclusions: Viability, Limitations, and Implications

First and foremost, it must be reiterated that this is not simply a reformulation or redefinition of spirituality. Rather, the primary purpose of the current paper has been the identification of those mental capacities and abilities *related to* human spirituality. And in fact, as it has been well-demonstrated, there appear to be at least four primary capacities related to spirituality, which together comprise the construct of spiritual intelligence. They include critical existential thinking, personal meaning production, transcendental awareness, and conscious state expansion. Yet this is not necessarily an exhaustive list, as it is quite possible that additional components of spiritual intelligence might reveal themselves in time. As Emmons (2000b) stated, "we need all of the theoretical tools at our disposal because any one approach is inherently limited" (p. 64).

Spiritual intelligence has been criticized for its lack of viability as a psychological construct (e.g., Gardner, 1993, 1999, 2000; Mayer, 2000). It is currently maintained, however, that spiritual intelligence is a highly viable construct, without which the portrait of human mentation is incomplete. To begin with, spiritual intelligence has fulfilled practically all established criteria for an intelligence (e.g., Gardner, 1983; Mayer et al., 2000; Sternberg, 1997): (1) it involves a set of interrelated mental capacities, as opposed to preferred ways of behaving,

which are distinct from other mental abilities and manifest to varying degrees across the human population; (2) it appears to develop over the lifespan, emerging in childhood and adolescence and, in many cases, continuing into old age; (3) it clearly facilitates adaptation and problem-solving, not only in specific contexts (e.g., the existential crisis) but in a diverse number of stressful situations; (4) it both involves and contributes to abstract-reasoning, aiding in decision-making, judgments, appraisals, and planning; (5) although limited, it has demonstrated potential biological foundations in the brain; (6) it has further displayed a high evolutionary plausibility, likely playing a critical role in the recent history of our species; and (7) although others have fallen short (e.g., Amram, 2007; Emmons, 2000a), the current model of spiritual intelligence assembles capacities for which cognition and mental computation are theoretically paramount.

While it has been suggested that measures of spirituality currently tap aspects of spiritual intelligence (Halama & Strizenec, 2004), Gardner's (1983) criterion of psychometric evidence is somewhat lacking at this time. The subsequent studies will be carried out in order to address this issue, potentially adding to the empirical support for both this model and the construct of spiritual intelligence in general. A long-term goal, which is beyond the scope of the current set of studies, should be the establishment of ability tests (performance measures) of spiritual intelligence, which would aid in the attainment of additional experimental evidence.

Although their linking of emotion and intelligence was heavily criticized, Mayer and Salovey (1993) argued that many intellectual problems contain emotional information that must also be interpreted and processed, reinforcing the viability of emotional intelligence. A similar argument can be made for spiritual intelligence, as many intellectual problems involve existential components and/or ramifications for personal meaning and purpose which must also be processed. Furthermore, it is argued that transcendental awareness and conscious state expansion

may allow for perspectives on intellectual problems that would otherwise be unavailable (e.g., the consideration of nonmaterial components).

It is here that we uncover another critical debate within the field of intelligence theory. The above arguments result primarily from the need to establish the *intellectual* or *rational* utility of a potential intelligence. It is interesting to note, however, that the terms *intellectual* and *rational* appear nowhere in the afore-mentioned criteria for intelligence (e.g., Gardner, 1983; Mayer et al., 2000; Sternberg, 1997). *Intellect* has been defined as "a person's mental powers" (Oxford University Press, 2001, p. 472), while the word *rational* indicates that which is "based on reason or logic" (Oxford University Press, 2001, p. 746). As we have seen, spiritual intelligence is a set of mental abilities, making it one component of a person's total intellect. Bearing in mind the definition of logic as "good reasoning" (Oxford University Press, 2001, p. 531), spiritual intelligence does nothing to contradict the term *rational*.

As such, opposition based on the popular view of intelligence as rational is misleading and unsubstantiated. Rational opposition to a spiritual intelligence is more likely the result of the successful severance of science and spirituality (or more specifically, religiosity) by the scientific community, perhaps to a degree that has sacrificed critical exploration of particular aspects of the human mind. As Nasel (2004) stated, "the prevalence of negative or indifferent attitudes within psychology in general toward religion and spirituality have been reflected in the under-representation of religion and spirituality as research variables in mainstream [psychology]" (p. 11). It may be that our conception of human intellect now needs to be reformulated and widened to more accurately reflect that which has long been abandoned by mainstream science.

Much of the disdain for a spiritual intelligence may also arise from a lack of personal context and/or experience by those offering the criticisms. Individuals with poorly developed or

suppressed spiritual capacities would likely have a difficult time grasping them as viable psychological entities, whether they are of the scientist persuasion or otherwise. Yet as James (1902/2002) noted, "nothing can be more stupid than to bar out phenomena from our notice, merely because we are incapable of taking part in anything like them ourselves" (p. 124). Furthermore, "they are not the exclusive possession of organized churches" nor do they "need supernatural concepts to validate them" (Maslow, 1964, p. 4).

As clearly demonstrated, the proposed spiritual capacities of critical existential thinking, personal meaning production, transcendental awareness, and conscious state expansion are highly adaptive and serve as critical tools in the everyday lives of average human beings. This alone speaks to the viability of spiritual intelligence as a psychological construct. As previously indicated, however, issues arise regarding the use of the word *intelligence*. Sternberg (1988) had suggested that most of Gardner's (1983) intelligences were nothing more than *talents*, an argument that might be extended to spiritual intelligence as well. It is the current contention, however, that human mental functioning is incomplete if it cannot turn inward and allow for contemplation of existence; that human adaptability is largely insufficient if it does not address meaning and purpose; that "normal" functioning is inferior without an awareness of nonmaterial aspects of life, which both James (1902/2002) and Maslow (1964) considered important dimensions of reality; and that the picture of human consciousness is inadequate without the consideration of higher, spiritual states and their mastery.

Nevertheless, if future research ultimately demonstrates that the word *intelligence* is inappropriate, then so be it, for it says nothing of the presence of a spiritual ability set (and therefore does not negate the current model). As suggested earlier, semantics cannot hinder the exploration and identification of potential psychological constructs, particularly when they prove

so viable. Not only does spiritual intelligence help to resolve many of the confounded complexities of the spirituality literature, but it also accounts for a vast array of human behaviours, experiences, and attitudes.

Spiritual intelligence validates a universal characteristic of the human psyche which has long been dismissed by science as nothing more than irrational nonsense founded on a fear of the unknown. This is by far the construct's greatest implication. The current model suggests that the spiritual condition of humankind is not entirely irrational; that underlying human spirituality (and perhaps even aspects of religiosity), there exists a set of adaptive, cognitive capacities unique from other manifestations of human intelligence; and that these capacities constitute a *spiritual intelligence*. At present, the construct's greatest limitation is its lack of scientific exploration. The subsequent studies will help to overcome this limitation by examining a psychometric interpretation of the current model of spiritual intelligence.

STUDY 1

Purpose

The purpose of Study 1 was to develop and test a preliminary self-report measure of spiritual intelligence as defined in the current model. It was expected that the proposed four-factor model of spiritual intelligence would be supported by an exploratory factor analysis. Beyond this hypothesis, Study 1 was primarily exploratory.

Method

Participants

Respondents were 631 undergraduate students (497 females and 134 males) enrolled in 100, 200, 300, and 400 level psychology courses at Trent University in Peterborough, Ontario. The mean age of the original participant pool was 22.38 years (SD = 5.62; range = 17 to 59). Of this original sample, 12 responses (1.9%) were not included in the final data analyses due to missing data. This small subsample did not display any unique demographic characteristics compared to the sample at large. The subsequent useable sample consisted of 488 female and 131 male participants ($N = 619$), meeting the minimum recommended number of 300 participants for the preliminary stages of scale development (Clark & Watson, 1995; Worthington & Whittaker, 2006). The mean age of the final participant pool was 22.51 years (SD = 5.51; range = 17 to 59).

Measure

An original pool of 84 items (21 items measuring each of the four capacities) was developed based on the afore-mentioned theoretical conception of spiritual intelligence. This initial item pool was over-inclusive so as to avoid the exclusion of potential indicators of the construct and its components. In addition, an over-inclusive item pool aids in determining which

items are worded best (Clark & Watson, 1995). As suggested by Clark and Watson (1995), the development of a sound theoretical model on which test items can be based is a crucial first step in scale development. The vast majority of researchers rely on a thorough literature review of the subject in order to infer from previous research a model of the construct (Clark & Watson, 1995). This has been the approach for the conception of the current model and scale of spiritual intelligence.

Initial items were written according to guidelines proposed by Clark and Watson (1995), Worthington and Whittaker (2006), Loevinger (1957), and Hayward (2005). A multiple-choice, Likert-type scale was utilized for the initial draft of the Spiritual Intelligence Self-Report Inventory (SISRI; see Appendix A), which has been deemed a more reliable and stable format compared to dichotomous scales (Comrey, 1988). Possible responses ranged on a scale of 0 to 4, representing the extent to which each statement is true: 0 = Not at all true of me; 1 = Not very true of me; 2 = Somewhat true of me; 3 = Very true of me; 4 = Completely true of me. The initial item pool was reviewed by 18 adults (both university students and community-dwelling adults) for readability. Items were edited based on feedback (where appropriate), resulting in a preliminary format of the Spiritual Intelligence Self-Report Inventory. In total, 12 reverse-coded items were included as indicators of internal reliability.

Procedure

Participants were recruited via e-mails, online postings, and in-class announcements. In exchange for participation, students enrolled in PSYC-101, PSYC-102, PSYC-103, and PSYC-215 received a half credit toward their potential bonus marks, while all other upper-year students were entered into a draw to win a $40 gift certificate to a local retail establishment. Participation took place in classrooms at Trent University and Durham College and lasted approximately 30

minutes. Each participant was asked to read and sign a consent form prior to participation ensuring confidentiality and the right to withdraw at any time without penalty. Following consent, each participant was asked to complete the preliminary draft of the SISRI. Feedback was available in the form of information pamphlets and electronically at a specified internet address.

Results

Properties of the Initial Item Pool

Descriptive statistics and response distributions were first examined for all 84 items (see Table 1). Although none reached significance, slight negative skewness was observed for items 3, 8, 11, 20, 30, 35, 49, 61, 71, 72, 75, 80, and 81, while slight positive skewness was observed for items 47 and 69. The mean response values for these items also deviated more from the expected mean response of 2.0, with only one item's mean exceeding a value of 3.0 (item 30). Item 16 also displayed multiple modes, indicating that the reported mean value of responses was deceptive for this item; the majority of responses occurred at two bilateral points in the distribution. Although these items were deemed good candidates for removal from the preliminary draft of the SISRI, all were retained for the initial exploratory factor analysis.

Multivariate skewness and kurtosis were very low and did not reach significance for the 84 items (-.02 and .02, respectively). Cronbach's alpha for the 84-item pool was .97 (standardized alpha = .97), suggesting excellent internal consistency and reliability for the entire item pool (a minimum value of .80 is recommended; Clark & Watson, 1995; Worthington & Whittaker, 2006). The average inter-item correlation was .30, which falls in the suggested range of .15 to .50 (with higher values more desirable for narrower constructs; Clark & Watson, 1995). Split-half reliability was .95.

Table 1

Descriptive Statistics for the Original SISRI 84-Item Pool (N = 619)

Item	*M*	*SD*	Skew	Kurt	Item	*M*	*SD*	Skew	Kurt	Item	*M*	*SD*	Skew	Kurt
1	1.95	1.15	.12	-.75	29	2.64	1.13	-.63	-.31	57	2.36	1.17	-.39	-.66
2	2.30	1.20	-.22	-.85	30	3.01	.90	-.80	.47	58	2.18	1.04	-.10	-.56
3	2.71	1.15	-.66	-.43	31	1.54	1.13	.45	-.43	59	2.35	1.19	-.39	-.74
4	2.23	1.21	-.14	-.91	32	2.16	1.17	-.21	-.77	60	2.08	1.30	-.11	-1.08
5	2.48	1.22	-.38	-.86	33	2.37	1.06	-.26	-.49	61	2.85	.95	-.67	.12
6	2.64	.99	-.39	-.44	34	1.50	1.16	.38	-.67	62	2.29	1.20	-.24	-.84
7	2.45	1.28	-.45	-.83	35	2.75	1.03	-.59	-.23	63	2.21	1.24	-.18	-.95
8	2.71	.98	-.56	-.15	36	1.96	1.12	-.01	-.76	64	1.94	1.15	.09	-.75
9	1.74	1.04	.21	-.51	37	1.95	1.29	.02	-.06	65	1.44	1.19	.46	-.72
10	2.50	1.08	-.43	-.36	38	1.81	1.15	.22	-.77	66	2.45	1.08	-.37	-.43
11	2.80	1.00	-.62	-.03	39	2.02	1.21	-.01	-.88	67	2.31	1.16	-.19	-.80
12	2.20	1.14	-.20	-.69	40	2.31	1.19	-.25	-.85	68	2.31	1.06	-.23	-.58
13	2.52	1.04	-.40	-.43	41	2.48	1.05	-.39	-.40	69	1.22	1.08	.70	-.12
14	1.92	1.11	.03	-.73	42	1.65	1.19	.27	-.81	70	2.47	1.37	-.50	-.97
15	2.29	1.13	-.29	-.70	43	1.48	1.21	.45	-.72	71	2.74	1.09	-.61	-.35
16	2.00	1.30	-.02	-1.11	44	1.89	1.14	.13	-.63	72	2.89	.96	-.75	.31
17	2.29	1.22	-.26	-.87	45	2.34	1.19	-.29	-.85	73	1.96	1.16	.06	-.79
18	1.64	1.08	.22	-.54	46	2.32	1.00	-.18	-.39	74	2.32	1.10	-.31	-.52
19	1.55	1.00	.22	-.47	47	1.39	1.09	.55	-.37	75	2.80	1.00	-.68	.06
20	2.95	.95	-.77	.22	48	2.09	1.10	-.05	-.70	76	1.29	1.24	.65	-.61
21	2.52	1.01	-.43	-.31	49	2.78	1.12	-.75	-.13	77	1.55	1.17	.29	-.83
22	1.53	1.00	.14	-.52	50	1.93	1.25	.03	-.01	78	2.16	1.12	-.15	-.66
23	1.97	1.10	-.06	-.62	51	2.09	1.15	-.12	-.78	79	2.43	1.17	-.39	-.66
24	2.15	1.15	-.17	-.73	52	2.52	1.02	-.38	-.46	80	2.75	1.02	-.77	.32
25	2.49	1.05	-.49	-.30	53	2.55	.99	-.35	-.34	81	2.78	1.00	-.66	.08
26	2.66	1.05	-.59	-.14	54	2.52	1.06	-.57	-.16	82	2.33	1.04	-.29	-.26
27	1.81	1.16	.21	-.83	55	1.87	1.17	.06	-.87	83	2.10	1.20	-.16	-.86
28	1.88	1.17	.04	-.92	56	1.59	1.18	.29	-.80	84	2.39	1.12	-.30	-.62

First Exploratory Factor Analysis

All responses for the 84-item pool were subjected to a principal components exploratory factor analysis (EFA) with Varimax normalized rotation. This method of rotation is appropriate for the extraction of four factors which correspond to the four capacities comprising spiritual intelligence. Although Varimax rotation assumes orthogonal factors, it does not eliminate the possibility of intercorrelated factors. Furthermore, items which cross-load are not desirable, as they have been designed as indicators of one particular capacity rather than many.

Six factors were initially extracted in order to investigate additional potential factors which may be present (see Table 2). All factors loadings of .35 or higher were deemed significant (Clark & Watson, 1995), although higher loadings were considered more desirable. Eigenvalues for the first six factors were 27.72, 4.57, 4.15, 2.57, 1.99, and 1.67, respectively (see Figure 1 for a Scree plot of eigenvalues). All eigenvalues met the suggested minimum value of 1.0 in order for their corresponding factors to be considered for retention (Clark & Watson, 1995; Worthington & Whittaker, 2006).

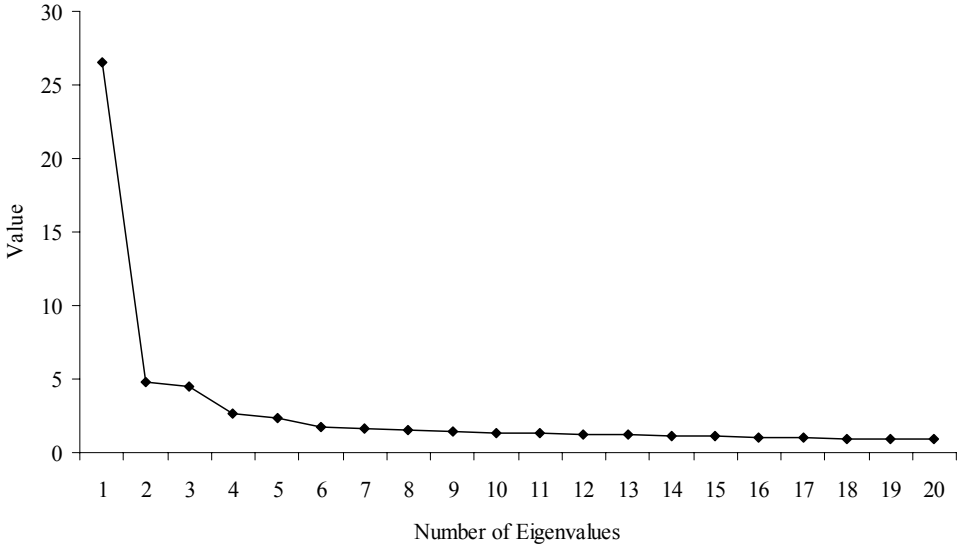

Figure 1. Scree plot of eigenvalues for the original 84-item pool.

Table 2

Factor Loadings (Principal Components, Varimax Normalized) for the Original SISRI Item Pool

Item	F1	F2	F3	F4	F5	F6	Item	F1	F2	F3	F4	F5	F6
1	.58*	.19	.08	-.09	.21	.19	22	.04	.69*	-.02	.11	.25	.09
2	.43*	.22	.25	.18	.10	-.02	23	.28	.41*	.14	.10	.51*	.15
3	.40*	.24	.19	.18	.51*	-.01	24	.29	.41*	.20	.35*	.39*	.13
4	.21	.52*	.26	.24	.30	-.23	25	.21	.31	.15	.55*	.33	.04
5	.71*	.14	.03	.22	.24	-.11	26	.62*	.10	.05	.34	.25	-.12
6	.12	.17	.28	.44*	.22	.07	27	.54*	.39*	.13	.06	.15	.23
7	.75*	.08	-.06	.02	.13	-.01	28	.19	.64*	-.01	.13	.31	.15
8	-.02	.04	.47*	.20	.05	-.10	29	.15	.24	.08	.17	.67*	.03
9	-.06	.62*	.23	.16	.09	.06	30	.20	.16	.12	.37*	.45*	.18
10	.20	.28	.19	.38*	.21	.27	31	.23	.62*	.13	.08	.26	.22
11	.16	.19	.16	.17	.60*	.08	32	.27	.38*	.14	.12	.59*	.02
12	.24	.42*	.26	.14	.40*	.33	33	.02	.30	.14	.67*	.10	-.04
13	.13	.25	.16	.35*	.42*	.19	34	.14	.75*	.02	.16	.14	-.12
14	.13	.72*	.08	.13	.26	.10	35	.08	.17	.42*	-.01	.47*	-.22
15	-.13	-.08	.31	-.06	-.05	-.00	36	.22	.35*	.07	.13	.58*	.00
16	.82*	.12	-.09	.03	.15	-.05	37	.73*	.15	-.07	.11	.09	.01
17	.50*	.17	.04	.10	.15	.42*	38	.53*	.30	.06	.39*	.23	-.03
8	.12	.74*	.03	.11	.22	.11	39	.59*	.24	.07	.18	.23	.27
19	.17	.72*	.07	.10	.14	.13	40	.16	.23	.48*	-.12	.07	.01
20	.40*	-.02	-.10	.29	.32	.09	41	.19	.21	.09	.35*	.39*	.02
21	-.01	.04	.53*	.05	.05	.12	42	.15	.75*	.08	.21	.24	-.08

Note. F1 = Factor 1; F2 = Factor 2; F3 = Factor 3; F4 = Factor 4; F5 = Factor 5; F6 = Factor 6.

* All marked loadings > .35.

Table 2 (continued)

Factor Loadings (Principal Components, Varimax Normalized) for the Original SISRI Item Pool

Item	F1	F2	F3	F4	F5	F6	Item	F1	F2	F3	F4	F5	F6
43	.23	.74*	.03	.14	.18	-.05	64	.28	.47*	.06	.25	.42*	.05
44	.11	.30	-.05	.05	.64*	-.03	65	.10	.76*	-.07	.17	.18	.15
45	.07	.13	.42*	-.05	.18	.30	66	.29	.08	.05	.33	.37*	.23
46	.16	.33	.14	.53*	.37*	-.02	67	.31	.32	.09	.49*	.17	.14
47	.11	.71*	-.04	.16	.09	-.04	68	.27	.29	.18	.40*	.41*	.09
48	.31	.31	.09	.63*	.19	-.10	69	.14	.76*	-.02	.12	.13	-.03
49	-.12	-.22	.40*	.02	-.00	-.12	70	.53*	.07	-.11	.12	.18	.13
50	.14	.48*	.08	.41*	.26	-.30	71	-.05	.02	.52*	.26	.11	-.01
51	.23	.41*	.11	.36*	.49*	-.10	72	.10	.06	.06	.44*	.49*	.10
52	.15	.08	.57*	.16	.22	-.05	73	.35*	.48*	.18	.20	.36*	.22
53	.12	.10	.64*	.09	.06	.19	74	.17	.28	.12	.56*	.30	.03
54	.23	.25	.10	.31	.53*	.08	75	-.06	-.11	.47*	.16	.00	-.07
55	.15	.71*	.02	.25	.27	.04	76	.13	.50*	-.18	.00	.04	.21
56	.17	.70*	.07	.19	.21	.14	77	.11	.71*	-.01	.29	.23	.01
57	.05	.07	.53*	-.03	-.01	.09	78	.45*	.24	.11	.31	.35*	.21
58	.16	.24	.07	.67*	.08	-.04	79	.20	.29	.04	.22	.61*	.05
59	.74*	.10	-.03	.18	.17	.07	80	.18	.21	.08	.34	.57*	.04
60	.41*	.20	.04	.17	-.13	.39*	81	.09	.06	-.03	.60*	.26	.19
61	-.05	.01	.55*	.13	.29	.07	82	.21	.28	.12	.39*	.37*	.25
62	.23	.34	.10	.22	.62*	.03	83	.03	.47*	-.03	.34	.12	.28
63	.18	.25	.16	.15	.36*	.47*	84	.24	.25	.07	.31	.30	.28

Note. F1 = Factor 1; F2 = Factor 2; F3 = Factor 3; F4 = Factor 4; F5 = Factor 5; F6 = Factor 6.

* All marked loadings > .35.

The third factor extracted was composed of all 12 reverse-coded items, suggesting that these items were unstable (individual items were designed to measure each of the four capacities). One of these items (35) displayed a cross-loading on Factor 4, and as such, was the only reverse-coded item considered for retention. All other reverse-coded items (and therefore the third factor extracted) were planned for removal from the original 84-item pool. The sixth factor extracted consisted of only three significant loadings which collectively had no theoretical basis, and was therefore not retained.

Items which loaded on Factor 1 corresponded primarily to critical existential thinking, while those which loaded on Factor 2 corresponded to conscious state expansion. Items loading on Factor 4 corresponded to personal meaning production, while those loading on Factor 5 corresponded to transcendental awareness (all cross-loadings aside). The majority of the items measuring awareness of interconnectedness and interrelatedness (items 12, 13, 24, 41, 63, 66, 68, 72, 73, and 82) cross-loaded on multiple factors and were deemed good candidates for removal. In general, the hypothesized factor structure was very well-supported in the initial 84-item pool. Of interest was the finding that items measuring the ability to *contemplate* meaning and purpose loaded separately from items measuring the ability to *create* or *derive* meaning and purpose. In particular, contemplating meaning and purpose loaded on the factor which corresponded to critical existential thinking, while creating meaning and purpose loaded on a distinct factor (personal meaning production).

Item Retention

As previously mentioned, all but one of the reverse-coded items were removed from the SISRI, including items 8, 21, 40, 45, 49, 52, 53, 57, 61, 71, and 75. Item 35 was the only reverse-coded item retained from the initial item pool. Clark and Watson (1995) recommend that items

with cross-loadings should be retained so long as there is a difference of at least .15 between loadings. In order to satisfy this criterion, items with converging cross-loadings were removed, including 4, 12, 23, 24, 41, 50, 51, 64, 68, 72, 73, and 82. Some factors displayed loadings which did not have any theoretical connection to the other loadings on the same factor (i.e., theory would have posited these items on other factors). As such, these items were deemed invalid and therefore removed from the SISRI. They included items 10, 13, 30, 63, 66, 67. Two items (15 and 84) displayed no significant loading on any of the six extracted factors and were therefore also removed. Finally, a number of items (5, 9, 16, 19, 20, 27, 32, 44, 56, 60, 69, 76, 77, and 83) were removed for redundancy and also to reduce the SISRI to a more practical length.

Considering all recommendations for item retention (e.g., Clark & Watson, 1995; Worthington & Whittaker, 2006), 39 items were retained in total, including 1, 2, 7, 17, 26, 37, 38, 39, 59, 70, 78 (loading on Factor 1, which corresponded to critical existential thinking), 14, 18, 22, 28, 31, 34, 42, 43, 47, 55, 65 (loading on Factor 2, which corresponded to conscious state expansion), 6, 25, 33, 46, 48, 58, 74, 81 (loading on Factor 4, which corresponded to personal meaning production), 3, 11, 29, 35, 36, 54, 62, 79, and 80 (loading on Factor 5, which corresponded to transcendental awareness).

Three additional items were created and added to the second version of the SISRI. These items were modeled after items which loaded significantly on their theoretically related factors, in order to increase the likelihood of their being retained. Items were designed to compensate for theoretical conceptions which were lost due to cross-loadings. The first item, “Having my own theories/ideas about life and existence helps me deal with uncertainties,” was added in order to address the lack of a second item directly measuring the adaptive application of critical existential thinking. The second, “I am able to find meaning and purpose in my everyday

experiences," was added in order to address the lack of total number of items measuring personal meaning production. Finally, "Recognizing the nonmaterial aspects of life helps me feel centered" was added in order to address the lack of an additional item measuring the adaptive application of transcendental awareness. These additional three items were tested for their coherence and validity in Study 2. All subsequent analyses in Study 1 were based on the 39 items chosen for retention from the original item pool.

Properties of the Reduced Item Pool

The reduced 39-item pool was examined in order to ensure adequate statistical properties of the items chosen for retention. Multivariate skewness and kurtosis remained very low and did not reach significance (-.14 and .01, respectively). Cronbach's alpha for the 39-item pool was .96 (standardized alpha = .96), which was slightly lower than in the original 84-item pool. Although a high alpha above .80 is desirable, an alpha too close to 1.0 should be avoided (Clark & Watson, 1995). As such, this slight reduction was considered an improvement to the data and suggests that the 39 items are tapping the same overarching construct. The average inter-item correlation was .36, with split-half reliability at the .94 level.

Second Exploratory Factor Analysis

All responses for the reduced 39-item pool were subjected to a second principal components exploratory factor analysis with Varimax normalized rotation. Four factors were extracted (see Table 3), which displayed eigenvalues of 14.87, 3.01, 2.25, and 1.60, respectively. All eigenvalues again met the suggested minimum value of 1.0. A Scree plot of eigenvalues supported the retention of these four factors, as values began leveling off after the fourth eigenvalue (see Figure 2). No residual correlations exceeded .14, adding confidence to the retention of these four factors. Communalities (the proportion of an item's variance explained by

a particular factor structure) were also observed to be highest at four factors, adding additional confidence to the factor retention.

Table 3

Factor Loadings (Principal Components, Varimax Normalized) for the Reduced 39-Item Pool

Item	F1	F2	F3	F4	Item	F1	F2	F3	F4
1	.20	.61*	-.06	.19	38	.27	.54*	.47*	.17
2	.17	.37*	.17	.26	39	.24	.64*	.21	.19
3	.19	.37*	.19	.61*	42	.76*	.15	.23	.21
6	.13	.09	.47*	.34	43	.73*	.23	.16	.18
7	.08	.75*	.05	.07	46	.30	.15	.56*	.40*
11	.16	.16	.17	.69*	47	.70*	.11	.17	.09
14	.75*	.15	.16	.23	48	.26	.29	.71*	.15
17	.20	.58*	.02	.20	54	.27	.27	.31	.48*
18	.77*	.15	.13	.19	55	.71*	.17	.28	.24
22	.74*	.07	.14	.19	58	.19	.13	.72*	.08
25	.30	.22	.62*	.28	59	.09	.74*	.20	.14
26	.09	.60*	.38*	.19	62	.32	.25	.26	.62*
28	.67*	.23	.16	.26	65	.77*	.14	.17	.15
29	.24	.18	.19	.68*	70	.07	.61*	.08	.12
31	.63*	.25	.14	.26	74	.26	.15	.59*	.32
33	.24	-.02	.75*	.13	78	.25	.49*	.31	.33
34	.74*	.12	.19	.14	79	.28	.23	.23	.62*
35	.12	.00	.09	.61*	80	.22	.20	.34	.59*
36	.33	.23	.17	.56*	81	.06	.16	.57*	.22
37	.13	.76*	.14	.02					

Note. F1 = Factor 1; F2 = Factor 2; F3 = Factor 3; F4 = Factor 4.

* All marked loadings > .35.

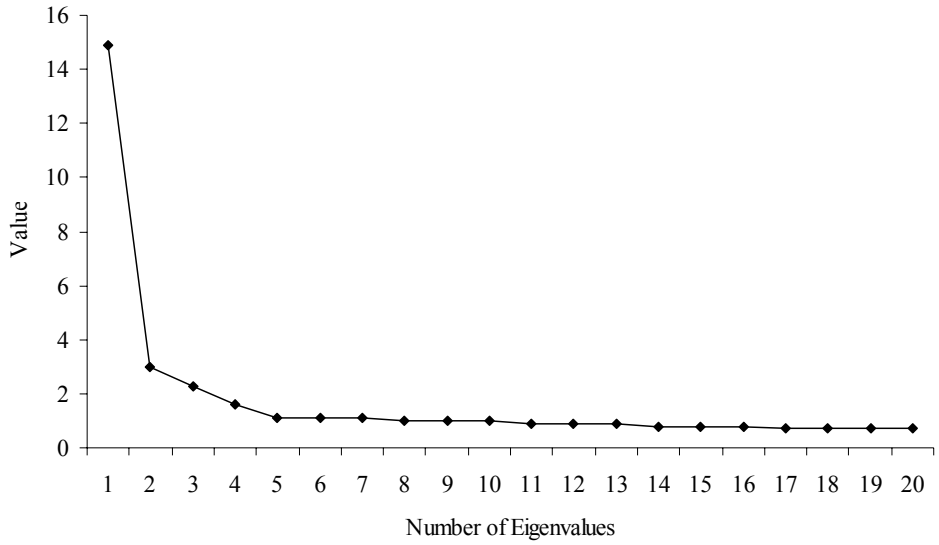

Figure 2. Scree plot of eigenvalues for the reduced 39-item pool.

Only four items cross-loaded in the second factor analysis. The first, item 3, loaded higher on its theoretically related factor with a difference of over .20. Item 26 also loaded higher on its theoretically related factor, with a difference of over .20. Item 38 loaded higher on its theoretically related factor by a difference of only .07. Nevertheless, this item was deemed desirable based on the theoretical conception of critical existential thinking, and was therefore retained for Study 2 (Clark & Watson, 1995). Finally, item 46 loaded higher on its theoretically related factor with an acceptable difference of .16. The majority of significant loadings well exceeded .35, adding confidence to the factor structure. Mirroring Study 1, Factor 1 corresponded to critical existential thinking. Factor 2 corresponded to conscious state expansion. Factor 3 corresponded to personal meaning production. Finally, Factor 4 corresponded to transcendental awareness. These findings offered preliminary support for the theoretically-based conception of spiritual intelligence, as well as the design and structure of the Spiritual Intelligence Self-Report Inventory.

STUDY 2

Purpose

The purpose of Study 2 was to validate the second draft of the Spiritual Intelligence Self-Report Inventory (SISRI). A confirmatory factor analysis allowed for confirmation (or rejection) of the factor structure observed in Study 1. Construct validity (both convergent and divergent) was examined by including additional measures of theoretically related and unrelated psychological constructs, including personal meaning, metapersonal self-construal (the interpretation of oneself as connected to all life), mysticism (mystical experiences), satisfaction with life, intrinsic and extrinsic religiosity, mood states, emotional intelligence, and IQ. According to DeVellis (1991), construct validity "is the extent to which a measure 'behaves' the way that the construct it purports to measure should behave with regard to established measures of other constructs" (p. 46). By measuring constructs that theoretically relate to the target construct in particular ways, one is able to obtain evidence as to how well the scale actually reflects the underlying construct.

In addition, social desirability was examined in order to determine its potential confounding effects on the SISRI. Measures of reliability were also examined. No hypotheses were proposed regarding social desirability and reliability, as these measures were exploratory in nature.

Hypothesis 1. Based on the factor structure observed in Study 1, it was hypothesized that a confirmatory factor analysis would support a four-factor model of spiritual intelligence as an adequate fit to the data. This hypothesis was also based on the theoretical conception of spiritual intelligence as comprising four main capacities, as well as the design of the scale to reflect these four subscales.

Hypothesis 2. Due to the inclusion of personal meaning production in the current model of spiritual intelligence, it was hypothesized that a significant positive relationship would be observed between the personal meaning production subscale of the SISRI and a measure of personal meaning. This relationship was expected to be greater than that between personal meaning and other subscales of the SISRI.

Hypothesis 3. The metapersonal self has been described as a more spiritual form of self-reference compared to both independent and dependent styles of self-construal (DeCicco & Stroink, 2007). Individuals high in spiritual intelligence, and particularly the capacity of transcendental awareness, are more likely to interpret themselves in a metapersonal framework (i.e., as connected to all life) due to a greater awareness of transcendent aspects of the self and of their interconnectedness. As such, it was hypothesized that a significant positive relationship would be observed between the SISRI and the metapersonal self-construal.

Hypothesis 4. Due to the inclusion of conscious state expansion in the current model of spiritual intelligence, it was hypothesized that a significant positive relationship would be observed between mystical experiences and the SISRI. In particular, it was expected that the conscious state expansion subscale of the SISRI would be more significantly related to indicators of mystical experience than the other subscales.

Hypothesis 5. Based on research which supports a positive relationship between life satisfaction and spirituality (e.g., Anema, 2006; Matheis et al., 2006; Nissim, 2003; Simoni et al., 2002; Tartaro et al., 2005), it was hypothesized that a significant positive relationship would be observed between life satisfaction and spiritual intelligence (including subscales of the SISRI).

Hypothesis 6. Intrinsic religiosity was hypothesized to display a positive yet weak to moderate correlation with the SISRI. In contrast, extrinsic religiosity was hypothesized to show a

non-significant to low correlation with the SISRI, potentially supporting discriminant validity. These predictions were based on definitions of extrinsic and intrinsic religiosity, which tend to contrast the two orientations and relate intrinsic religiosity more closely to spirituality (e.g., Allport, 1961; Hergenhahn & Olson, 1999; Pargament, 1997).

Hypothesis 7. A number of relationships were hypothesized to be observed between the SISRI and mood states. In particular, the SISRI was expected to be negatively related to anger/hostility, depression/dejection, and tension/anxiety, potentially supporting discriminant validity (based on adaptive nature of spiritual intelligence; see *Adaptive Applications, p. 179*).

Hypothesis 8. Due to the well-established criterion that individual intelligences should demonstrate some unique variance from one another (Gardner, 1983; Mayer et al., 2000; Sternberg, 1997), it was hypothesized that a low to moderate correlation would be observed between the SISRI and a self-report measure of emotional intelligence.

Hypothesis 9. In order to rule out IQ as a possible confounding variable in SISRI responding, a performance measure of IQ was included. Due to the criterion that intelligences be distinct from one another (Gardner, 1983; Mayer et al., 2000; Sternberg, 1997), it was hypothesized that a non-significant to low correlation would be observed between the SISRI and IQ. A less significant relationship was expected with IQ than with emotional intelligence due to the nature of the constructs. In particular, spiritual intelligence may utilize some of the associative processes which underlie emotional intelligence (Zohar & Marshall, 2000). This hypothesis was further supported by Zohar and Marshall's (2000) suggested hierarchical relationship between the three intelligences, which posits spiritual intelligence as more closely related to emotional intelligence than IQ.

Method

Participants

Respondents were 321 undergraduate students (243 females and 78 males) enrolled in 100, 200, 300, and 400 level psychology courses at Trent University in Peterborough, Ontario. The mean age of the original participant pool was 25.40 years (SD = 10.82; range = 18 to 81). Of this original sample, 16 responses (5%) were not included in the final data analyses due to missing data. This small subsample did not display any unique demographic characteristics compared to the sample at large. The subsequent useable sample consisted of 231 female and 74 male undergraduate students (N = 305), meeting the minimum recommended number of 200 participants for the confirmatory stage of scale development (Clark & Watson, 1995; Worthington & Whittaker, 2006). The mean age of the final participant pool was 25.56 years (SD = 10.93; range = 18 to 81).

Measures

The Spiritual Intelligence Self-Report Inventory (SISRI-42). The second draft of the SISRI, as determined in Study 1, was utilized in Study 2 (see Appendix B). This draft of the SISRI contained 42 items in total, with one reverse-coded item. Twelve items were designed to measure critical existential thinking (CET). Conscious state expansion (CSE) was measured by 11 items, while personal meaning production (PMP) was measured by 9 items. Finally, 10 items were designed to measure transcendental awareness (TA).

The Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006). The MLQ (see Appendix C) is a 10-item self-report measure of personal meaning composed of two subscales: presence of meaning and search for meaning. Validity, reliability (including test-

retest), and a stable factor structure have been supported by Steger et al. (2006) and Steger and Kashdan (2006).

The Metapersonal Self-Construal Scale (MSCS; DeCicco & Stroink, 2007). The MSCS (see Appendix D) is a 10-item self-report measure of metapersonal self-construal, which is the interpretation of one's self as connected to all life. This scale was found to be high in convergent, discriminant, and predictive validity by DeCicco and Stroink (2007).

The Mysticism Scale – Research Form D (MSD; Hood, 1975). The MSD (see Appendix E) is a 32-item self-report measure of mystical and spiritual experiences, particularly those involving oneness, insight, peace, wonder, sacredness, bliss, and timelessness. While Hood (1975) suggested a two-factor structure composed of intense experience of unity and affectively charged religious revelation, Hood, Morris, and Watson (1993) later proposed a three-factor structure of extrovertive mysticism, religious interpretation, and introvertive mysticism. All potential subscales were examined in the current study. Scale validity and reliability have been well-supported by Hood (1975), and Hood et al. (1993), and Hood, Hall, Watson, and Biderman (1979).

The Satisfaction with Life Scale (SLS; Diener, Emmons, Larsen, & Griffin, 1985). The SLS (see Appendix F) is a five-item self-report measure of life satisfaction. Validity and reliability have been supported by Diener et al. (1985) and Pavrot and Diener (1993).

The Age Universal Intrinsic-Extrinsic Religiosity Scale (AUIE; Gorsuch & Venable, 1983). The AUIE (see Appendix G) is a 19-item, two-factor self-report measure of intrinsic and extrinsic religious orientations. Validity and reliability were supported in two consecutive studies by Gorsuch and Venable (1983).

The Profile of Mood States Scale – Short Form (POMS-SF; Shacham, 1983). The POMS-SF (see Appendix H) was used to measure mood states over the course of the past week, including: Tension/Anxiety, Depression/Dejection, Fatigue/Inertia, Vigour/Activity, Confusion/ Bewilderment, and Anger/Hostility. A Total Mood Disturbance (TMD) score can also be calculated by summing subscale scores. The POMS has been shown to be reliable and valid (e.g., Grove & Prapavessis, 1992; Jianping, Haiyong, & Wenliang, 2004).

The Assessing Emotions Scale (AES; Schutte et al., 1998). The AES (see Appendix I) is a 33-item self-report measure of emotional intelligence and includes indicators of emotional awareness, management, and problem-solving. This scale was designed to reflect Mayer and Salovey's (1993) model of emotional intelligence, and has been found to be a valid and reliable measure of the construct (Austin, Saklofske, Huang, & McKenny, 2004; Schutte et al., 1998).

The Multidimensional Aptitude Battery-II (MAB-II; Jackson, 1998). The MAB-II is a paper-and-pencil performance measure of IQ and, in addition to an overall IQ score, provides a verbal IQ score (addressing vocabulary, comprehension, arithmetic, etc.) and a performance IQ score (addressing spatial reasoning, symbol/picture interpretation, etc.). Five subtests, lasting seven minutes each, comprise each of the verbal and performance sections of the MAB-II. Participants provide responses in the form of multiple-choice answer keys. Due to the timed nature of the test, the MAB-II must be strictly supervised but can be completed either individually or in group settings. Validity of the MAB has been supported by Carless (2000) and Wallbrown, Carmin, and Barnett (1988), among others.

The Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1984). The BIDR (see Appendix J) is a 40-item self-report measure composed of two factors related to socially desirable responding: self-deception and impression management. The latter assesses more

conscious forms of deceptive responding (e.g., exaggerated claims of extreme virtue), while the former involves unconscious deception related to affirmation or denial of various traits (Paulhus, 1984). Internal and external validity of the BIDR have been supported by Lanyon and Carle (2007) and Paulhus (1984).

Procedure

Participants were recruited via e-mails, online postings, and in-class announcements. In exchange for participation, students enrolled in PSYC-101, PSYC-102, PSYC-103, and PSYC-215 received a full credit toward their potential bonus marks, while all other upper-year students were entered into a draw to win a $40 gift certificate to a local retail establishment. Participation took place in classrooms at Trent University and Durham College. Each participant was asked to read and sign a consent form prior to participation ensuring confidentiality and the right to withdraw at any time without penalty. Following consent, each participant was asked to complete the SISRI-42 as well as all other assigned measures. For those completing self-report measures only, participation lasted approximately 45 to 60 minutes.

A small subsample (n = 35) completed the MAB-II IQ test in addition to the SISRI-42 and the AES, for which participation lasted between 100 and 120 minutes. Due to the timed nature of the MAB-II, a stop-watch was utilized by the primary researcher and completion of the MAB-II was strictly supervised. Within group sessions, all participants commenced each of the 10 subtests at the same time, according to seven-minute intervals. A small number of participants (n = 25) also completed the SISRI-42 on two occasions, separated by a period of approximately four months, in order to assess test-retest reliability. All participants were debriefed with the opportunity to discuss their feelings and/or concerns regarding participation. Feedback was available in the form of information pamphlets and electronically at a specified internet address.

Results

Properties of the SISRI-42

Descriptive statistics and response distributions were first examined for the 42-item pool (see Table 4). No items displayed significant skewness or kurtosis, with all mean values generally clustered around the expected value of 2.0. Item 24 displayed multiple modes and was a candidate for removal from the SISRI-42 (Clark & Watson, 1995). All items were retained for the initial confirmatory factor analysis. Multivariate skewness and kurtosis were very low and did not reach significance (.11 and -.24, respectively), suggesting a relatively normal distribution of responses overall. Cronbach's alpha for the SISRI-42 was .96 (standardized alpha = .96), which reflects analyses of the reduced item pool in Study 1. The average inter-item correlation was .36, with split-half reliability at the .94 level, again reflecting findings from Study 1.

First Confirmatory Factor Analysis

The structural equation modelling (SEM) module of Statistica 7.0 (Statsoft, 2006) was utilized for the initial confirmatory factor analysis (CFA). Maximum likelihood was the chosen method of parameter estimation, which is the most widely used method due to its ability to robustly handle nonnormality (Schermelleh-Engel & Moosbrugger, 2003). The four-factor model observed in Study 1 was investigated for its fit to the data in Study 2. This SEM model consisted of four latent variables corresponding to the four capacities of spiritual intelligence, each measured by their corresponding manifest variables (items) on the SISRI-42.

Table 4

Descriptive Statistics for the SISRI 42-Item Pool (N = 304)

Item	*N*	*SD*	Skew	Kurt	Item	*N*	*SD*	Skew	Kurt
1	1.97	1.13	-.05	-.61	22	1.72	1.15	.22	-.76
2	2.26	1.19	-.23	-.82	23	2.02	1.19	-.07	-.84
3	2.75	1.09	-.66	-.25	24	1.46	1.23	.47	-.74
4	2.75	.89	-.44	.07	25	1.38	1.12	.60	-.35
5	2.38	1.27	-.36	-.85	26	2.30	.93	-.07	-.28
6	2.93	.95	-.55	-.60	27	1.26	1.04	.60	-.26
7	1.78	1.11	.23	-.54	28	2.12	1.12	-.09	-.69
8	2.43	1.21	-.40	-.75	29	2.44	.93	-.31	-.18
9	2.31	1.22	-.43	-.63	30	1.82	1.16	.15	-.81
10	1.51	1.13	.49	-.28	31	2.16	1.07	-.04	-.65
11	2.41	1.02	-.36	-.22	32	2.41	1.19	-.42	-.63
12	1.45	1.06	.44	-.40	33	2.39	1.10	-.24	-.77
13	2.68	1.03	-.55	-.20	34	1.40	1.20	.50	-.61
14	1.77	1.16	.21	-.70	35	2.42	1.33	-.49	-.95
15	2.67	1.02	-.55	-.26	36	2.31	1.05	-.25	-.49
16	1.48	1.22	.38	-.93	37	2.30	1.12	-.20	-.71
17	2.28	1.09	-.09	-.79	38	2.41	1.06	-.53	-.24
18	1.48	1.11	.48	-.41	39	2.65	.96	-.31	-.54
19	2.78	.92	-.35	-.59	40	2.25	1.10	-.21	-.58
20	1.97	1.08	-.07	-.72	41	2.72	.89	-.40	-.11
21	2.02	1.20	-.03	-.84	42	2.67	.91	-.22	-.60

Table 5

Parameter Estimates and Standard Errors for all Manifest Variables of the SISRI-42

Item	Latent	PE	SE	Item	Latent	PE	SE
1	CET	.50*	.05	22	CET	.75*	.03
2	CET	.50*	.05	23	CET	.72*	.03
3	TA	.72*	.03	24	CSE	.85*	.02
4	PMP	.57*	.04	25	CSE	.78*	.03
5	CET	.57*	.04	26	PMP	.76*	.03
6	TA	.70*	.03	27	CSE	.71*	.03
7	CSE	.83*	.02	28	PMP	.77*	.03
8	CET	.56*	.04	29	TA	.75*	.03
9	CET	.61*	.04	30	CSE	.79*	.02
10	CSE	.83*	.02	31	PMP	.71*	.03
11	PMP	.74*	.03	32	CET	.75*	.03
12	CSE	.79*	.02	33	TA	.79*	.02
13	CET	.67*	.04	34	CSE	.76*	.03
14	CSE	.75*	.03	35	CET	.53*	.04
15	TA	.69*	.03	36	PMP	.62*	.04
16	CSE	.66*	.03	37	CET	.70*	.03
17	PMP	.77*	.03	38	TA	.73*	.03
18	CSE	.71*	.03	39	TA	.73*	.03
19	TA	.57*	.04	40	TA	.75*	.03
20	TA	.73*	.03	41	PMP	.35*	.05
21	CET	.77*	.03	42	PMP	.63*	.04

Note. Latent = Latent Variable; PE = Parameter Estimate; SE = Standard Error.

* $p < .001$

Parameter estimates for all 42 manifest variables were significant (see Table 5). The discrepancy function for the four-factor model was 6.96. In addition to the chi-square goodness-of-fit (χ^2), the following fit indices were examined (see Table 6): (1) the root mean square error of approximation (RMSEA), (2) the goodness-of-fit index (GFI), (3) the adjusted goodness-of-fit index (AGFI), (4) the standardized root mean square residual (SRMSR), and (5) the comparative fit index (CFI). Hu and Bentler (1999, as cited in Tabachnick & Fidell, 2007) recommend always reporting the SRMSR and one comparative fit index (in this case, the CFI, which is appropriate for both small and large sample sizes). The GFI, AGFI, and RMSEA (including point estimate and 90% confidence interval) were also reported. The RMSEA is a parsimony-adjusted index and according to Schermelleh-Engel and Moosbrugger (2003), one parsimony index should always be reported. They also state that it is typical for studies to report the GFI and AGFI indices (Schermelleh-Engel & Moosbrugger, 2003).

The following criteria/cutoff values for the afore-mentioned fit indices were used: a low χ^2 value that is non-significant (although this is difficult to obtain with large samples); a maximum χ^2/df ratio of 2.0 (a maximum of 3.0 is acceptable for adequate fit); a maximum value of .08 for the SRMSR (with values closer to or less than .05 indicating excellent fit); a minimum value of .95 for the CFI; a maximum value .10 for the RMSEA (with values closer to or less than .05 indicating excellent fit); an RMSEA lower confidence limit of close to or less than .05 and an upper confidence limit close to the RMSEA point estimate value; a minimum value of .85 for the AGFI; and a minimum value of .90 for the GFI (Schermelleh-Engel & Moosbrugger, 2003; Tabachnick & Fidell, 2007).

Table 6

Fit Indices for Confirmatory Factor Analysis of the SISRI-42

	χ^2	RMSEA	LCL	UCL	SRMSR	GFI	AGFI	CFI	*df*
Value	2108.72*	.080	.077	.084	.067	.726	.695	.832	813
Cutoff	---	.05 - .10	---	---	.05 - .08	.90	.85	.95	---

Note. LCL = RMSEA Lower Confidence Limit; UCL = RMSEA Upper Confidence Limit.

* $p < .0001$

The chi-square value was highly significant for the initial confirmatory factor analysis ($p < .0001$). Tabachnick and Fidell (2007) note, however, that with large sample sizes (over 200), the chi-square value is almost always significant, and is therefore a poor indicator of model fit. Due to the large sample size in the current study, the chi-square/df ratio was calculated to gain a more meaningful summary of these statistics (i.e., to account for sample size). The four-factor model displayed a ratio of 2.59, which exceeded the recommended maximum value of 2.0 for good fit (Tabachnick & Fidell, 2007), but still met the cutoff for acceptable fit (Schermelleh-Engel & Moosbrugger, 2003). The SRMSR, RMSEA, and RMSEA confidence interval all suggested adequate model fit. In contrast, the GFI, AGFI, and CFI did not meet recommended cutoff values, suggesting poor model fit.

Nevertheless, the theoretically-supported four-factor model displayed better fit to the data when compared to a two-factor model (including PMP and CET items as the first single factor and TA and CSE items as a second single factor; GFI = .55, AGFI = .51, CFI = .69, RMSEA = .13, SRMSR = .09). The same was true when compared to a three-factor model consisting of CET, CSE, and a combined TA-PMP factor (GFI = .69, AGFI = .66, CFI = .80, RMSEA = .09,

SRMSR = .07). With an absence of any additional theoretically-based models, it was concluded that the four-factor model displayed the best fit to the data. As such, scale items were removed in order to obtain better fit indices.

Scale Modification

Based on high residual correlations (above .14), high item correlations, and redundancy in item wording, items 9, 21, 22, 32, and 37 were removed from the CET subscale of the SISRI-42. Items 26, 28, 36, and 41 were removed from the PMP subscale and items 15, 33, and 39 were removed from the TA subscale. Finally, items 16, 18, 24, 25, 27, and 30 were removed from the CSE subscale of the SISRI-42. This left a total of 24 items for the final draft of the SISRI, including seven items for CET, five items for PMP, seven items for TA, and five items for CSE. Differences in number of subscale items reflect differences in range of descriptive wording for each capacity, and therefore are not indicative of relative importance or emphasis. A great deal of redundancy was observed in items measuring PMP and CSE, suggesting that these subscales simply require fewer items for measurement.

Properties of the SISRI-24

The final 24-item pool was examined in order to ensure adequate statistical properties of the items chosen for retention. Multivariate skewness and kurtosis remained low and did not reach significance (.02 and -.23, respectively). Cronbach's alpha for the 24-item pool was .92 (standardized alpha = .92), which represents a more appropriate internal reliability. Although a high alpha above .80 is desirable, an alpha too close to 1.0 should be avoided (Clark & Watson, 1995). As such, this reduction was considered an improvement to the data and suggests that the 24 items are tapping the same construct (conceptually described as spiritual intelligence). Individual subscales of CET, PMP, TA, and CSE also displayed adequate alpha coefficients of

.78 (average inter-item correlation = .34), .78 (average inter-item correlation = .42), .87 (average inter-item correlation = .49), and .91 (average inter-item correlation = .69), respectively. The average inter-item correlation for all 24 items was .34, with split-half reliability at the .91 level. These analyses suggest excellent psychometric properties of the SISRI-24 (see Appendix K).

Second Confirmatory Factor Analysis

All responses for the reduced 24-item pool were subjected to a confirmatory factor analysis via the structural equation modelling (SEM) module of Statistica 7.0 (Statsoft, 2006). The same four-factor model tested in Study 2 was investigated for its fit to the 24-item data pool.

Table 7

Parameter Estimates and Standard Errors for all Manifest Variables of the SISRI-24

Item	Latent	PE	SE	Item	Latent	PE	SE
1	CET	0.50*	0.05	13	CET	0.69*	0.04
2	TA	0.74*	0.03	14	TA	0.72*	0.03
3	CET	0.55*	0.05	15	PMP	0.53*	0.05
4	CSE	0.85*	0.02	16	CSE	0.78*	0.02
5	CET	0.53*	0.05	17	CET	0.68*	0.04
6	TA	0.57*	0.04	18	TA	0.68*	0.03
7	PMP	0.76*	0.03	19	PMP	0.71*	0.04
8	CSE	0.91*	0.01	20	TA	0.72*	0.03
9	CET	0.59*	0.04	21	CET	0.50*	0.05
10	TA	0.75*	0.03	22	TA	0.73*	0.03
11	PMP	0.59*	0.04	23	PMP	0.62*	0.04
12	CSE	0.86*	0.02	24	CSE	0.72*	0.03

Note. Latent = Latent Variable; PE = Parameter Estimate; SE = Standard Error.

* $p < .001$

Parameter estimates for all 24 manifest variables were significant (see Table 7). The discrepancy function for the reduced 24-item pool was 1.53. This indicated better model fit for the SISRI-24 compared to the SISRI-42, as smaller discrepancy functions (approaching zero) indicate better fit to the data (Tabachnick & Fidell, 2007). All fit indices examined in the previous confirmatory factor analysis were examined again in the subsequent analysis, including the χ^2/df ratio, the SRMSR, the RMSEA, the CFI, the GFI, and the AGFI (see Table 8).

Table 8

Fit Indices for Confirmatory Factor Analysis of the SISRI-24

	χ^2	RMSEA	LCL	UCL	SRMSR	GFI	AGFI	CFI	*df*
Value	464.68*	.055	.047	.062	.056	.886	.861	.934	246
Cutoff	---	.05 - .10	---	---	.05 - .08	.90	.85	.95	---

Note. LCL = RMSEA Lower Confidence Limit; UCL = RMSEA Upper Confidence Limit.

* $p < .0001$

Although the chi-square value was highly significant for the subsequent confirmatory factor analysis ($p < .0001$), the χ^2/df ratio was 1.89, which met the recommended maximum value of 2.0 for good model fit (Tabachnick & Fidell, 2007). The SRMSR and RMSEA values were very close to the .05 level, further supporting good model fit. This was reflected by the RMSEA confidence interval, of which the lower limit met the cutoff of .05 for good fit. The AGFI also met the recommended cutoff of .85, supporting good model fit. The GFI value came very close to the cutoff value of .90, as did the CFI, which approached the cutoff value of .95. Overall, it can be concluded that the four-factor model displayed adequate fit to the data, while clearly reflecting the theoretical four-factor model of spiritual intelligence. Findings also support

far better fit with the SISRI-24 compared to the SISRI-42. In light of the preference for the 24-item version of the SISRI, all subsequent analyses (correlations, etc.) were based on participant responses for the 24-item pool only. See Figure 3 for the final CFA model following modifications.

In order to ensure adequate factor structure and item loadings for the SISRI-24, the final 24-item pool was also subjected to a principal components factor analysis with Varimax normalized rotation. Four factors were extracted with eigenvalues of 8.86 for Factor 1 (consisting of all seven items measuring CET), 2.12 for Factor 2 (consisting of all five items measuring CSE), 1.63 for Factor 3 (consisting of all five items measuring PMP), and 1.33 for Factor 4 (consisting of all seven items measuring TA). Eigenvalues supported retention of all four factors. All factor loadings were significant above the .50 level (see Table 9). Although six items cross-loaded, they differed from their highest loadings by at least .13, with all of these loadings in the .35 to .40 range. These findings added further confidence to the factor structure and item retention of the SISRI-24.

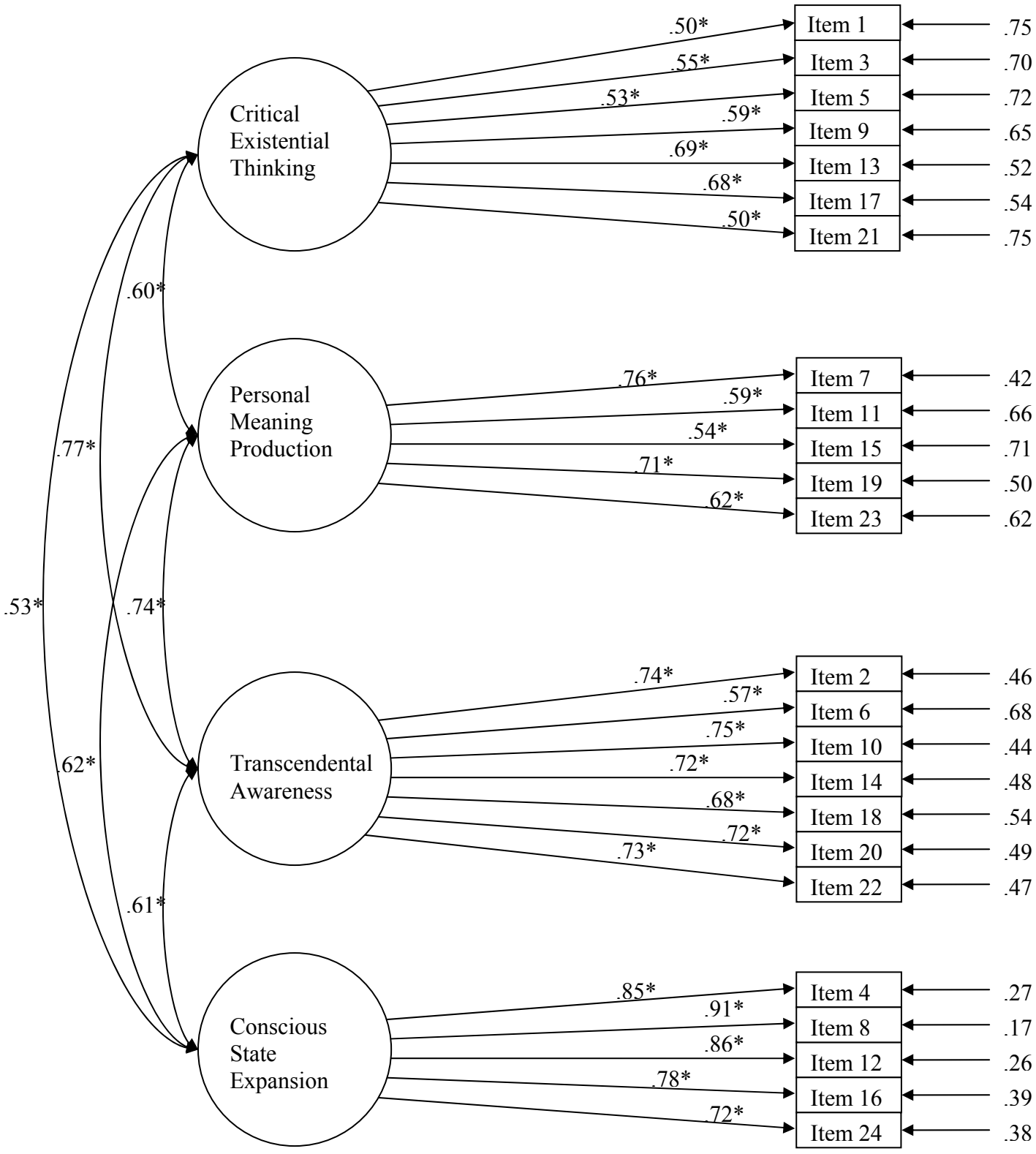

Figure 3. CFA four-factor model for the SISRI-24 (* $p < .001$)

Table 9

Factor Loadings (Principal Components, Varimax Normalized) for the SISRI-24

Item	Factor 1	Factor 2	Factor 3	Factor 4
1	.65*	.14	-.11	.14
2	.38	.14	.28	.59*
3	.73*	.01	.07	.07
4	.18	.77*	.21	.30
5	.52*	.14	.39	.05
6	.07	.24	.04	.66*
7	.16	.22	.63*	.36
8	.11	.85*	.22	.21
9	.53*	.22	.18	.20
10	.31	.16	.37	.59*
11	.06	.21	.78*	-.03
12	.11	.83*	.22	.15
13	.58*	.15	.33	.25
14	.19	.30	.15	.66*
15	-.07	.05	.53*	.40
16	.13	.81*	.12	.17
17	.54*	.29	.12	.31
18	.24	.08	.29	.63*
19	.21	.32	.68*	.14
20	.29	.26	-.01	.70*
21	.65*	-.02	-.03	.18
22	.21	.22	.20	.69*
23	.04	.12	.57*	.39
24	.11	.75*	.13	.25

* All marked loadings > .50.

Scale Validity

In relation to the MLQ search for meaning subscale, low to moderate correlations with the total spiritual intelligence score (SI) and subscale scores on the SISRI-24 were observed (see Table 10). In particular, CET was the most significantly related subscale, $r = .39$ ($p < .001$). In contrast, correlations with the MLQ presence of meaning subscale were far more significant overall. SI correlated at $r = .44$ ($p < .001$), followed closely by TA and CSE. Interestingly, CET did not correlate significantly with presence of meaning, contrasting findings with search for meaning. On the other hand, PMP correlated positively and significantly with presence of meaning, $r = .65$ ($p < .01$), yet displayed no significant correlation with search for meaning. This indicates that PMP and CET predicted very different aspects of personal meaning, with spiritual intelligence overall being more highly related to presence of meaning.

Metapersonal self-construal displayed moderate to high positive correlations with SI and all subscales (see Table 10). Of the subscales, the highest correlation was observed with TA, $r = .63$ ($p < .01$). Total mystical experiences, including all potential MSD subscales, also correlated positively and significantly with SI and all SISRI-24 subscales (see Table 10). Of note was the finding that extrovertive mysticism displayed a less significant relationship with SI compared to introvertive mysticism, $r = .55$ ($p < .01$) and $r = .58$ ($p < .01$), respectively. Total mysticism was most significantly related to the subscales of TA and CSE, as were all five subscales of the MSD. In terms of the AUIE, correlations with intrinsic religiosity exceeded correlations with extrinsic religiosity (see Table 10). This was true for all subscale scores and SI, $r = .48$ ($p < .001$) and $r = .21$ ($p < .01$), respectively. The SLS displayed significant correlations with SI, PMP, and TA only (see Table 10). SI displayed a mild relationship with life satisfaction, $r = .20$ ($p < .01$), while PMP was the most significantly related subscale of the SISRI-24, $r = .40$ ($p < .001$).

Table 10

Correlations among Measures of Validity and SISRI-24 Total and Subscale Scores

Measure: Variable	SI	CET	PMP	TA	CSE
MLQ: Search for Meaning (*n* = 271)	.21**	.39***	.05	.15*	.03
MLQ: Presence of Meaning (*n* = 271)	.44***	.10	.65**	.38***	.38***
MSC: Metapersonal Self-Construal (*n* = 270)	.67**	.44***	.60**	.63**	.48***
MSD: Total Mysticism (*n* = 270)	.63**	.40***	.44***	.59**	.57**
MSD: Extrovertive Mysticism (*n* = 270)	.55**	.36***	.34***	.52**	.53**
MSD: Introvertive Mysticism (*n* = 270)	.58**	.39***	.39***	.52**	.53**
MSD: Religious Interpretation (*n* = 270)	.58**	.33***	.48***	.56**	.49***
MSD: Intense Experiences of Unity (*n* = 270)	.59**	.39***	.38***	.54**	.56**
MSD: Affectively Charged Revelation (*n* = 270)	.60**	.34***	.49***	.58**	.51**
AUIE: Intrinsic Religiosity (*n* = 265)	.48***	.30***	.43***	.45***	.37***
AUIE: Extrinsic Religiosity (*n* = 265)	.21**	.19**	.14*	.20**	.13*
SLS: Satisfaction with Life (*n* = 268)	.20**	.01	.40***	.21**	.10
AES: Emotional Intelligence (*n* = 293)	.43***	.27***	.48***	.39***	.30***
POMS-SF: Fatigue/Inertia (*n* = 112)	.11	.18	-.10	.17	.03
POMS-SF: Vigour/Activity (*n* = 112)	.17	.03	.28**	.11	.20**
POMS-SF: Depression/Dejection (*n* = 267)	-.11	.06	-.28***	-.13*	-.07
POMS-SF: Anger/Hostility (*n* = 267)	-.11	.05	-.19**	-.12	-.12*
POMS-SF: Tension/Anxiety (*n* = 267)	-.06	.13*	-.23***	-.06	-.11
POMS-SF: Confusion/Bewilderment (*n* = 112)	.02	.11	-.08	.01	-.03
POMS-SF: Total Mood Disturbance (*n* = 112)	.05	.17	-.15	.06	-.01
BIDR: Self-Deception (*n* = 236)	.16*	-.04	.27***	.20**	.15*
BIDR: Impression Management (*n* = 236)	.15*	.01	.23***	.22**	.06

Note. SI = Total Spiritual Intelligence; CET = Critical Existential Thinking; PMP = Personal Meaning Production; TA = Transcendental Awareness; CSE = Conscious State Expansion.

* $p < .05$; ** $p < .01$; *** $p < .001$

According to findings with the AES, SI and all subscale scores of the SISRI-24 displayed low to moderate correlations with emotional intelligence (see Table 10). SI correlated at $r = .43$ ($p < .001$), which was exceeded slightly by the subscale of PMP, $r = .48$ ($p < .001$). In contrast, the POMS-SF displayed very few significant correlations with the SISRI-24 (see Table 10). Vigour/activity revealed mild correlations with PMP and CSE, $r = .28$ ($p < .01$) and $r = .20$ ($p < .01$), respectively. Most notable were the negative correlations which were observed between PMP and depression/dejection, $r = -.28$ ($p < .001$), anger/hostility, $r = -.19$ ($p < .01$), and tension/anxiety, $r = -.23$ ($p < .001$). Interestingly, a slight positive correlation was observed between tension/anxiety and CET, $r = .13$ ($p < .05$).

The self-deception and impression management subscales of the BIDR displayed very mild positive correlations with SI, $r = .16$ ($p < .05$) and $r = .15$ ($p < .05$), respectively. Of the subscales, CET displayed no significant correlations with the BIDR. In contrast, PMP displayed the highest correlations with these measures of social desirability, followed by TA. CSE correlated significantly only with the self-deception subscale and all correlations were low.

Within the sub-sample of participants who completed the MAB-II, emotional intelligence on the AES displayed moderate correlations with SI and all subscales of the SISRI-24 (see Table 11). These were very similar to those observed in the larger sample. No significant correlations were observed between emotional intelligence and IQ (including subscales of verbal IQ and performance IQ). Similarly, IQ displayed no significant correlations with SI or any of the SISRI-24 subscales (see Table 11).

Table 11

Correlations among the MAB-II, AES, and SISRI-24 Total and Subscale Scores (n = 35)

Measure: Variable	EI	SI	CET	PMP	TA	CSE
AES: Emotional Intelligence (EI)	---	.46**	.35*	.56***	.37*	.34*
MAB-II: IQ	-.01	.07	.09	-.04	.28	-.13
MAB-II: Verbal IQ	.09	.22	.27	.07	.33	-.01
MAB-II: Performance IQ	-.06	-.00	-.05	-.05	.18	-.11

Note. SI = Total Spiritual Intelligence; CET = Critical Existential Thinking; PMP = Personal Meaning Production; TA = Transcendental Awareness; CSE = Conscious State Expansion.

* $p < .05$; ** $p < .01$; *** $p < .001$

Test-Retest Reliability

A small number of participants ($n = 25$) completed the SISRI-42 on two occasions, separated by a period of approximately four months. Based on the original 42-item pool, total spiritual intelligence at Time 1 correlated significantly with total spiritual intelligence at Time 2, $r = .90$ ($p < .001$). Correlations for the subscales of CET, PMP, TA, and CSE at Time 1 and Time 2 were .88 ($p < .001$), .74 ($p < .001$), .83 ($p < .001$), and .81 ($p < .001$), respectively. Based on the revised 24-item pool, total spiritual intelligence at Time 1 correlated significantly with total spiritual intelligence at Time 2, $r = .89$ ($p < .001$). Correlations for the revised subscales of CET, PMP, TA, and CSE at Time 1 and Time 2 were .84 ($p < .001$), .69 ($p < .001$), .84 ($p < .001$), and .78 ($p < .001$), respectively. These correlations support test-retest reliability (DeVellis, 1991) for both the SISRI-42 and the revised SISRI-24.

Inter-Subscale Correlations

According to leading intelligence theorists, an intelligence should consist of moderately interrelated abilities (Gardner, 1983; Mayer et al., 2000; Sternberg, 1997). In order to investigate the current model and measure's adherence to this criterion, inter-subscale correlations were calculated for the SISRI-24 (see Table 12). All inter-subscale correlations were significant and moderate in strength, ranging from .42 to .61, supporting intelligence theory.

Table 12

Inter-Subscale Correlations of the SISRI-24 (N = 304)

	CET	PMP	TA	CSE
PMP	.42***	---	.59**	.52**
TA	.61**	.59**	---	.56**
CSE	.43***	.52**	.56**	---

Note. SI = Total Spiritual Intelligence; CET = Critical Existential Thinking; PMP = Personal Meaning Production; TA = Transcendental Awareness; CSE = Conscious State Expansion.

* $p < .05$; ** $p < .01$; *** $p < .001$

Demographic Analyses

Demographic characteristics were further investigated for their potential relationships to the SISRI-24 and its subscales (see Table 13). Of significance was the finding that age displayed positive and significant correlations with SI and all subscales. In particular, SI correlated with age at $r = .28$ ($p < .001$), followed by TA, CSE, PMP, and CET. Year of postsecondary education displayed very low correlations with SI, PMP, and TA, $r = .13$ ($p < .05$), $r = .13$ ($p < .05$), and r

= .18 ($p < .01$), respectively. No significant differences were observed between males and females for SI, CET, PMP, TA, or CSE scores (t-tests did not reach significance).

Table 13

Correlations between Demographic Variables and SISRI-24 Total and Subscale Scores

	SI	CET	PMP	TA	CSE
Age ($n = 304$)	.28***	.11*	.25***	.28***	.26***
Year of Edu ($n = 264$)	.13*	.04	.13*	.18**	.06

Note. Year of Edu refers to year of post-secondary education (e.g., first, second, third); SI = Total Spiritual Intelligence; CET = Critical Existential Thinking; PMP = Personal Meaning Production; TA = Transcendental Awareness; CSE = Conscious State Expansion.

* $p < .05$; ** $p < .01$; *** $p < .001$

Discussion

Based on the current theoretical conception of spiritual intelligence, a self-report measure of the construct was developed and tested. Beginning with an over-inclusive pool of 84 items, analyses of item distributions, normality, and factor structure led to a revised 42-item version of the Spiritual Intelligence Self-Report Inventory. In a subsequent study, a series of confirmatory factor analyses via structural equation modelling revealed that a 24-item version of the SISRI displayed the best model fit, supporting the proposed model of spiritual intelligence. Although the CFI and GFI did not meet recommended cutoff values for good model fit (by a small margin), all other fit indices examined supported the four-factor model (and therefore supported Hypothesis 1). The SISRI-24 was further verified by an additional principal components factor analysis, which clearly confirmed a four-factor structure, with critical existential thinking and transcendental awareness measured by seven items each, and personal meaning production and

conscious state expansion measured by five items each. See Appendix L for an outline of scoring procedures for the SISRI-24.

Across both studies, all versions of the SISRI displayed excellent internal consistency and reliability as indicated by Cronbach's alpha. As the SISRI was reduced in size, however, the alpha was also reduced to a more desirable level of .92 (Clark & Watson, 1995) for the final version of the scale. This value indicates excellent internal reliability and suggests that the 24 items of the SISRI are tapping a single, overarching construct, which is conceptually described as spiritual intelligence. With an inter-item correlation in the low to moderate range and respectable alpha levels for the subscales of the SISRI-24, it can be concluded that the four subscales, although orthogonal to some degree, interrelate and combine to measure the target construct. Split-half reliability was also well-supported across studies, as was test-retest reliability in the second study.

Content validity was addressed during the design of the initial item pool, which was based on the theoretical conception of spiritual intelligence and its components. Content validity refers specifically to the conceptual definition of a construct which underlies a scale, and whether or not the full content of this conceptual definition is being tapped by the scale (Clark & Watson, 1995). Across studies, items were removed from the SISRI based not only on statistical properties, but also on their value to scale content. That is, items were retained which were critical to the accurate measurement of spiritual intelligence while maintaining the integrity of theoretical underpinnings.

Although a disproportionate number of items have been retained to measure the four factors, the SISRI-24 accurately reflects the theoretical conception of spiritual intelligence. Critical existential thinking can involve a wide range of targets and descriptors (e.g., meaning,

purpose, reality, existence, space, death) and, as such, required more items. The same was true of transcendental awareness, which is defined as the awareness of nonmaterial aspects of the self, of others, and of the physical world, and was further described as involving the perception of interconnectedness. In contrast, personal meaning production did not include the same breadth in its conception, which was reflected in item redundancy and high correlations. Conscious state expansion revealed the most redundancy, leading to a similar reduction in indicators. As such, item numbers for the four factors do not reflect their relative importance or significance, but rather their range of descriptive language. Due to the continuous consideration of the original conception of spiritual intelligence during all scale modifications, content validity of the SISRI-24 has been well supported.

The relationships observed between spiritual intelligence and personal meaning are highly supportive of convergent validity, confirming Hypothesis 2. The finding that spiritual intelligence was more significantly related to presence of meaning than search for meaning supports the validity of this construct, as presence of meaning is more indicative of an ability to construct meaning and purpose. This was further reflected by the finding that personal meaning production was highly related to the presence of meaning but not significantly related to the search. In effect, the construct validity of this particular capacity is also supported. Since the presence of meaning might be described as an outcome or criterion of personal meaning production, it can be inferred that concurrent validity (a form of criterion-related validity) has been supported as well.

It was observed in Study 1 that items measuring the contemplation of meaning and purpose loaded on critical existential thinking rather than personal meaning production. It was observed in Study 2 that the search for meaning was strongly correlated with critical existential

thinking, while presence of meaning displayed no significant correlation. Taken together, these findings validate critical existential thinking as a construct, as contemplating meaning and purpose are more reflective of the search for meaning.

The third hypothesis was well-supported in Study 2, as strong positive correlations were observed between metapersonal self-construal and spiritual intelligence. This lends further support to the convergent validity of the SISRI-24. Of the subscales, the MSCS correlated most significantly with transcendental awareness. This adds to the construct validity of this particular capacity as well, which involves the perception of both a transcendental self and interconnectedness, two qualities closely related to metapersonal self-construal.

Hypothesis 4 was also confirmed. Highly significant and positive correlations were observed between spiritual intelligence and mystical experiences, including all subscales of the MSD, supporting convergent validity. Conscious state expansion was also highly correlated with the total MSD score and all subscale scores, supporting the validity of this component of spiritual intelligence. These findings may lend further support to the criterion-related validity of conscious state expansion, as theory dictates that mystical experiences are the outcomes or products of this capacity. It is important to note that mystical experiences which involved a religious interpretation or revelation correlated just as highly with spiritual intelligence as the other non-religious subscales. This suggests that interpretation is not a significant factor in the relationship between spiritual intelligence and spiritual experiences.

In regards to Hypothesis 5, Study 2 observed a mild positive correlation between spiritual intelligence and life satisfaction. Of the subscales, only transcendental awareness and personal meaning production displayed significant correlations with the construct, falling in the low to

moderate range. Findings lend some support to convergent and concurrent validity and provide evidence for potential adaptive applications of spiritual intelligence.

The finding that spiritual intelligence was more significantly related to intrinsic religiosity than extrinsic religiosity verifies Hypothesis 6 and provides a great deal of support for construct validity. These findings reflect previous definitions of extrinsic and intrinsic religiosity, which tend to contrast the two orientations and relate intrinsic religiosity more closely to spirituality (e.g., Allport, 1961; Hergenhahn & Olson, 1999; Pargament, 1997). The relationship is also indicative of spiritual intelligence as an internalized component (or set of components) related to spirituality. In spite of the significance, it should be noted that neither intrinsic nor extrinsic religiosity displayed high correlations with spiritual intelligence. This further validates the construct, which is theoretically quite distinct from religiosity.

Hypothesis 7 was partially supported in Study 2. Vigour/Activity was positively and significantly correlated with personal meaning production and conscious state expansion, supporting construct validity, while no significant correlations were observed with fatigue/inertia. Personal meaning production also displayed mild negative correlations with depression/dejection, anger/hostility, and tension/anxiety, lending some support to divergent validity. Similar negative relationships were observed with conscious state expansion and transcendental awareness, while a low positive correlation was also observed between critical existential thinking and tension/anxiety. Although this correlation barely met significance, it may suggest a relationship between anxiety and aspects of existential thinking. Further research is required in order to determine this relationship. Nevertheless, despite a lack of any significant correlations between mood state and total spiritual intelligence, there is mild evidence for

adaptive applications of the individual abilities. Future studies should examine the relationship between spiritual intelligence and mood traits, in order to obtain a more complete picture.

Across studies, very similar, moderate correlations were observed between spiritual intelligence and emotional intelligence, supporting Hypothesis 8. This finding validates the SISRI-24 in a unique way, as intelligence theory suggests that any two intelligences should demonstrate unique variance from one another (Gardner, 1983; Mayer et al., 2000; Sternberg, 1997). The lack of a highly significant correlation between the two intelligences further supports construct validity and maintains the theoretical conception of spiritual intelligence. IQ, on the other hand, displayed no significant relationships with either spiritual intelligence or emotional intelligence, supporting Hypothesis 9. This also supports the divergent validity of the SISRI-24. Taken together, these findings reflect Zohar and Marshall's (2000) suggested hierarchical relationship between the three intelligences, which posits spiritual intelligence as more closely related to emotional intelligence than IQ. The moderate relationship between the emotional and spiritual intelligences may be reflective of the associative processes which underlie both ability sets (Zohar & Marshall, 2000).

Indicators of social desirability revealed low but significant correlations with the SISRI-24, suggesting a potential susceptibility to this response bias. A number of explanations are possible. To begin with, it may be that measures of mental ability are inherently susceptible to social desirability, as previous authors have expressed similar concern over self-report measures of emotional intelligence (Downey, Godfrey, Hansen, & Stough, 2006). Secondly, Spilka, Hood, Hunsberger, and Gorsuch (2003) have suggested that studies of religion and spirituality elicit concerns in participants regarding others' opinions of their responses, often leading to socially desirable responding. This response bias has been observed in previous measures of spirituality

(Spilka et al., 2003), adding a potentially inherent bias in the current measure of spiritual intelligence. In the present study, this response bias appears to have been working on both conscious and unconscious levels, as significant correlations were observed with both impression management and self-deception.

Slightly higher and more significant positive correlations were observed between social desirability and the subscales of personal meaning production and transcendental awareness. Item wording may have played a role in the presence of this response bias, as both of these subscales represent traits and attributes which can be viewed as virtuous and/or socially desirable, particularly within popular media (e.g., having a life purpose, being aware of more than the material aspects of life). In terms of impression management, participants may have presented themselves more positively simply in order to conform to these social ideals. Self-deception, on the other hand, might be explainable by the affirmation that one is endowed with such abilities, the denial of which might induce a sense of meaningless and anxiety regarding one's life.

Future studies of the SISRI-24 should continue to investigate the presence of a social desirability response bias. Although confidentiality and anonymity were assured, the mere presence of the researcher for the majority of the data collection may have contributed to this response bias. The exclusive use of online questionnaires may help to increase the perception of confidentiality and anonymity. Furthermore, the use of the word intelligence, even in the header of the SISRI-24, should be avoided so as to inhibit possible response bias effects.

In addition to the confirmatory factor analysis, Study 2 contributed greatly to the validation of the Spiritual Intelligence Self-Report Inventory. Correlations with external psychometric scales have supported convergent, divergent, and criterion-related validity, adding

to the content validity which was previously established and maintained throughout the scale development process. As Clark and Watson (1995) note, however, the validation of a scale should be an on-going interest in the establishment of a new measure. Additional indicators of adaptive properties (e.g., well-being, coping, problem-solving) should be investigated, as well as theoretically related constructs such as altruism (Vaughan, 2002), creativity (Pascual, 1990), openness to experience (Noble, 2000), self-esteem (Yakushko, 2005), and death acceptance (Reker et al., 1987).

Additional support according to intelligence criteria was also observed in Study 2. To begin with, the capacities of critical existential thinking, personal meaning production, transcendental awareness, and conscious state expansion were all moderately interrelated across studies. This criterion was suggested by Gardner (1983) and Mayer et al. (2000) in the establishment of new intelligences, and has been met in the current body of research. This finding adds a great deal of support for the current theoretical conception and model of spiritual intelligence. It also supports the inclusion of critical existential thinking (what has been described as an *existential intelligence*; Gardner, 1993) within the framework of a spiritual ability set, which contrasts Halama and Strizenec's (2004) position that spiritual intelligence is either a distinct ability set or a component of a broader existential intelligence.

A significant positive correlation was observed between spiritual intelligence and age, lending potential support to the development of spiritual intelligence over the lifespan. Although not highly significant, this finding might be indicative of the continuing development of spiritual intelligence in early adulthood, which reflects models of spiritual development proposed by Fowler (1981), Helminiak (1987), and Alexander et al. (1990). Future research should investigate this relationship by means of longitudinal studies. Although a small significant

correlation was also observed between spiritual intelligence and year of postsecondary education, additional studies are needed in order to clarify this relationship, in which age is likely a confounding variable.

Two general yet critical conclusions can be drawn from this body of research: (1) the current theoretical conception and model of spiritual intelligence appear to be valid descriptors of a human intelligence (Gardner, 1983; Mayer et al., 2000; Sternberg, 1997), according to both theory (e.g., adaptive applications, development over the lifespan, and potential biological indicators) and psychometric properties (e.g., moderately interrelated components, expected relationships to other constructs, and potential adaptive outcomes); and (2) a self-report measure of spiritual intelligence, reflecting its theoretical conception, has performed very well according to established statistical standards and indicators of validity and reliability (Clark & Watson, 1995; Schermelleh-Engel & Moosbrugger, 2003; Tabachnick & Fidell, 2007; Worthington & Whittaker, 2006).

These findings offer a glimpse of spiritual intelligence based on normal, average individuals, which is a highly valid strategy for intelligence research (Sternberg, 1988). Nevertheless, one major limitation of this research is its exclusive sampling of Canadian university students. Although Clark and Watson (1995) state that student populations serve as appropriate participant pools for scale development, it is highly valuable to test a scale's factor structure and validity in a community sample, so as to confirm its appropriateness for such populations. Furthermore, although the SISRI-24 was developed as a universal measure of spiritual intelligence (free of culture-specific language), cross-cultural research is needed in order to confirm its universality. As such, subsequent research should examine the properties of the SISRI-24 in both community dwelling and cross-cultural samples. Examining the SISRI-24 in

populations expected to be high in spiritual intelligence (e.g., spiritual organizations, meditation groups) would further aid in the scale's validation.

Much like early notions of social and emotional intelligence (Goleman, 1995; Payne, 1985; Salovey & Mayer, 1990; Thorndike, 1920), spiritual intelligence has been a difficult concept to grasp by the scientific community at large. As Nasel (2004) argued, however, this problem stems from a broader indifference to the constructs of spirituality and religion, which has resulted in their under-representation within mainstream psychology. Plato's famous *allegory of the cave*, which suggests that reality exists only in one's mind (Zusne, 1957), is, to this day, equally difficult to grasp, by scientists and non-scientists alike. In spite of all its anxiety-inducing contradictions, such a notion has been supported by leading quantum physicists (and their empirical investigations) for the past fifty years (Goswami, 1993). While this comparison may be slightly exaggerated, the point remains: science, being a social construction itself, is subject to the same biases, prejudices, and traditional ways of thinking as any religious organization or spiritual sect.

Yet the psychological study of human spirituality has survived nonetheless, led by the work of William James (1902/2002), Abraham Maslow (1964), Victor Frankl (1969), and others, whose words remind us that "nothing can be more stupid than to bar out phenomena from our notice, merely because we are incapable of taking part in anything like them ourselves" (James, 1902/2002, p. 124). James' position remains valid today, to the study of spirituality and perhaps even the study of human intelligence, the leaders of which remain hesitant to accept a spiritual ability set (e.g., Gardner, 2000; Mayer, 2000). As Selman et al. (2005) note, however, "neither IQ nor EQ, separately or in combination, is enough to explain the full complexity of human intelligence, nor the vast richness of the human soul and imagination" (p. 23). Recent theories

and models of spiritual intelligence (e.g., Amram, 2007; Emmons, 2000a; Nasel, 2004; Noble, 2000, 2001; Vaughan, 2002; Wolman, 2001; Zohar & Marshall, 2000), although often limited, have laid the theoretical groundwork for the study of this construct. The current model and measure have provided new insight and support, further contributing to the accurate representation of spirituality within mainstream psychology.

As Maslow (1964) stated, any "theory of science which permits and encourages the exclusion of so much that is true and real and existent cannot be considered a comprehensive science" (p. 43). In time, perhaps, psychology will emerge as the comprehensive science that Maslow had imagined. If the construct of spiritual intelligence, its founders, and the current body of research can fuel this vision, then none are without value (scientific, psychological, or otherwise).

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Appendix A

The Spiritual Intelligence Self-Report Inventory (Original Item Pool)

The following statements are designed to measure various behaviours, thought processes, and mental characteristics. Read each statement carefully and choose which **one** of the five possible responses best reflects you by circling the corresponding number. If you are not sure, or if a statement does not seem to apply to you, choose the answer that seems the best. Please answer honestly and make responses based on how you actually are rather than how you would like to be. The five possible responses are:

0 – Not at all true of me | 1 – Not very true of me | 2 – Somewhat true of me | 3 – Very true of me | 4 – Completely true of me

For each item, circle the one response that most accurately describes you.

1. I have often questioned or pondered the nature of reality.	0	1	2	3	4
2. I am able to deeply contemplate what happens after death.	0	1	2	3	4
3. I recognize aspects of myself that are deeper than my physical body.	0	1	2	3	4
4. I am able to meditate, pray, and/or engage in deep states of contemplation or reflection.	0	1	2	3	4
5. I frequently contemplate the ultimate meaning of my life.	0	1	2	3	4
6. When I experience a failure, I am still able to find meaning in it.	0	1	2	3	4
7. I have spent time contemplating the purpose or reason for my existence.	0	1	2	3	4
8. It is difficult for me to recognize recurring themes or patterns in my life.	0	1	2	3	4
9. I am able to enter a deep state of peacefulness and relaxation at will.	0	1	2	3	4
10. My own unique philosophy on life helps me evaluate situations.	0	1	2	3	4
11. I am highly aware of the nonmaterial aspects of life.	0	1	2	3	4
12. I am aware of a deeper connection between myself and nature.	0	1	2	3	4
13. I find meaning in my interactions with all people, even strangers.	0	1	2	3	4
14. I am able to enter higher states of consciousness or awareness.	0	1	2	3	4
15. When a negative or stressful event occurs, I am unable to contemplate its meaning in my life.	0	1	2	3	4
16. I spend a lot time thinking about *why* I am here or *why* I am alive.	0	1	2	3	4
17. I have developed my own theories about such things as life, death, reality, and existence.	0	1	2	3	4
18. I can control when I enter higher states of consciousness or awareness.	0	1	2	3	4
19. I am able to focus on higher levels of awareness for long periods of time.	0	1	2	3	4
20. I frequently think about what it means to be a good person.	0	1	2	3	4
21. I have a difficult time thinking about the rest of the universe and my relationship to it.	0	1	2	3	4
22. I am able to move freely between levels of consciousness or awareness.	0	1	2	3	4
23. I am able to recognize many nonphysical layers or qualities of reality.	0	1	2	3	4
24. My awareness of interconnectedness helps me cope with life.	0	1	2	3	4
25. My ability to find meaning and purpose in life helps me adapt to stressful situations.	0	1	2	3	4
26. I frequently contemplate the meaning of events in my life.	0	1	2	3	4
27. I frequently contemplate the nature of consciousness and what it means to be conscious.	0	1	2	3	4
28. I often see issues and choices more clearly while in higher states of consciousness/awareness.	0	1	2	3	4
29. I am aware of qualities in others which surpass the physical and material.	0	1	2	3	4
30. I can find meaning in my thoughts and emotions.	0	1	2	3	4

Read each statement carefully and choose which **one** of the five possible responses best reflects you by circling the corresponding number. If you are not sure, or if a statement does not seem to apply to you, choose the answer that seems the best. Please answer honestly and make responses based on how you actually are rather than how you would like to be. The five possible responses are:

0 – Not at all true of me | 1 – Not very true of me | 2 – Somewhat true of me | 3 – Very true of me | 4 – Completely true of me

For each item, circle the one response that most accurately describes you.

31. I am able to enter a state in which I perceive the universe as an integrated and unified whole.	0	1	2	3	4
32. I frequently sense aspects of reality that are beyond the physical and material.	0	1	2	3	4
33. I am able to define a purpose or reason for my life.	0	1	2	3	4
34. If /when I contemplate on life, meditate, or pray, I am able to abandon all sense of the physical world.	0	1	2	3	4
35. It is difficult for me to sense anything other than the physical and material.	0	1	2	3	4
36. I define myself by my deeper, nonphysical self.	0	1	2	3	4
37. I have spent time thinking about my existence and how I got here.	0	1	2	3	4
38. Contemplating such things as my existence and reality helps me solve personal problems.	0	1	2	3	4
39. I have often contemplated the relationship between human beings and the rest of the universe.	0	1	2	3	4
40. I'm unable to imagine time as anything other than linear (that is, consisting of past, present, and future).	0	1	2	3	4
41. I often sense that various people and events are related, even if it is not obvious.	0	1	2	3	4
42. Meditation, prayer, and/or deep contemplation allow me to enter higher states of consciousness/awareness.	0	1	2	3	4
43. If /when I contemplate on life, meditate, or pray, I am able to abandon all sense of time.	0	1	2	3	4
44. The nonmaterial aspects of my existence are more real to me than the material.	0	1	2	3	4
45. I rarely think about my relationship to other forms of life (plants, animals, etc.).	0	1	2	3	4
46. Even when a situation seems hopeless, I am able to find a deeper meaning in it.	0	1	2	3	4
47. If /when I contemplate on life, meditate, or pray, I am able to abandon all thoughts and emotions.	0	1	2	3	4
48. Defining a purpose for my life has helped me deal with uncertainties.	0	1	2	3	4
49. I cannot control when I experience altered states of consciousness or awareness.	0	1	2	3	4
50. Meditation, prayer, and/or deep contemplation help me make tough decisions in life.	0	1	2	3	4
51. My awareness of nonmaterial aspects of life helps me cope with stressful situations.	0	1	2	3	4
52. It is difficult for me to find deeper meaning in seemingly random events.	0	1	2	3	4
53. I have a difficult time thinking about the nature of reality.	0	1	2	3	4
54. I am aware of a deeper connection between myself and other people.	0	1	2	3	4
55. Entering higher states of consciousness or awareness helps me relax and manage stress.	0	1	2	3	4
56. I am able to enter a state of consciousness in which I perceive my mind and body as a unified whole.	0	1	2	3	4
57. I have a difficult time contemplating the meaning of my dreams.	0	1	2	3	4
58. I am able to make decisions according to my purpose in life.	0	1	2	3	4
59. I frequently think about what it means to be alive.	0	1	2	3	4
60. I have my own thoughts about how the universe and/or life started.	0	1	2	3	4
61. I have a difficult time observing the connectedness between people.	0	1	2	3	4
62. My ability to recognize more than the physical or material in life is very comforting to me.	0	1	2	3	4

Read each statement carefully and choose which **one** of the five possible responses best reflects you by circling the corresponding number. If you are not sure, or if a statement does not seem to apply to you, choose the answer that seems the best. Please answer honestly and make responses based on how you actually are rather than how you would like to be. The five possible responses are:

0 – Not at all true of me | 1 – Not very true of me | 2 – Somewhat true of me | 3 – Very true of me | 4 – Completely true of me

For each item, circle the one response that most accurately describes you.

63. I gain a great deal of meaning from my interactions with nature (including animals).	0	1	2	3	4
64. I am aware of a self that is more meaningful than my thoughts and emotions.	0	1	2	3	4
65. I have developed my own techniques for entering higher states of consciousness or awareness.	0	1	2	3	4
66. I contemplate my responsibility to my fellow human beings.	0	1	2	3	4
67. My ability to contemplate life and death helps me get through tragic events in life.	0	1	2	3	4
68. I am able to recognize meaningful relationships between events that are not directly connected.	0	1	2	3	4
69. If /when I contemplate on life, meditate, or pray, I am able to abandon all sense of a physical body.	0	1	2	3	4
70. I have deeply contemplated whether or not there is some greater power or force (e.g., god, goddess, divine being, higher energy, etc).	0	1	2	3	4
71. I am unable to find meaning in my everyday experiences.	0	1	2	3	4
72. I derive a great deal of personal meaning from my relationships with other people.	0	1	2	3	4
73. I am aware of a deeper connection between myself and the universe.	0	1	2	3	4
74. I am able to find purpose in traumatic and stressful events.	0	1	2	3	4
75. I have a difficult time contemplating such matters as justice, truth, and virtue.	0	1	2	3	4
76. I am able to experience states in which I have no thoughts or feelings at all.	0	1	2	3	4
77. Entering higher states of consciousness or awareness helps me solve problems in life.	0	1	2	3	4
78. I frequently consider my place in the human race and my relationship to other people around the world.	0	1	2	3	4
79. I recognize qualities in people which are more meaningful than their body, personality, or emotions.	0	1	2	3	4
80. I am able to go beyond appearances and perceive "more" to life.	0	1	2	3	4
81. I derive meaning and purpose from my accomplishments and successes.	0	1	2	3	4
82. I am able to view life from a general or holistic perspective.	0	1	2	3	4
83. I have developed my own techniques for relaxing and/or meditating.	0	1	2	3	4
84. I am able to analyze others' beliefs and thoughts about life and existence.	0	1	2	3	4

Appendix B

The Spiritual Intelligence Self-Report Inventory (SISRI-42)

The following statements are designed to measure various behaviours, thought processes, and mental characteristics. Read each statement carefully and choose which **one** of the five possible responses best reflects you by circling the corresponding number. If you are not sure, or if a statement does not seem to apply to you, choose the answer that seems the best. Please answer honestly and make responses based on how you actually are rather than how you would like to be. The five possible responses are:

0 – Not at all true of me | 1 – Not very true of me | 2 – Somewhat true of me | 3 – Very true of me | 4 – Completely true of me

For each item, circle the one response that most accurately describes you.

1.	I have often questioned or pondered the nature of reality.	0	1	2	3	4
2.	I am able to deeply contemplate what happens after death.	0	1	2	3	4
3.	I recognize aspects of myself that are deeper than my physical body.	0	1	2	3	4
4.	When I experience a failure, I am still able to find meaning in it.	0	1	2	3	4
5.	I have spent time contemplating the purpose or reason for my existence.	0	1	2	3	4
6.	I am highly aware of the nonmaterial aspects of life.	0	1	2	3	4
7.	I am able to enter higher states of consciousness or awareness.	0	1	2	3	4
8.	I have developed my own theories about such things as life, death, reality, and existence.	0	1	2	3	4
9.	Having my own theories/ideas about life and existence helps me deal with uncertainties.	0	1	2	3	4
10.	I can control when I enter higher states of consciousness or awareness.	0	1	2	3	4
11.	My ability to find meaning and purpose in life helps me adapt to stressful situations.	0	1	2	3	4
12.	I am able to move freely between levels of consciousness or awareness.	0	1	2	3	4
13.	I frequently contemplate the meaning of events in my life.	0	1	2	3	4
14.	I often see issues and choices more clearly while in higher states of consciousness/awareness.	0	1	2	3	4
15.	I am aware of qualities in others which surpass the physical and material.	0	1	2	3	4
16.	I am able to enter a state in which I perceive the universe as an integrated and unified whole.	0	1	2	3	4
17.	I am able to define a purpose or reason for my life.	0	1	2	3	4
18.	If/when I contemplate on life, meditate, or pray, I am able to abandon all sense of the physical world.	0	1	2	3	4
19.	It is *difficult* for me to sense anything other than the physical and material.	0	1	2	3	4
20.	I define myself by my deeper, nonphysical self.	0	1	2	3	4
21.	I have spent time thinking about my existence and how I got here.	0	1	2	3	4
22.	Contemplating such things as my existence and reality helps me solve problems.	0	1	2	3	4
23.	I have often contemplated the relationship between human beings and the rest of the universe.	0	1	2	3	4
24.	Meditation, prayer, and/or deep contemplation allow me to enter higher states of consciousness/awareness.	0	1	2	3	4

The following statements are designed to measure various behaviours, thought processes, and mental characteristics. Read each statement carefully and choose which **one** of the five possible responses best reflects you by circling the corresponding number. If you are not sure, or if a statement does not seem to apply to you, choose the answer that seems the best. Please answer honestly and make responses based on how you actually are rather than how you would like to be. The five possible responses are:

0 – Not at all true of me | 1 – Not very true of me | 2 – Somewhat true of me | 3 – Very true of me | 4 – Completely true of me

For each item, circle the one response that most accurately describes you.

25. If/when I contemplate on life, meditate, or pray, I am able to abandon all sense of time.	0	1	2	3	4
26. Even when a situation seems hopeless, I am able to find a deeper meaning in it.	0	1	2	3	4
27. If/when I contemplate on life, meditate, or pray, I am able to abandon all thoughts and emotions.	0	1	2	3	4
28. Defining a purpose for my life has helped me deal with uncertainties.	0	1	2	3	4
29. I am aware of a deeper connection between myself and other people.	0	1	2	3	4
30. Entering higher states of consciousness or awareness helps me relax and manage stress.	0	1	2	3	4
31. I am able to make decisions according to my purpose in life.	0	1	2	3	4
32. I frequently think about what it means to be alive.	0	1	2	3	4
33. My ability to recognize more than the physical or material in life is very comforting to me.	0	1	2	3	4
34. I have developed my own techniques for entering higher states of consciousness or awareness.	0	1	2	3	4
35. I have deeply contemplated whether or not there is some greater power or force (e.g., god, goddess, divine being, higher energy, etc.).	0	1	2	3	4
36. I am able to find purpose in traumatic and stressful events.	0	1	2	3	4
37. I frequently consider my place in the human race and my relationship to other people around the world.	0	1	2	3	4
38. I recognize qualities in people which are more meaningful than their body, personality, or emotions.	0	1	2	3	4
39. I am able to go beyond appearances and perceive “more” to life.	0	1	2	3	4
40. Recognizing the nonmaterial aspects of life helps me feel centered.	0	1	2	3	4
41. I derive meaning and purpose from my accomplishments and successes.	0	1	2	3	4
42. I am able to find meaning and purpose in my everyday experiences.	0	1	2	3	4

Appendix C

The Meaning in Life Questionnaire (Steger et al., 2006)

Please take a moment to think about what makes your life and existence feel important and significant to you. Please respond to the following statements as truthfully and accurately as you can, and also please remember that these are very subjective questions and that there are no right or wrong answers. Beside each statement write the number that best matches with your agreement or disagreement. Please answer according to the scale below:

Absolutely Untrue	**Mostly Untrue**	**Somewhat Untrue**	**Can't Say True or False**	**Somewhat True**	**Mostly True**	**Absolutely True**
1	**2**	**3**	**4**	**5**	**6**	**7**

1. _____ I understand my life's meaning.
2. _____ I am looking for something that makes my life feel meaningful.
3. _____ I am always looking to find my life's purpose.
4. _____ My life has a clear sense of purpose.
5. _____ I have a good sense of what makes my life meaningful.
6. _____ I have discovered a satisfying life purpose.
7. _____ I am always searching for something that makes my life feel significant.
8. _____ I am seeking a purpose or mission for my life.
9. _____ My life has no clear purpose.
10. _____ I am searching for meaning in my life.

Appendix D

The Metapersonal Self-Construal Scale (DeCicco & Stroink, 2007)

Instructions: This is a questionnaire that measures a variety of feelings and behaviours in various situations. Listed below are a number of statements. Read each one as if it referred to you. Beside each statement write the number that best matches with your agreement or disagreement, using the scale below. There are no right or wrong answers; we are interested in your own thoughts and feelings. Please respond to every statement. Thank you.

Strongly Disagree	Disagree	Somewhat Disagree	Don't agree or Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1. _____ I believe that no matter where I am or what I'm doing, I am never separate from others.
2. _____ My personal existence is very purposeful and meaningful.
3. _____ I feel a real sense of kinship with all living things.
4. _____ My sense of identity is based on something that unites me with all other people.
5. _____ I am aware of a connection between myself and all living things.
6. _____ My sense of inner peace is one of the most important things to me.
7. _____ I take time each day to be peaceful and quiet, to empty my mind of everyday thoughts.
8. _____ I try to believe that intuition comes from a higher part of myself and I never ignore it.
9. _____ I feel a sense of responsibility and belonging to the universe.
10. _____ I see myself as being extended into everything else.

Appendix E

The Mysticism Scale – Research Form D (Hood, 1975)

Instructions: This questionnaire contains brief descriptions of a number of experiences. Some descriptions refer to phenomena that you may not have experienced. In each case note the description carefully and then write a number in the left margin according to how much the description applies to your own experience. Write 1, 2, 3, 4, or 5 depending on how you feel in each case.

5 = This description is **definitely true** of my own experience or experiences.
4 = This description is **probably true** of my own experience or experiences.
3 = I cannot decide.
2 = This description is **probably not true** of my own experience or experiences.
1 = This description is **definitely not true** of my own experience or experiences.

Please respond to each item trying to avoid if at all possible marking any item with a 3. In responding to each item, please understand that the items may be considered as applying to one experience or as applying to several different experiences. Please do not leave any items unanswered.

1. _____ I have had an experience which was both timeless and spaceless.
2. _____ I have *never* had an experience which was incapable of being expressed in words.
3. _____ I have had an experience in which something greater than myself seemed to absorb me.
4. _____ I have had an experience in which everything seemed to disappear from my mind until I was conscious only of a void.
5. _____ I have experienced profound joy.
6. _____ I have *never* had an experience in which I felt myself to be absorbed as one with all things.
7. _____ I have *never* experienced a perfectly peaceful state.
8. _____ I have *never* had an experience in which I felt as if all things were alive.
9. _____ I have *never* had an experience which seemed holy to me.
10. _____ I have *never* had an experience in which all things seemed to be aware.
11. _____ I have had an experience in which I had no sense of time or space.
12. _____ I have had an experience in which I realized the oneness of myself with all things.
13. _____ I have had an experience in which a new view of reality was revealed to me.
14. _____ I have *never* experienced anything to be divine.
15. _____ I have *never* had an experience in which time and space were nonexistent.
16. _____ I have *never* experienced anything that I could call ultimate reality.
17. _____ I have had an experience in which ultimate reality was revealed to me.
18. _____ I have had an experience in which I felt that all was perfection at that time.
19. _____ I have had an experience in which I felt everything in the world to be part of the same whole.
20. _____ I have had an experience which I knew to be sacred.
21. _____ I have *never* had an experience which I was unable to express adequately through language.
22. _____ I have had an experience which left me with a feeling of awe.
23. _____ I have had an experience that is impossible to communicate.
24. _____ I have *never* had an experience in which my own self seemed to merge into something greater.
25. _____ I have *never* had an experience which left me with a feeling of wonder.
26. _____ I have *never* had an experience in which deeper aspects of reality were revealed to me.
27. _____ I have *never* had an experience in which time, place, and distance were meaningless.
28. _____ I have *never* had an experience in which I became aware of the unity of all things.
29. _____ I have had an experience in which all things seemed to be conscious.
30. _____ I have *never* had an experience in which all things seemed to be unified into a single whole.
31. _____ I have had an experience in which I felt nothing is ever really dead.
32. _____ I have had an experience that cannot be expressed in words.

Appendix F

The Satisfaction with Life Scale (Diener et al., 1985)

Instructions: Below are five statements that you may agree or disagree with. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number to the right of the statement. Please be open and honest in your responding.

7 – Strongly agree
6 – Agree
5 – Slightly agree
4 – Neither agree nor disagree
3 – Slightly disagree
2 - Disagree
1 – Strongly disagree

1. In most ways, my life is close to ideal. _____

2. The conditions of my life are excellent. _____

3. I am satisfied with my life. _____

4. So far, I have gotten the important things I want in life. _____

5. If I could live my life over, I would change almost nothing. _____

Appendix G

The Age Universal Intrinsic-Extrinsic Religiosity Scale (Gorsuch & Venable, 1983)

Directions: On the following page you will find a series of statements that ask about your religious orientation. Read each statement carefully and decide to what degree it applies to you. Please use the response key provided below. For example, if you strongly disagree with the statement, "I am the luckiest person alive", you would rate the statement by placing the number 1 in the space to the left of the item number.

Key:
1 = I strongly disagree
2 = I tend to disagree
3 = I'm not sure
4 = I tend to agree
5 = I strongly agree

__1__ 1. I am the luckiest person alive.

Remember to read each statement carefully and decide to what degree you think it describes you at the present time. Be sure to place your answer in the correct space and that all spaces are filled in.

_____ 1. I enjoy reading about my religion.
_____ 2. I go to church (or synagogue, temple, mosque, etc.) because it helps me make friends.
_____ 3. It doesn't matter what I believe, so long as I am good.
_____ 4. Sometimes I have to ignore my religious beliefs because of what people might think of me.
_____ 5. It is important to me to spend time in private thought and prayer.
_____ 6. I have often had a strong sense of God's (or other higher power's) presence.
_____ 7. I pray mainly to gain relief and protection.
_____ 8. I try hard to live all my life according to my religious beliefs.
_____ 9. What religion offers me most is comfort in times of trouble and sorrow.
_____10. My religion is important because it answers many questions about the meaning of life.
_____11. I would rather join a Bible (or other religious text) study group than a church (or mosque, temple, synagogue, etc.) social group.
_____12. Prayer is for peace and happiness.
_____13. Although I am religious, I don't let it affect my daily life.
_____14. I go to church (or synagogue, temple, mosque, etc.) mostly to spend time with my friends.
_____15. My whole approach to life is based upon my religion.
_____16. I go to church (or synagogue, temple, mosque, etc.) mainly because I enjoy seeing people I know there.
_____17. I pray mainly because I have been taught to pray.
_____18. Prayers I say when I'm alone are as important to me as those I say in church (or synagogue, temple, mosque, etc.).
_____19. Although I believe in my religion, many other things are more important to me.

Appendix H

The Profile of Mood States Scale – Short Form (Shacham, 1983)

Below is a list of words that describe feelings people have. Please read each one carefully. Then write the number which best describes HOW YOU HAVE BEEN FEELING DURING THE PAST WEEK INCLUDING TODAY in the space to the left of that word.

1	2	3	4	5
NOT AT ALL				**EXTREMELY**

___ 1. Tense
___ 2. Angry
___ 3. Worn Out
___ 4. Unhappy
___ 5. Lively
___ 6. Confused
___ 7. Peeved
___ 8. Sad
___ 9. Active
___ 10. On edge about
___ 11. Grouchy
___ 12. Blue
___ 13. Energetic
___ 14. Hopeless
___ 15. Unable to concentrate
___ 16. Restless
___ 17. Uneasy
___ 18. Annoyed
___ 19. Resentful
___ 20. Nervous
___ 21. Miserable
___ 22. Cheerful
___ 23. Bitter
___ 24. Exhausted
___ 25. Anxious
___ 26. Helpless
___ 27. Fatigued
___ 28. Bewildered
___ 29. Furious
___ 30. Full of pep
___ 31. Worthless
___ 32. Vigorous
___ 33. Forgetful
___ 34. Uncertain things
___ 35. Bushed
___ 36. Discouraged
___ 37. Weary

Appendix I

The Assessing Emotions Scale (Schutte et al., 1998)

This is a questionnaire that measures a variety of feelings and behaviours in various situations. Listed below are a number of statements. Read each one as if it referred to you. Beside each statement write the number that best matches with your agreement or disagreement, using the scale below.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

1. _____ I know when to speak about my personal problems to others.
2. _____ When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.
3. _____ I expect that I will do well on most things I try.
4. _____ Other people find it easy to confide in me.
5. _____ I find it hard to understand the non-verbal messages of other people.
6. _____ Some of the major events of my life have left me to re-evaluate what is important and not important.
7. _____ When my mood changes, I see new possibilities.
8. _____ Emotions are one of the things that make my life worth living.
9. _____ I am aware of my emotions as I experience them.
10. _____ I expect good things to happen.
11. _____ I like to share my emotions with others.
12. _____ When I experience a positive emotion, I know how to make it last.
13. _____ I arrange events others enjoy.
14. _____ I seek out activities that make me happy.
15. _____ I am aware of the non-verbal message I send to others.
16. _____ I present myself in a way that makes a good impression on others.
17. _____ When I am in a positive mood, solving problems is easy for me.
18. _____ By looking at their facial expressions, I recognize the emotions people are experiencing.
19. _____ I know why my emotions change.
20. _____ When I am in a positive mood, I am able to come up with new ideas.
21. _____ I have control over my emotions.
22. _____ I easily recognize my emotions as I experience them.
23. _____ I motivate myself by imagining a good outcome to tasks I take on.
24. _____ I compliment others when they have done something well.
25. _____ I am aware of the non-verbal messages other people send.
26. _____ When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself.
27. _____ When I feel a change in emotions, I tend to come up with new ideas.
28. _____ When I am faced with a challenge, I give up because I believe I will fail.
29. _____ I know what other people are feeling just by looking at them.
30. _____ I help other people feel better when they are down.
31. _____ I use good moods to help myself keep trying in the face of obstacles.
32. _____ I can tell how people are feeling by listening to the tone their voice.
33. _____ It is difficult for me to understand why people feel the way they do.

Appendix J

The Balanced Inventory of Desirable Responding (Paulhus, 1984)

Beside each statement write the number that best describes how true each statement is for you, using the scale below. There are no right or wrong answers. We are interested in your own thoughts and feelings. Please respond to every statement. Thank you.

Not True			**Somewhat True**			**Very True**
1	**2**	**3**	**4**	**5**	**6**	**7**

1. _____ My first impressions of people usually turn out to be right.
2. _____ It would be hard for me to break any of my bad habits.
3. _____ I don't care to know what other people really think of me.
4. _____ I have not always been honest with myself.
5. _____ I always know why I like things.
6. _____ When my emotions are aroused, it biases my thinking.
7. _____ Once I've made up my mind, other people can seldom change my opinion.
8. _____ I am not a safe driver when I exceed the speed limit.
9. _____ I am fully in control of my own fate.
10. _____ It's hard for me to shut off a disturbing thought.
11. _____ I never regret my decisions.
12. _____ I sometimes lose out on things because I can't make up my mind soon enough.
13. _____ The reason I vote is because my vote can make a difference.
14. _____ My parents were not always fair when they punished me.
15. _____ I am a completely rational person.
16. _____ I rarely appreciate criticism.
17. _____ I am very confident of my judgments.
18. _____ I have sometimes doubted my ability as a lover.
19. _____ It's all right with me if some people happen to dislike me.
20. _____ I don't always know the reasons why I do the things I do.
21. _____ I sometimes tell lies if I have to.
22. _____ I never cover up my mistakes.
23. _____ There have been occasions when I have taken advantage of someone.
24. _____ I never swear.
25. _____ I sometimes try to get even rather than forgive and forget.
26. _____ I always obey laws, even if I'm unlikely to get caught.
27. _____ I have said something bad about a friend behind his or her back.
28. _____ When I hear people talking privately, I avoid listening.
29. _____ I have received too much change from a salesperson without telling him or her.
30. _____ I always declare everything at customs.
31. _____ When I was young I sometimes stole things.
32. _____ I have never dropped litter on the street.
33. _____ I sometimes drive faster than the speed limit.
34. _____ I never read sexy books or magazines.
35. _____ I have done things that I don't tell other people about.
36. _____ I never take things that don't belong to me.
37. _____ I have taken sick-leave from work or school even though I wasn't really sick.
38. _____ I have never damaged a library book or store merchandise without reporting it.
39. _____ I have some pretty awful habits.
40. _____ I don't gossip about other people's business.

Appendix K

The Spiritual Intelligence Self-Report Inventory (SISRI-24)

The following statements are designed to measure various behaviours, thought processes, and mental characteristics. Read each statement carefully and choose which **one** of the five possible responses best reflects you by circling the corresponding number. If you are not sure, or if a statement does not seem to apply to you, choose the answer that seems the best. Please answer honestly and make responses based on how you actually are rather than how you would like to be. The five possible responses are:

0 – Not at all true of me | 1 – Not very true of me | 2 – Somewhat true of me | 3 – Very true of me | 4 – Completely true of me

For each item, circle the **one** response that most accurately describes **you**.

1.	I have often questioned or pondered the nature of reality.	0	1	2	3	4
2.	I recognize aspects of myself that are deeper than my physical body.	0	1	2	3	4
3.	I have spent time contemplating the purpose or reason for my existence.	0	1	2	3	4
4.	I am able to enter higher states of consciousness or awareness.	0	1	2	3	4
5.	I am able to deeply contemplate what happens after death.	0	1	2	3	4
6.	It is *difficult* for me to sense anything other than the physical and material.	0	1	2	3	4
7.	My ability to find meaning and purpose in life helps me adapt to stressful situations.	0	1	2	3	4
8.	I can control when I enter higher states of consciousness or awareness.	0	1	2	3	4
9.	I have developed my own theories about such things as life, death, reality, and existence.	0	1	2	3	4
10.	I am aware of a deeper connection between myself and other people.	0	1	2	3	4
11.	I am able to define a purpose or reason for my life.	0	1	2	3	4
12.	I am able to move freely between levels of consciousness or awareness.	0	1	2	3	4
13.	I frequently contemplate the meaning of events in my life.	0	1	2	3	4
14.	I define myself by my deeper, non-physical self.	0	1	2	3	4
15.	When I experience a failure, I am still able to find meaning in it.	0	1	2	3	4
16.	I often see issues and choices more clearly while in higher states of consciousness/awareness.	0	1	2	3	4
17.	I have often contemplated the relationship between human beings and the rest of the universe.	0	1	2	3	4
18.	I am highly aware of the nonmaterial aspects of life.	0	1	2	3	4
19.	I am able to make decisions according to my purpose in life.	0	1	2	3	4
20.	I recognize qualities in people which are more meaningful than their body, personality, or emotions.	0	1	2	3	4
21.	I have deeply contemplated whether or not there is some greater power or force (e.g., god, goddess, divine being, higher energy, etc.).	0	1	2	3	4
22.	Recognizing the nonmaterial aspects of life helps me feel centered.	0	1	2	3	4
23.	I am able to find meaning and purpose in my everyday experiences.	0	1	2	3	4
24.	I have developed my own techniques for entering higher states of consciousness or awareness.	0	1	2	3	4

Appendix L

Scoring Procedures for the Spiritual Intelligence Self-Report Inventory (SISRI-24)

Total Spiritual Intelligence (SI) Score:
Sum all item responses or subscale scores (after accounting for *reverse-coded item).

24 items in total; range: 0 – 96

4 Factors/Subscales:

I. Critical Existential Thinking (CET):
Sum items 1, 3, 5, 9, 13, 17, and 21.
7 items in total; range: 0 – 28

II. Personal Meaning Production (PMP):
Sum items 7, 11, 15, 19, and 23.
5 items in total; range: 0 – 20

III. Transcendental Awareness (TA):
Sum items 2, 6*, 10, 14, 18, 20, and 22.
7 items in total; range: 0 – 28

IV. Conscious State Expansion (CSE):
Sum items 4, 8, 12, 16, and 24.
5 items in total; range: 0 – 20

*Reverse Coding: Item # 6 (response must be reversed prior to summing scores).

Higher scores represent higher levels of spiritual intelligence and/or each capacity.