Creativity in Older Adulthood

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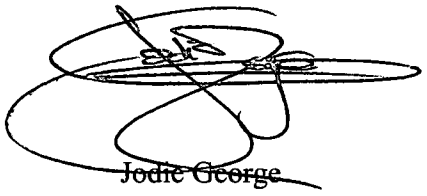
Declarations

I certify that this thesis does not contain material that has been accepted for the award of any other degree or diploma in any tertiary institution; and that to the best of my knowledge and belief, it contains no material previously published or written by another person except where due reference is made in the text of the thesis.



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I believe that this thesis is properly presented, conforms to specifications, and is of sufficient standard to be worthy of examination.



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Abstract

Creativity may be of particular importance to well being in older adulthood, by facilitating greater flexibility and adaptive skills (Runco, 2004; Sternberg & Lubart, 1996). Yet little empirical research exists to explain the developmental trajectory of this construct, or the influence that various correlates might have on the experience of creativity. As such, the aim of the present study was to investigate the relationship between creativity and age, and how self actualisation and social support might contribute to creativity, using a survey methodology. A sample of 160 individuals, aged between 18 and 30, and 65+, was recruited from various community organisations. Several validated scales were included in the questionnaire: the Measure of Actualisation Potential (MAP) (LeClerc, LeFrancois, Dube, Hebert, & Gaulin, 1999), the Multi-Dimensional Support Scale (Winefield, Winefield, & Tiggemann, 1992) and the Uses of Common Objects Test (Getzels & Jackson, 1962). Several measures were also developed by the researcher to address creativity, including the Creative Traits Scale, the Practical Problem Solving Measure, and the Creative Expression Measure. The results of the study showed no significant differences between the young and oldest old in creative outcomes, nor did creative personality differ significantly for any age group. Path analysis also showed that creative personality did not mediate the relationship between self actualisation and creative outcomes, nor did family or friend social support mediate or moderate the relationship between creative personality and creative outcomes for the young or young old. Possible explanations for these findings are suggested, such as the specific nature of creative personality traits and talents, and the importance of appropriate social support. Limitations of the study are also addressed, with possible directions for future research including group creativity, and the lifespan trajectories of creativity in different domains.

Chapter 1: Introduction

1.1 Aim

The aim of the present study was to investigate the relationship between creativity and age, and how the two constructs of self actualisation and social support contribute to creativity. Positive psychology stresses the importance of understanding those phenomena which make a valuable contribution to an individual's life satisfaction. Of particular importance is creativity which is thought to facilitate optimal functioning by contributing to ongoing flexibility and problem solving skills (Runco, 2004; Sternberg & Lubart, 1996). These creative skills may be of particular importance in older adulthood, due to the adaptive challenges which often characterise this period (Fisher & Specht, 1999). However, little empirical research exists concerning creativity during older adulthood (Goff, 1992; Hickson & Housley, 1997), and that which does tends to oversimplify the construct by adopting a singular approach, studying only the cognitive, personality, or social aspects of creativity in isolation (Sternberg & Lubart, 1996). In contrast, this study aims to recognise the contribution of each of these domains, by investigating the processes, outcomes, and extrinsic factors which may effect creativity in older adulthood.

Of particular interest may also be those constructs which contribute to the expression of creativity, such as self actualisation which theory suggests may only occur in late maturity, and should facilitate greater creativity as it engenders an appreciation of complexity and a freedom to experiment (Maslow, 1968). Also influential are the interpersonal relationships of the creative individual which research suggests may increase in quality with age (Lang, Staudinger, & Carstensen, 1998), providing the necessary emotional and practical support for creative endeavours (Harrington, 1990). Therefore, the relationship between these two important

constructs and creativity was investigated to provide greater insight into how certain variables may facilitate creativity in older adulthood.

1.2 Positive Psychology

Prior to World War II, psychology tended to focus on three different aspects of psychological phenomenon: curing mental illness, improving the quality of individuals' lives, and identifying their strengths (Seligman, 2002). However, after this period, psychology instead focused solely on mental illness, leading to a disease model of human functioning. More recently, the need for a more positive understanding of human functioning has been recognised; thus resulting in the development of the field of positive psychology, which focuses on the possibilities of positive experience and growth, with a primary goal of understanding what makes life worthwhile (Seligman, 2002).

This theoretical framework may be of particular value in gerontological research, as past research has focused primarily on the negative aspects of ageing, resulting in a stereotypical view of this period as an inevitable time of decline (Ranzijn, 2002b). In fact, even those more optimistic theories such as 'successful ageing' tend to emphasise only the capacity for maintenance and compensation (Fisher & Specht, 1999). However, several studies suggest that for many individuals, ageing is primarily a positive experience (Ranzijn, 2002b; Williamson, 2002), yet little research has been conducted to explore possible areas of increasing strength in this ever expanding populace. Therefore, a theoretical framework which holds as its premise that all human beings may act as competent, self directed decision makers (Seligman & Csikszentmihalyi, 2000) may be of particular value in 'think[ing]

creatively of new ways of approaching development in later life' (Ranzijn, 2002b, p.79).

One important aspect of this lifespan development is creativity, which is almost universally valued by societies due to its beneficial contributions to the aesthetic and scientific fields (Simonton, 2002) through new scientific findings, social programs, inventions, and artistic movements (Sternberg & Lubart, 1996). On a more individual level, creativity may also contribute to both physical and psychological well-being, by enhancing self expression, coping skills, and an individual's ability to adapt (Fisher & Specht, 1999).

1.3 Creativity

As suggested by positive psychology, creativity is an important aspect of life satisfaction and well-being throughout the lifespan, as creativity allows for optimal functioning (Simonton, 2000) by assisting with problem solving, maintaining flexibility to cope with change (Runco, 2004; Sternberg & Lubart, 1996), and integrating various forms of knowledge, emotion, and experience (Sinnott, 1998). However, creativity may also act as a particular strength for older adults by providing them with the necessary innovative skills and flexibility to meet challenges which specifically accompany ageing (Fisher & Specht, 1999). Thus, crises may instead be perceived as opportunities to develop greater understanding of the self, and one's own creative works. Older adults have also identified that creativity can provide a sense of satisfaction through involvement in enjoyable activities within a social network (Fisher & Specht, 1999).

Despite this, at present there exists a paucity of empirical research on creativity throughout development (Sternberg & Lubart, 1996), perhaps due to the

limited theoretical frameworks developed to explain this complex construct. Moreover, previous research suggests that even existing studies on older individuals have often underestimated their capacity for creativity (Ranzijn, 2002a). Thus, further research specifically into this construct is warranted.

1.3.1 Defining Creativity

Research interest into creativity as a psychological construct shows a relatively short history, emerging only in the early 1950s following Guilford's presidential address to the American Psychological Association emphasising the importance of creativity as a focal point of scientific investigation (Cropley, 1999; Runco, 2004; Simonton, 2002). However, despite the numerous research studies which subsequently followed, presently creativity remains an ill-defined and poorly measured construct (Hoyer & Roodin, 2003; Papalia, Sterns, Feldman, & Camp, 2002). As Amabile (1982) notes, many studies seem to 'suffer from a definitional void by failing to explicitly articulate the definition of creativity guiding the research or by presenting conceptual definitions that are not directly tied to the assessment procedure' (p.1000).

Primarily, the definition of creativity often rests on the dichotomy between 'Big C', or eminent creative genius which results in lasting cultural contributions, and 'little c', which describes an individual's everyday creativity involved in living and problem solving (Simonton, 2002). Although some theorists suggest that these two aspects of creativity are qualitatively different (Hoyer & Roodin, 2003; Sternberg & Lubart, 1996), much of the research instead supports a continuum conceptualisation, in which creative genius is only quantitatively different from everyday creativity (Eysenck, 1995; Rodgers & Maranto, 1989). As such, although the present study is

more concerned with the everyday phenomenon of creativity, it may be that those aspects of an individual which predict everyday creativity may also be suitable for predicting 'Big C' (Simonton, 2002). Moreover, empirical investigation of everyday creativity with 'ordinary individuals' is useful, as it provides greater understanding of the practical aspects of creativity by exploring how creativity can assist with coping and problem solving.

Irrespective of this dichotomy of understanding, most theorists and researchers acknowledge that any form of creative product or idea must be both novel and appropriate to the situation (Cropley, 1999; Fisher & Specht, 1999; Hoyer & Roodin, 2003; Papalia et al., 2002; Runco, 2004; Stuart-Hamilton, 1994), resulting from the individual's personality and his or her cognitive processes (Simonton, 2002; Wolfradt & Pretz, 2001). Thus, perhaps most useful is the definition offered by Levy and Langer (1999) which acknowledges the importance of all these influences utilising a lifespan conceptualisation by defining creativity as:

> the ability to transcend traditional ways of thinking by generating ideas, methods, and forms that are meaningful and new to others. It exists on a continuum both within and between individuals. That is, creativity not only differs over time as individuals develop, it also differs between individuals due to differences in personality and how they interact with their environment (p. 45).

1.3.2 Creative Personality

The importance of personality as an aspect of creativity was initially identified by Guilford (1950), who noted that some individuals possess certain characteristics which facilitate greater creativity, such as independence and non conformity. A number of further creative personality traits have also been identified, including openness to experience which fosters flexibility, curiosity, and a preference for complexity (Levy & Langer, 1999; McCrae, 1999); a tolerance for ambiguity which

allows the individual to pursue creative endeavours despite the existence of uncertain outcomes; and individuality, as valuing one's own uniqueness allows the creative individual to pursue what may be considered unconventional by society (Lubart & Sternberg, 1998).

Highly influential in creativity research, Mihaly Csikszentmihalyi (1996) also suggests that the creative personality relies on the integration of contradictory extremes. For example, although creative individuals often possess a great deal of energy, they are able to focus this energy appropriately, and rest during times of non-creative activity. As well, whilst exhibiting a strong passion for their work, creative individuals often possess an objectivity which enables the acceptance of criticism to further enhance the creative product. This necessity for emotional regulation and a balanced approach to creativity may be a particular strength in older adulthood, as research (Strongman & Overton, 1999) suggests that individuals tend to exhibit greater emotional stability with age.

Several studies have supported the importance of personality in the accurate prediction of creativity. For example, in developing the Creative Personality Scale, Gough (1979) administered the Adjective Checklist, a self report measure that asks participants to indicate which of 300 different adjectives describes their own personality, to over 1700 subjects from all age groups and career domains. Using correlations between individual self-ratings and the ratings of expert judges, lecturers, panels of observers and individual interviews, 30 trait adjectives were chosen as highly indicative or counter-indicative of creative individuals. Although the judging criterion methods varied in each domain subgroup of the larger sample, inter-rater reliabilities were nevertheless high, ranging from .80 to .98, suggesting that certain traits were recognised by most individuals as characteristic of creativity.

In another study (Wolfradt & Pretz, 2001) which utilised the NEO-Five Factor Inventory to measure the existence of a relationship between personality and creativity, findings showed that openness to experience, extraversion, and conscientiousness were each positively related to the study's three measures of creativity, including creative traits, performance, and hobbies, whilst neuroticism and agreeableness were not. Finally, in a meta-analytic study of the research literature (Feist, 1998), creative individuals have been consistently found to exhibit specific personality traits, including autonomy, openness, confidence, acceptance, ambition, and impulsiveness.

1.3.2.1 Personality and Ageing

Although debate exists regarding how personality may develop over the lifespan, some researchers suggest that creativity traits primarily tend to stabilise following the onset of adulthood (Caspi & Roberts, 1999). Theorised reasons underlying this stability vary widely, and may include the decreasing occurrence of novel life events over time which challenge existing attitudes, and an increase in crystallised self perceptions, as individuals more frequently reject those experiences that contradict their own beliefs (Glenn, 1980).

Empirical research has provided support for this theorised stability. In a follow-up study (Dudek & Hall, 1991) of creativity in architects 25 years after the original study, the creative style, motivation, and productivity scores obtained by subjects now in their 70s and 80s showed significant positive correlations with their original scores. Thus, 25 years later, the most creative individuals were still motivated, spontaneous, and independent, whilst the least creative still showed higher levels of social conformity.

Further support for the stability of personality traits was also provided by a longitudinal study (Helson, Roberts, & Agronick, 1995) of occupational creativity in women. Tested initially at the age of 21, then 43, and finally, at 52, using both self report and expert ratings, the cognitive-affect and motivational aspects of creative personality of all 104 women showed strong positive correlations of .50 or greater over time. Furthermore, those women who showed higher creative potential at 21 were later rated as more individualistic and possessing a wider range of interests than those scoring lower on creative potential, who, at 43, were said to favour conservative values and find ambiguity uncomfortable.

However, other theories instead suggest that personality traits are more likely to change over time. For example, Erikson's theory of identity development postulates a stage-like progression through a series of 'dilemmas' which present opportunities for various polar outcomes such as 'intimacy versus isolation', whilst Loevinger's theory of ego development instead suggests that personal evolution may occur through increasing self awareness, autonomy, and acceptance across the lifespan (Bee, 2000). Reasons for these changes in personality may involve the desire to enhance those adaptive traits which assist in functioning, and the beneficial influences of biological maturation, role transitions, and adaptive challenges (Baltes, 1987).

Empirical support for the existence of these changes is provided by numerous studies, although some conflict exists concerning their direction. One study suggests the individuality which encourages new innovations and creative ways of thinking may decline with age, as Klein (1982) found that older individuals conformed significantly more often to other subject's judgements. As well, in a study which asked subjects aged 20 to 83 years to indicate their preference for figures which

varied in complexity, symmetry, and ambiguity, Alpaugh and Barren (1977) found that older individuals showed a significantly lower tolerance for ambiguity. Thus, later adulthood may involve a decline in the tenacity required to pursue creative activity when the next step is unclear, which may negatively influence both the quantity and quality of an individual's output (Sternberg & Lubart, 1996).

However, the cross sectional nature of these studies may be problematic, as only research which studies specific individuals over an extended period of time may provide information not influenced by cohort effects. As such, the findings of several longitudinal studies may provide greater empirical support for creative personality trait changes over time, including the Berkeley Intergenerational Study (Haan, Millsap, & Hartka, 1986), which followed several hundred individuals born between 1918 and 1928 from childhood through to later adulthood. The results of this study showed a positive change in creative personality, finding an age related increase in self confidence and assertiveness. In subsequent research using both the Berkeley study and the Oakland Growth Study, Jones and Meredith (1996) found further support for this increase in self confidence, and for significant age based increases in outgoingness, independence, achievement, and openness.

1.3.2.2 Summary

Thus in sum, it seems clear that personality is an important predictor of creativity, as those traits which tend to characterise a creative individual, such as openness to experience and tolerance for ambiguity, promote greater idea production and flexibility (Runco, 1999; Simonton, 2002). Furthermore, based on the research, it seems those traits related specifically to creativity may be increased across the

lifespan, suggesting that creative personality may continue unabated throughout development.

1.3.3 Divergent Thinking

Guilford (1950) also emphasised the importance of divergent thinking in creativity, thus influencing much of the subsequent research by focusing interest on the novelty of various creative ideas and products. The most intellectual aspect of creativity, divergent thinking is concerned primarily with variability (Cropley, 1999), or the production of multiple original and elaborative responses to a problem. This may be particularly relevant during the early stages of creativity, as the individual moves beyond simplistic ideas to more complex methodologies which better achieve task completion (Lubart & Sternberg, 1998).

Tests of divergent thinking are assumed to indicate creative ability (Papalia et al., 2002), and may be particularly useful by providing a simple, objective and quantifiable assessment of the normal individual who does not exhibit the genius of 'Big C' creativity, but may be considered creative nonetheless (Sternberg & Lubart, 1996). Most often, this is measured on the basis of fluency, the ability to generate numerous ideas; flexibility, the ability to incorporate various perspectives; and originality, creating unusual associations between ideas (Csikszentmihalyi, 1996; McCrae, 1999).

1.3.3.1 Divergent thinking and ageing

Although the importance of divergent thinking in creativity is evident, the relationship between this construct and ageing remains unclear. Primarily, research seems to suggest that divergent thinking should decline with age. For example, in

testing men aged 17 to 101 on associational, expressional, ideational and word fluency, McCrae, Costa and Arenberg (1987) found a curvilinear pattern, as fluency scores increased between the ages of 20 and 40, before declining continuously with age.

However, the time restrictions often associated with such measures may unfairly impact upon older subjects' abilities to complete the task, as empirical research suggests a negative relationship between the speed of information processing and age (Hoyer & Roodin, 2003). Thus, when such time limits are removed, research suggests that older individuals may actually show greater levels of divergent thinking since problem definition, strategy selection, and dialectical thinking are believed to increase with age (Berg & Sternberg, 1985; Sternberg & Lubart, 1996).

Researchers (Papalia et al., 2002; Simonton, 1990) also suggest that multiple measures of divergent thinking may be useful, as the inability to suggest numerous uses for an elastic as requested in common divergent thinking tests may not necessarily negate the existence of artistic or scientific talent. Thus, tests which utilise contextually relevant everyday problem solving skills to measure creativity may be useful, as such problems are generally ill-defined, providing greater opportunities for the post formal thought most often used by older individuals (Marsiske & Willis, 1998).

Expanded from Piaget's (1952) original conceptualisation of cognitive development in children, post formal thought goes beyond deductive logic by integrating life experience, cognition, and affect to create a richer understanding of reality. Thus, older individuals may approach the ill-defined nature of everyday problems by integrating their previous experience and knowledge to facilitate greater insight as to the optimal, rather than 'correct' solution. This may also be influenced by

the increased freedom to adopt unorthodox concepts often present in older adulthood (Runco, 2004).

1.3.3.2 Summary

In sum, as divergent thinking assists with problem solving, it is clearly an important aspect of creativity. However, the relationship between divergent thinking and age is somewhat equivocal, as the research which suggests it declines over the lifespan may simply reflect time restricted methodologies. Instead, divergent thinking may increase with age, due to increased abilities in dialectical thinking, and post formal thought. Therefore, on both traditional non-timed divergent thinking tests and tests of everyday problem solving which show greater construct validity, theory and research suggest older individuals may show greater creativity than their younger counterparts.

1.3.4 Creative Productivity

The actual generation of a creative product is also an important aspect of creativity, and is considered by some the only true criterion by which to judge an individual's creativity (Simonton, 2002). This may include artistic works, scientific discoveries, and theory development, each of which are classified as creative on the basis of their unusual yet appropriate nature, which produces 'effective surprise' for the observer (Amabile, 1982). Theory suggests arriving at this product involves a four step process, consisting of preparation, in which a problem or need is sensed and explored; incubation, where the problem is studied and then possible solutions are suggested and evaluated; illumination, which provides a new idea or insight; and finally, revision, in which the solution is tested and perfected (Papalia et al., 2002).

1.3.4.1 Creative Productivity and Ageing

Contention exists regarding the trajectory of creative productivity across the lifespan as popular stereotypes suggest that creativity must necessarily decline in older adulthood. Yet researchers indicate 'what is required is not the compilation of anecdote and counteranecdote, but rather the systematic investigation of how creative productivity changes over the lifespan' (Simonton, 1991, p.13). The first classic study on this topic was conducted by Lehman (1953), who examined the relationship between creative productivity and chronological age across a wide range of domains, finding a consistent ageing curve, in which the majority of contributions were made by the time individuals were 35 years of age, or younger. However, this study may be criticised for its exclusive methodology, as only the most popular accomplishments of an artist were recognised, ignoring the larger and often notable body of each individual's work.

In contrast, a follow up study (Dennis, 1966) of all recognised work of various creative individuals found a much later peak and decline for creative production, which also varied according to an individual's discipline. Rather than the third decade signalling a decline in creative talent, artists and scientists showed continued productivity into their 50's, whilst those in the humanities continued equal productivity into their 70s. Dennis (1966) also investigated creative individuals who lived more than 80 years, finding that generally, these individuals were most successful during their 60s, producing 20 to 50 percent of their total creative output at that age or even later, depending on their domain of expertise.

Further undermining the existence of a generalised ageing curve which peaks at 40 is Simonton's (1988; 1992) 'constant-probability-of success' model, which

suggests that the quality/quantity ratio calculated based on the number of successful works as a portion of the total number of works produced does not alter across the lifespan. Empirical support for this model is provided by a study (Simonton, 1985) of the major works by ten eminent psychologists, measured for their quality by how often they were cited in other papers, findings showed that the ratio of major (high-quality) works to total publications over a specified unit of time showed no systematic changes with increased age, a finding which was also substantiated in a sample of classical composers (Simonton, 1977). Therefore, whilst older individuals may not be creating successful products as prolifically as during their younger years, they also avoid creating as many failures (Simonton, 1992).

Simonton (1991) further suggests that the generalised age curve may actually be a function of career age, rather than chronological age. He explains that at the onset of an individual's career, he or she possesses a variety of ideas and techniques, which together may produce a finite range of possible creative outputs. Thus, as these creative outputs are realised, an individual's creative potential decreases, a relationship which continues until creative potential is exhausted completely, resulting in a declining trajectory of productivity. However, as most individuals enter their chosen career in their youth, this trajectory may be falsely attributed to advancing age, when in fact, if an older individual were to change careers, the resulting pool of new ideas could be more expansive than that of a younger individual who has been in the same career for a substantial period of time. This may be particularly relevant in older adulthood, as retiring individuals may be viewed as entering a new 'career', thus providing a renewed energy for creative potential.

The importance of this renewed energy is supported by Cohen's (1999) stage theory of creativity, which suggests that the crises associated with various later life

transitions such as retirement provide possible opportunities for greater creative energy. He suggests that following retirement, individuals may experience a new sense of temporal and financial freedom, with the absence of work-related time constraints and the availability of retirement benefits such as superannuation payments. This liberation may also coincide with a new sense of adventure, as older adults tend to possess greater security about their identity, and are open to taking greater risks (Papalia et al., 2002). Together, this lack of constraint and sense of adventure create an atmosphere conducive to renewed forms of creative expression. One example of the outcomes predicted by this phase is folk art, an artistic area of painting which has been dominated by older individuals.

Older adulthood may also reflect a time of continued creativity as many of the resources which contribute to the successful expression of creativity appear to reside more abundantly in older individuals. For example, research (Ericsson, 1996) has suggested that both exceptional and more 'normal' creative talents may not be inherent, but instead primarily the result of extensive practice and knowledge acquisition over time. Thus, older individuals may show greater creativity as a result of their accumulation of increased skill. More recently, creative theory has also begun to explore the influence of various resources such as time on creative outcomes, suggesting this may be an important factor in creativity, as the realisation of a creative product may be far removed from the original idea that spawned it. Thus, to arrive at a creative product, individuals must allow for extended mental involvement, which may be expressed through long sustained thought concentrated on the project, or in the unconscious incubation period which eventually results in an unexpected creative insight (Runco, 2004). As such, older individuals no longer constrained by work commitments may have greater resources of time for such creative incubation.

1.3.4.2 Summary

Thus, in summary, the generation of a creative product may be the most valid form of creativity, involving not abstract concepts, but rather the tangible expression of originality and effectiveness. However, the relationship between this conceptualisation of creativity and age seems somewhat unclear. Although some research supports the existence of a continuously declining creativity curve after 40 years of age, more inclusive research instead highlights the influences of selective methodologies, the possibility of a career, rather than age related curve of creativity, and the stability of the quality/quantity ratio over the lifespan. Finally, those resources which promote creative activity such as time and skill may also be more prevalent in older populations. Therefore, on the whole, both theory and research seem to suggest that older individuals may show greater creativity of tangible products than young adults.

1.4 Correlates of Creativity

As creativity has only relatively recently become a specialised area of psychological interest, it is perhaps not surprising that little empirical research has been conducted which examines the relationship between creativity and other psychological constructs. This paucity of research into the correlates of creativity is especially pronounced in the literature concerning older adulthood, as research on creativity and ageing has focused almost exclusively on possible fluctuations which accompany development across the lifespan (Nuessel, Van Stewart, & Cedeno, 2001). However, several psychological constructs, including self actualisation and social support, may exhibit an influential relationship with creativity in older adulthood The

study of self actualisation is important, as theory (Maslow, 1968) suggests it forms an integral part of successful ageing, by providing the individual with greater autonomy and tolerance, whilst social support may facilitate individual expressions of creativity through emotional encouragement and practical assistance. However, empirical evidence to support these theoretical positions is scarce at present, suggesting that further research into the relationships between creativity and these specific psychological constructs is warranted.

1.5 Self Actualisation

The term self-actualisation was initially defined by Abraham Maslow (1954), referring to an individual's 'desire for self-fulfilment, namely, the tendency...to become actualized in what he [sic] is potentially...to become everything that one is capable of becoming' (p.23). Maslow considered this the final achievement in his hypothesised hierarchy of needs, when an individual has satisfied the lower 'deficiency motives' for physical and emotional homeostasis, and ascends to the 'being motives', which describe an individual's need for the optimum fulfilment of his or her potential (Maslow, 1968). This conceptualisation of behaviour was also further defined by Carl Rogers, who identified self actualised individuals as fully functioning, and expressing the central tendency towards growth inherent in every individual (Rogers, 1978).

1.5.1 Self Actualisation and Ageing

According to Maslow (1968), self actualisation is rarely achieved in full due to the complexity of those traits which characterise the self-actualised individual, including a greater acceptance of self, others and nature, a desire for privacy,

detachment, and autonomy, increased courage, and a resistance to enculturation (Buckmaster & Davis, 1985; Dowd, 1989; Maslow, 1968; Runco, 1999). Thus, he suggests only those in late maturity are likely to show the self realisation and breadth of experience necessary for self actualisation to occur.

Self actualisation may be a particularly useful motive in older adulthood, as the associated flexibility and desire for experience rather than control may facilitate greater adaptation to the physical and psychological challenges of this period, and provide greater meaning for existence (Landau & Maoz, 1978). In contrast, younger individuals may be more concerned with lower needs in the Maslow's (1954) hierarchy, such as finding love, constant companionship, and establishing respect from their peers.

Thus, it is surprising that some research has found older individuals actually score lower on self actualisation then their younger counterparts (Plouffe & Gravelle, 1989; Rizzo & Vinacke, 1975). For example, Rizzo and Vinacke (1975) found that institutionalised older adults scored lower on both the value and self regard aspects of self actualisation than young college students. Methodological problems may account for these conflicting findings on self actualisation however, as this construct was measured using the Personal Orientation Survey (POI) (Shostrom, 1964), which has been widely criticised for three reasons: the absence of any underlying systematised theory (Weiss, 1991), the poor psychometric properties of various subscales (Whitson & Olczak, 1991), and the ambiguous nature of many of the questions (LeFrancois, LeClerc, Dube, Hebert, & Gaulin, 1997). Therefore, it seems evident that further research is required into the relationship between self actualisation and ageing.

1.5.2 Self Actualisation and Creativity

The relationship between self actualisation and creativity also remains unclear. Both Maslow (1968) and Rogers (1951) suggest that self actualised individuals should show greater creative tendencies due to the characteristic outcomes of self actualisation. These include greater resources of mental energy due to diminishing self doubt and criticism, a greater appreciation of the complexities of life, and a greater spontaneity and expressiveness rising from self acceptance. Thus, creativity is facilitated by the shift in focus from the needs of control, convention and conformity, to the desire to integrate and accept existing incongruencies in the self, others, and circumstances. As a result, individuals may more readily embrace the unknown, providing greater opportunities for interaction with the mysterious which stimulates more frequent creative responses (Maslow, 1968). Therefore, creativity may be seen as the resulting outward expression which arises from the manifestation of self actualisation. However, Maslow (1968) suggests the nature of this self actualising creativity is not expressed primarily in terms of a creative product, but rather as an everyday expression of an individual's personality, which emerges from the heightened form of perception that accommodates the inconsistent nature of reality.

Despite this theoretical base which so clearly suggests a positive relationship between self actualisation and creativity, little recent research has been conducted to provide any empirical explanation. However, several older studies suggest this relationship may not reflect Maslow's (1968) theory as expected. For example, Murphy, Dauw, Horton & Fredian (1976) found no strong correlations between creativity and self actualisation using the Personal Orientation Inventory (POI) and the Torrance Test of Creative Thinking (TTCT) which measures creativity based on ideation fluency, flexibility, originality, and elaboration. Similarly, in a study using

the POI and six different tests of creativity which measured divergent thinking and the effectiveness of various creative products, no significant correlations between creativity and self actualisation were found (Mathes, 1978).

However, the absence of these relationships may simply reflect the measures employed, as each study utilised the POI to measure self actualisation, which as previously discussed, lacks a theoretical basis and shows limited reliability. Nor did these studies involve measures of creative personality which Maslow suggested may mediate the relationship between self actualisation and creativity. Moreover, the samples selected by the researchers make little theoretical sense, as the studies used only high school or university students, whom Maslow suggested were too young to show notable self actualising tendencies. Thus, even the most self actualised individuals in those samples may have lacked the self actualisation needed to influence creativity.

In contrast, studies showing greater methodological rigour support the proposed relationship between self actualisation and creativity. For example, using the more reliable Self-Actualization Scale (SAS), the How Do You Think Test (HDYT), and the Adjective Check List (ACL), which measure creative personality, Runco, Ebersole, and Mraz (1991) found significant positive correlations between self actualisation and each of the subscales of the HDYT. Moreover, results showed that those individuals scoring in the top 25% of the sample on the SAS described themselves using the adjectives of the ACL acknowledged to denote creativity, but checked none of those adjectives not associated with creativity.

Similarly, in research on self actualising values, Yonge (1975) found a significant positive relationship between self actualisation, creativity, and human temporal experiences, the latter of which describes how time may be viewed as an

opportunity for self discovery and growth, which supports the theoretical characterisation of self actualised individuals. Finally, an investigation of this relationship in older adults residing in a nursing home also revealed high correlations between self actualisation and creativity, as measured according to the fluency, flexibility, and originality of their ideas (Landau & Maoz, 1978).

1.5.3 Summary

Thus, it seems clear that the relationship between self actualisation and creativity remains largely equivocal, and that little work has been done specifically with an aged sample, especially in regards to the various forms of creativity. However, based on Maslow's (1968) theoretical understanding of the relationship and the findings of those studies which utilise better validated measures of self actualisation with samples which reflect theoretical grounding, it seems that self actualisation should be positively related to creative personality and creative productivity.

1.6 Social Support

Literature points to the importance of social support, identifying it as a necessary resource which contributes to an individual's quality of life (Rennemark & Hagberg, 1997). Primarily, social support may 'provide regular positive experiences and a set of stable socially rewarded roles in the community, thus increasing the sense of belonging and overall psychological well-being' (Choi & Wodarski, 1996, p.53). Bruhn and Philips (1984) also suggest social support may be beneficial by providing an increased perception of control, modifying the effects of negative stress, strengthening hope, and promoting greater adaptive behaviours. This may be

especially relevant for the aged, as older individuals often face greater changes in their physical health which may create stress and erode feelings of control, but can be mediated by the coping strategies provided by social support.

However, social support remains a difficult construct to define and measure, as it involves both qualitative and quantitative elements, and may originate with a range of different sources (Choi & Wodarski, 1996; Pearson, 1986). Despite this, generally social support can be defined as 'the interactive process in which emotional, instrumental, or financial aid is obtained from one's social network. This support is dynamic, and can be positive and/or negative in effect' (Bowling, 1994, p.41). Of these three types of social support identified by Bowling, emotional support may be considered of greatest importance as it accommodates the desire for embeddedness within a social network (Langford, Bowsher, Maloney, & Lillis, 1997) and may be expressed through affective assistance and the provision of caring, empathy, love and trust. In contrast, instrumental support is considered a practical expression of tangible aid, such as completing small tasks or providing financial assistance. Finally, informational support involves the provision of information which may assist with problem solving, especially during times of stress (House, 1981; Kahn & Antonucci, 1980).

1.6.1 Social Support and Ageing

Various factors may impact upon the provision of social support, and how it is perceived by the recipient, including age. As suggested by stereotypical views on ageing, some research has found that social support networks tend to decline with age (Stephens, Blau, Osef, & Millar, 1978), and that members may feel overburdened due to role conflict and responsibility overload (Choi & Wodarski, 1996). However, more

research suggests that older individuals may actually have greater social support than their younger counterparts, resulting from the opportunities provided by a lifetime of building reciprocal relationships with a number of individuals (Bowling, 1994; Rennemark & Hagberg, 1997). Finally, it is also possible that social support networks may remain stable throughout the lifespan, with the loss of various members being compensated for by the arrival of new ones (Bowling, 1994; Williamson, 2002).

However, the size of an individual's social support network may prove relatively unimportant as one national study (Bowling & Cartwright, 1982) from the United Kingdom found that emotional adjustment in the elderly widowed was associated more strongly with the provision of social support from one close individual, than from several. Moreover, in a study on social functioning in older adulthood (Lang et al., 1998), findings showed that the relationships between older individuals showed a higher level of emotional quality with increasing age, leading to a greater satisfaction with social support, regardless of size. As such, despite the possible quantitative decrease in social networks, the remaining social relationships in older adulthood may nevertheless contribute considerably to life satisfaction, due to the experience of increasing emotional closeness (Strongman & Overton, 1999).

1.6.2 Social Support and Creativity

The relationship between social support and creativity also remains unclear. In 1984, Simonton suggested that 'no inquiry has attempted to link the creative personality with a complex of interpersonal relationships', an issue highlighted fifteen years later in one of the first studies (Mahon, Yarcheski, & Yarcheski, 1999) to ever empirically investigate the relationship between social support and creativity in any sample. Thus, it is not surprising that several authors have identified the need for

research into the influence of interpersonal relationships on creative personality and performance (Amabile, 1982; Mahon et al., 1999).

A similar gap also exists in the theoretical understanding of these two constructs, although some theorists offer tentative suggestions. For example, Mahon et al (1999) suggest that creative activities often accompany a withdrawal from complex emotional investments with the external world, as creativity may be best fostered through time spent alone, which provides greater opportunities for reading, acquiring and practicing creative skills. As well, the pressure to reciprocate social support and the responsibilities associated with maintaining relationships may also negatively impact upon creativity, as individuals expend mental and physical energy on interpersonal relationships rather than creative expression (Stokes, 1983).

Madjar, Oldham and Pratt (2002) provide some support for this theoretical position in a study on the relationship between workplace creativity and social support from both colleagues and persons outside the organisation. Specifically, they found that those with non creative personalities appreciated the social support from family and friends which increased their creative productivity, whilst those with creative personalities were unaffected by such social support. However, the authors also noted that support from co-workers benefited all individuals, regardless of their level of creative personality. Hence, these findings may suggest that the creative expression is influenced primarily by those relationships most relevant to the creative endeavour, although the generalisability of these results may be limited due to the workplace nature of this study.

Perhaps more convincing then is the theoretical and empirical support for the existence of a positive relationship between social support and creativity. For example, Harrington's (1990) theory of 'creative ecosystems' posits that creative

processes are sustained by functional relationships and interdependencies that connect individuals to one another and their ecosystem. Specifically, this theory suggests that creative personalities may lead to creative outcomes, but that the desire to express creativity will place psychosocial demands on the individual for knowledge, skills, time, and work space, which facilitate creative expression. Thus, creativity may be expressed for those individuals who possess the necessary personal resources, such as cognitive skills and motivation, and ecosystem resources, such as social support to address these psychosocial demands.

The nature of this social support may be emotional, which stimulates creativity through intellectual and emotional exchanges, and provides the motivational catalyst to begin a creative work or continue the creative process even when exhausted or unsure of future directions. Instrumental aid may also be important, as the performance of mundane tasks may allow the creative individual more time and energy to invest in the creative process. Finally, the informational support provided through feedback from friends and family may assist with problem solving when the creative individual is at an impasse.

According to Harrington's (1990) theory social support may act as a moderator between creative personality and creative outcomes, by providing the necessary ecosystem resources to address the demands of the creative process. However, an alternative interpretation also suggests social support may act as a mediator, as those with more creative personalities may seek out greater social support, allowing them to better meet the psychosocial demands of creativity.

Also providing a further alternative theoretical framework is theorist Mihaly Csikszentmihalyi (1990) who suggests that creativity should be viewed as a system comprised of three main parts: the individual who produces the creative product; the

domain which sets the parameters for the creative expression by establishing rules and techniques relevant to the area; and the field, comprised of those individuals operating within the same domain, who may appropriately judge the creative merit of any product as they share a similar knowledge of the area and understand and are governed by the same rules. The 'field' aspect of this system may be particularly relevant in understanding which sources of social support may best benefit older individuals. This suggests that an individual's peer group, rather than his or her family, is most likely to provide the social support which promotes creativity due to their shared knowledge of challenges in this period of life, shared understanding of the resources required to promote creative expression, and the opportunities to use others as a sounding board.

Empirical evidence also supports this theorised positive relationship between social support and creativity. In one of the first studies to recognise the influence of socio-environmental factors on creativity, Weisburg and Springer (1961) found that those students rated as more highly creative by observer ratings were less likely to insist on independence from their parents, instead requesting a greater amount of emotional social support than their less creative peers. More recently, Mahon et al. (1999) investigated the relationship between creativity and social support using the Adjective Checklist (Gough, 1979) and the Personal Resource Questionnaire (Weinert, 1987), finding a significant moderately strong positive correlation between the two constructs. Although these two studies involved only younger individuals, suggesting the findings may not necessarily be generalisable to older adulthood, their specific focus on social support as an aspect of everyday creativity suggests that a positive relationship between to the two variables may be expected.

1.6.3 Summary

Social support has been identified as a resource which provides a greater sense of control, adaptability, and hope, especially in older adulthood. However, the relationship between social support and creativity remains equivocal, with some theorists suggesting that social support may stifle creativity and others highlighting its important contribution to creativity through the provision of encouragement, tangible aid, and practical feedback. Moreover, it is unclear whether social support acts as a mediator or moderator for the theorised relationship between creative personality and creative outcomes. Thus, further research to provide empirical understanding of these relationships is necessary.

1.7 Conclusion

Positive psychology suggests that greater attention should be given to those phenomena which add to life satisfaction, particularly in gerontological research, as past studies have focused primarily on the negative aspects of ageing, rather than emphasising opportunities for growth. Creativity is suggested as one these positive phenomena, and is widely recognised as beneficial in problem solving, adaptation, and flexibility (Runco, 2004; Sternberg & Lubart, 1996).

However, few studies have investigated the fluctuations in creativity over the lifespan using a comprehensive theoretical framework and explicitly stated definition to operationalise creativity. Moreover, little research exists on the creativity of very late adulthood, instead assuming that the trajectory of creativity simply continues along the same path after the age of 60. Despite this paucity of research, the adaptive function of creative personality traits, the ability to engage in post formal thought, and the increased financial and temporal freedom of older adulthood suggest that

creativity will primarily increase with age. However, the absence of empirical evidence suggests further research into the relationships between creativity and age is justified.

Moreover, as creativity has only relatively recently become an area of psychological interest in its own right, there also exists little research to investigate the relationship between creativity and other psychological constructs such as self actualisation and social support, both of which have been recognised as influential on development during later adulthood. Yet based on theory, and the few existing studies on these relationships, research primarily suggests that both self actualisation and social support will be positively correlated with creativity, although whether social support may act as a mediator or moderator remains unclear.

1.7.1 The Present Study - Theorised Path Models

For the present study, path models are used to explain the theoretical relationships suggested to exist between the variables. Both theorised models are recursive (Klem, 1995), as all variable do not directly impact each variable further down the causal chain, and all arrows are unidirectional. In both models, self actualisation is assumed to predict creative personality as suggested by Maslow (1968), which is then anticipated to predict creative outcomes. The social support of family and friends is also assumed to mediate the relationship between creative personality and creative outcomes. Thus, the theorised path model of this study appears as follows, where the plus signs are indicative of hypothesised positive relationships:

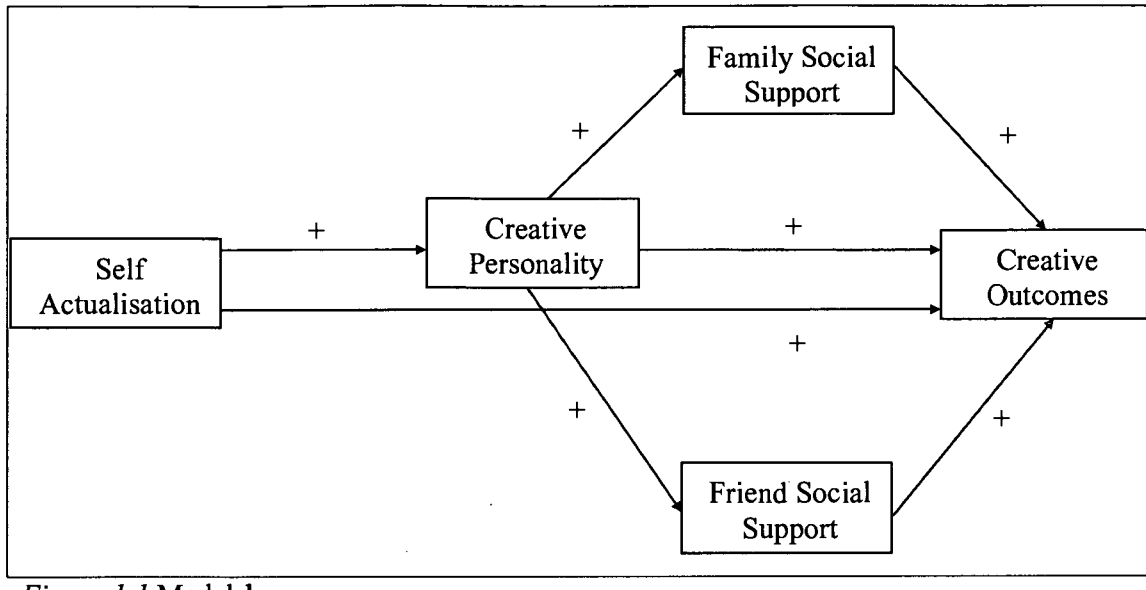

Figure 1.1 Model 1

However, theory also suggests that social support may instead act as a moderator between creative personality and creative outcomes. This model is summarised in Figure 1.2.

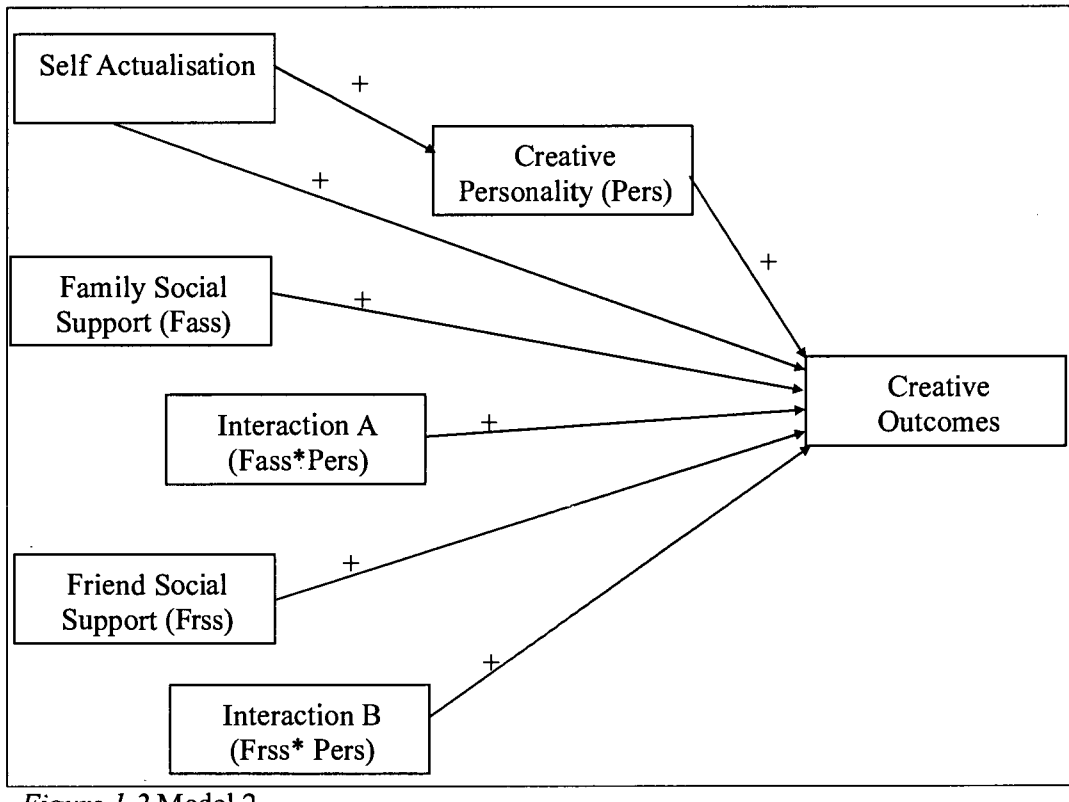

Figure 1.2 Model 2

As the research does not unanimously support the necessity of social support to facilitate creative outcomes, it is predicted that Model 1 will be more supported by the results, as the mediator model better accounts for possible fluctuations in the effects of social support on creativity.

Several other key hypotheses were also developed for the present study:

H1: Older individuals will show significantly higher levels of creative outcomes than younger individuals.

H2: Older individuals will show significantly higher levels of creative personality than younger individuals.

H3: Older individuals will show significantly higher levels of self actualisation than younger individuals.

H4: Older individuals will show significantly higher levels of social support from family and friends than younger individuals.

Chapter 2: Method

2.1 Sample

A sample of convenience of 160 participants was drawn from several sources, including the following community based organisations frequented by older adults: the Modbury Jubliee Centre, the Jack Young Centre of Salisbury, the Westbourne Park Men's Probus Club, the Grenville Seniors Hub, and Lynay Community Centre. Participants were also recruited from amongst various friends and family of the researcher. Participation was voluntary, and a total of 300 questionnaires were distributed, resulting in a response rate of 53%.

The demographic information of the sample is presented below.

Table 2.1

Age Range, Mean Age, Gender and Health Scores for All Age Groups

	Young	Young old	Oldest Old
Age Range	18 – 30	65 – 74	75 and up
Mean Age	23.73	69.11	79.65
Gender	11m (22%) 38f (78%)	21m (37%) 36f (63%)	24m (44%) 30f (56%)
Health (Mean)	8.10	7.82	7.70

The majority of participants were women, although the balance of gender increased with age. As well, the majority of the oldest old group possessed either a secondary education (46%) or TAFE or trade qualification (28%), whilst the young old group showed similar education levels with 58% receiving secondary education, and 25% receiving a TAFE or trade qualification. In contrast, the majority of the young group had an undergraduate degree (55%) or a postgraduate degree (22%).

2.2 Design

Data collection was conducted using a survey methodology, and the research was based on a non-experimental, correlational design. For the hypotheses concerning creativity and age effects, the dependent variables were creative personality and creative outcomes respectively, whilst the independent variable was age group. Self actualisation and the social support of family and friends also acted as dependent variables when comparing these constructs for age effects, using age group as the independent variable. In the first set of hypotheses for the path analysis models, creative outcomes acted as the dependent variable, and creative personality, family social support, friend social support and self actualisation were the independent variables. In the second set of hypotheses for this model, creative personality served as the dependent variable, and self actualisation as the independent variable. For this model's final set of hypothesis, creative personality acted as the independent variable, whilst friend and family social support were the dependent variables.

For the second path analysis model, creative outcomes acted as the dependent variable, whilst the moderators of family social support and friend social support were the independent variables. The demographic variables of self rated level of health, age, gender, and education level were also measured

2.3 Instruments

Each participant was provided with an information sheet introducing the researcher, outlining the nature and requirements of the study, and thanking them for their assistance (see Appendix A). Attached to this letter was the seven-part

questionnaire (see Appendix B) which included the Multi-Dimensional Support Scale (Winefield et al., 1992) to measure the social support of family and friends, the Measure of Actualisation of Potential (MAP) (LeClerc et al., 1999) which assessed each individual's level of self actualisation, and six demographic questions. Also included were four measures of creativity: the Creative Traits Scale, the Practical Problem Solving Measure and the Creative Expression Measure all developed by the researcher, and the Uses of Common Objects Test (Getzels & Jackson, 1962). Multiple measures of creativity were utilised in an attempt to capture the complexity of this construct. Moreover, these measures were chosen to reflect the definition of creativity utilised in this study, providing the necessary theoretical grounding for the operationalisation of creativity, which previous research suggests has not been adequately addressed in many empirical studies (Amabile, 1982).

2.3.1 Creativity Traits Scale

Personality is considered an important predictor of creativity, as research (eg. Csikszentmihalyi, 1996; Dudek & Hall, 1991) has shown that creative individuals consistently possess specific traits considered conducive to the creative process. Previous research (Gough, 1979; Smith & Schaefer, 1969) also suggests that a self report methodology is useful in identifying the presence of these traits, as independent raters and study subjects show correlations of .75 and above in judging the criterion for creative personality. However, the most commonly used measure of creative personality, the Creative Personality Scale (Gough, 1979) shows an unacceptable reliability level of only .56, and may be appropriate only for certain types of artistic creativity, rather than as a measure of creative personality in general.

Thus, for the present study, a new scale of trait adjectives was developed to measure the extent to which individuals believe they possess creative characteristics, with adjectives chosen on the basis of theoretical grounding and previous empirical research. For example, theorists (Csikszentmihalyi, 1996; Simonton, 2002) postulate that independence and originality are important contributors to creativity as they promote unusual thinking and the freedom to experiment. This position is supported by a meta-analytic study (Feist, 1998) of the creative literature which identified those traits most frequently characterising creative individuals.

As a result of an extensive literature review, 15 traits were chosen as indicative of creativity, namely: independent, flexible, conscientious, tolerate uncertainty, original, curious, unconventional, confident, deliberate, imaginative, daring, conscious of beauty, broad interests, assertive, and enjoy complexity. Five further traits identified as counterindicative of creative personality were also chosen in order to counterbalance the scale. However, these traits (reserved, unstable, serious, aloof, and conservative) were later removed from the analysis, as feedback and reliability results both suggested that individuals may have interpreted these as negative traits, and responded simply on the basis of social desirability.

To answer the survey, participants were asked to indicate how strongly the trait adjectives described their own personality, using a 5-point Likert scale with possible answers ranging from: '*not at all like me*', to '*somewhat like me*', to *'very like me'*. The final reliability of this new measure of creative personality was acceptable at .77.

2.3.2 Divergent Thinking

Two measures of divergent thinking were administered to assess each individual's capacity for problem solving, which previous research suggests is an important practical aspect of creativity. First, the widely used 'Uses of Common Objects Test' (Getzels & Jackson, 1962) asked participants to list as many alternate uses for a bottle and paper clip as possible.

However, more recent research (Papalia et al., 2002) has questioned the construct validity such tests, suggesting that the ability to think of unusual uses for a paper clip may not always accurately reflect an individual's creative ability. Therefore, a further creative problem solving exercise was also developed by the researcher. In this Practical Problem Solving Measure, participants were presented with the following exercise and asked to provide possible solutions:

> *A 70 year old man has recently had eye surgery and is unable to drive for the next two months, until his eye has completely healed. Although he is able to travel by bus, when grocery shopping, he cannot transport the groceries home, and the local grocery store does not deliver. What should he do?*

The practical nature of this problem was considered useful due to its focus on maintaining creativity in personally salient life domains, an ability which contributes to functional competence in older adulthood (Marsiske & Willis, 1998).

Participant responses to both these measures were assessed by two judges on the basis of fluency (scored by the number of responses provided); flexibility (scored by the number of *different* responses provided); and originality (scored on a 5 point Likert scale based on the unusual nature of the responses). The judges included the current researcher and another university student, whose judgements were considered appropriate as previous research (Amabile, 1982; Cropley, 2000) has shown inter-

rater reliabilities of .93 and above between expert and amateur ratings of creativity, suggesting that all individuals share an inherent understanding of the construct.

2.3.3 Creative Expression Measure

As several theorists (Runco, 2004; Simonton, 2002) suggest that creativity may only be measured when expressed as a tangible product, participants were also asked to write a descriptive paragraph of 50 words or more about their favourite place, either real or imagined. The parameter of 'favourite place' was used on the basis of the commonality and simplicity of such a task, providing a greater probability of a response from most individuals, whilst the minimum limit of 50 words was included to ensure individuals would provide enough information for consideration by the judges. Responses were scored on a 5-point Likert Scale on the basis of the original and expressive nature of the response, with scores ranging from *'not at all creative'* to *'slightly creative'*, *'somewhat creative'*, *'quite creative'*, and *'extremely creative'*.

2.3.4 Creative Outcomes

Due to the absence of any consensus in the literature on how to appropriately measure expressions of creativity, a triangulation approach was used in the present study, in which scores on the Creative Traits Scale, Practical Problem Solving Measure and Creative Expression Measure were combined to creative a single creative outcomes score, calculated using several steps. First, the judges' scores were averaged on each of the fluency, flexibility, and originality aspects of the problem solving and divergent thinking measures, and on the creativity of the description measure. Second, the description measure was transformed into a z score. Final z scores for the problem solving and divergent thinking measures were also computed

by transforming their fluency, flexibility, and originality scores into z scores and adding them together. Finally, the three creativity measures were then collapsed into a single score for creative outcomes, by multiplying each measure by the appropriate weighting as calculated using factor analysis, and then adding them together.

2.3.5 Self Actualisation

The Measure of Actualisation of Potential (MAP) (LeClerc et al., 1999), is a 27-item Likert-type self report scale which measures adaptation, autonomy, and the psychological functioning of adults. This scale was chosen instead of the more widely used Personal Orientation Inventory (Brandt & Weinert, 1981; Weinert, 1987), as research suggests the latter lacks a theoretical basis (Weiss, 1991), shows poor psychometric properties (Whitson & Olczak, 1991), and may be considered ambiguous due to wording complexity (LeFrancois et al., 1997). In contrast, the MAP was developed specifically to address self actualisation in older populations, and has been validated by a sample of clinical psychologists, showing a reliability coefficient of .90. After reverse coding items 6, 11, and 21 as suggested by the authors of the scale, a reliability of .86 (Cronbach's alpha) was found for the present study.

2.3.6 Social Support

The Multi-Dimensional Support Scale (Winefield, Winefield, & Tiggemann, 1992) was used to measure participants' subjective experiences of the availability and adequacy of social support. These scales which measure perceived social support rather than objective observations of the construct may be particularly useful as research (Bowling, 1994) suggests the former more accurately predict well being.

Three types of social support were measured using this scale: emotional support (affective assistance through caring, empathy, love and trust); practical support (provision of tangible aid); and informational support (assistance with problem-solving). Due to previous research (Choi & Wodarski, 1996; Simonton, 1984) on the differential nature of support provided by family and friends, these two sources of social support were measured using separate subscales to provide a greater understanding of this construct and its relationship to creativity. Six two-part questions were presented for both of these subscales, the first part of which addressed the availability of social support with the response options of *'never'*, *'sometimes'*, *'often'*, or *'usually or always'*, and the second part of which addressed the adequacy of social support, with the response options *'more often'*, *'less often'*, and *'it was just right'*. Winefield et al. (1992) reported adequate reliabilities for the measure of .80. The present reliabilities were also found to be adequate, as both the family and friend subscales showed coefficients of .91.

2.3.7 Health and Demographic Information

Participants were then asked to indicate their level of comparative health on the basis of three questions (Ranzijn, 1998). The first question *'how would you rate your overall health at the present time?'* included five response categories: *'poor'*, *'fair'*, *'good'*, *'very good'*, and *'excellent'*. The second and third questions were *'would you say that your health is better, about the same, or worse than most people your age?'*, and *'is your health now better, about the same, or not as good as it was about twelve months ago?'*. Three response categories were provided for these two questions, including *'worse'*, *'same'* or *'better'*. Participants were also asked to

provide their age in years, their gender, and their highest level of education by circling one of the five categories provided: *'primary', 'secondary', 'trade qualification or TAFE', 'undergraduate degree',* and *'post graduate degree'.*

2.4 Procedure

After receiving ethics approval from the Divisional Human Research Ethics Committee (see Appendix C) potential participants were recruited and given a copy of the questionnaire. Before completing this questionnaire, participants read the information sheet, which explained the aim of the study, the confidential and anonymous nature of the survey, and provided the researcher's and supervisor's contact details. Consent to participate was indicated by return of the questionnaire, which took approximately twenty to twenty-five minutes to complete and was returned to the researcher either at the time of completion or via mail, using a reply paid envelope. The data contained in the 160 completed questionnaires was then entered into an SPSS v.12 data file for analysis.

Chapter 3: Results

3.1 Missing Values

The missing values on the creativity measures were calculated for those individuals who had missed only one question using multiple imputation, as suggested by Tabachnick & Fidell (2001). To do this, creative outcomes was regressed on all other predictors (self actualisation, creative personality, family social support, friend social support) using the complete data for each age group to provide the constant and the unstandardised beta scores for each variable. The missing creative outcomes scores were then derived using the follow formula:

$$\text{Creative Outcomes} = a + B1X1 + B2X2 + B3X3 + B4X4$$

where a = the constant, each B = the beta of a predictor, and the corresponding X = the individual's score for that variable (Tabachnick & Fidell, 2001).

3.2 Transformations

As the statistical tests used in the present study rely on the assumption of normal distribution, the data for each measure was assessed for normality. The Creative Outcomes and education scores showed a positive skew, indicating that the sample scored lower than would be expected in a normal population. To correct this, these scores were square rooted. However, as the Creative Outcomes scores were expressed as z scores, and therefore contained some negative values which fell below the mean, the scores on this measure were square rooted only after a number larger than the lowest negative value had been added to each score. In contrast, the Family and Friend Social Support scales and health scores showed a negative skew, denoting a participant tendency towards higher scores than would be expected in a normal

population. Thus, these scores were reflected and then square rooted to eliminate these skews.

3.3 Descriptive Statistics

The descriptive statistics for all age groups on the variables of interest are presented in Table 3.1.

Table 3.1.

Ranges, Means, and Standard Deviations on the Continuous Variables

Variable	Possible Range	Group		
		Young *N* = 49	Young old *N* = 57	Oldest Old *N* = 54
		Mean (SD)	*Mean (SD)*	*Mean (SD)*
Creative Personality	15 – 75	50.67 (6.49)	52.98 (8.38)	51.52 (7.34)
*Creative Outcomes	0 – 5	3.14 (0.76)	2.68 (0.76)	2.76 (0.96)
Self Actualisation	27 – 135	97.82 (9.04)	98.49 (9.87)	95.19 (12.82)
Family Social Support	12 – 42	33.73 (8.02)	32.61 (6.62)	33.63 (7.28)
**Friend Social Support	12 – 42	34.57 (6.98)	31.09 (6.48)	31.54 (7.14)

** significant at the 0.01 level (2-tailed).
* significant at the 0.05 level (2-tailed).

For the creativity measures, the descriptive results show that the young old group had the highest score for Creative Personality, whilst the young group produced the highest score for Creative Outcomes. For the independent variables, the young old group had the highest levels of self actualisation, whilst the young group had the most social support, from both family and friends.

3.4 Group Differences on Measures

To discern which of these differences might be significant, four oneway analyses of variance (ANOVA) were conducted. First, the relationship between age and creative personality, as measured by the Creative Personality Scale, was explored, with subjects divided into three groups (Group 1: 18-30; Group 2: 65-74; Group 3: 75 and above). Contrary to the hypothesis that older individuals would show the most creative personalities, no significant differences were found, $F(2, 157) = 1.30$, $p=.28$.

Also contrary to the predictions that self actualisation, family social support and friend social support would increase significantly with age, self actualisation showed no significant age differences $F(2,157) = 1.44$, $p=.24$; nor did the level of social support from family members $F(2, 157) = .98$, $p=.38$. In contrast, the social support of friends did differ significantly, $F(2,157) = 5.98$, $p<.01$, producing a medium effect of .07 (eta squared). However, post hoc comparisons using Tukey's HSD indicated that the groups did not differ as expected, as the young old group ($M = 31.09$, $SD = 6.48$) and the oldest old group ($M = 31.54$, $SD = 7.14$) both had significantly less support than the young group ($M = 34.57$, $SD = 6.98$).

The groups also differed significantly on creative outcomes, $F(2,157) = 4.47$, $p<.05$, with an effect size approaching medium at .05 (eta squared). Contrary to the hypothesis that creative outcomes would increase significantly with age, post hoc comparisons using Tukey's HSD showed that the young group ($M = 3.14$, $SD = 0.76$) scored significantly higher than the young old group ($M = 2.68$, $SD = 0.76$), although the oldest old group ($M = 2.76$, $SD = 0.96$) did not differ significantly from either.

3.5 Path Analysis

The hypothesised models depicted in Figure 1.1 and 1.2 were testing using path analysis, which assesses theoretical models of causal relationships between multiple independent and dependent variables, based on both direct and indirect effects (Klem, 1995).

Two types of variables are included in a path analysis, including exogenous and endogenous variables. Exogenous variables are those on the left side of the model diagram with no incoming arrows, as the model does not attempt to explain the origin of their values. In contrast, endogenous variables are those whose values are explained by other variables in the model, as shown by incoming arrows, and can act as either intervening or dependent variables. The relationships between these variables may be direct, calculated using the standardised regression coefficients derived from a multiple regression, or indirect, such that one variable only affects another through a third mediating variable. This latter relationship may be expressed through compound paths, described by the use of multiple straight arrows leading in one forward direction, and is calculated by multiplying the regression coefficients of each path. Also included in the model are the residual effects, or the unexplained variance of the variable, represented by a single arrow leading to an endogenous variable which does not originate with any other variable.

3.5.1 Inter-item Correlations

The correlations for all the variables in the path model are shown in Table 3.2.

Table 3.2.

Bivariate Correlations for Self Actualisation, Family and Friend Social Support, and the Measures of Creativity

Variables	Young $N = 49$			
	1	2	3	4
1. Creative Personality				
2. Creative Outcomes	.128			
3. Self Actualisation	.455**	.058		
4. Family Social Support	.049	.093	-.204	
5. Friend Social Support	.005	.015	-.002	.236
Variables	**Young Old N=57**			
	1	2	3	4
1. Creative Personality				
2. Creative Outcomes	.205			
3. Self Actualisation	.707**	.145		
4. Family Social Support	-.304*	-.178	-.459**	
5. Friend Social Support	-.173	-.305*	-.228	.643**
Variables	**Oldest Old $N = 52$**			
	1	2	3	4
1. Creative Personality				
2. Creative Outcomes	.312*			
3. Self Actualisation	.705**	.441*		
4. Family Social Support	-.313*	-.294*	.333**	
5. Friend Social Support	-.266	.014	-.307*	.683**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

The analysis showed that for all groups, self actualisation and creative personality were significantly positively correlated, although this relationship was stronger for the older groups than the young group. No other significant relationships were found for the young group. In contrast, the young old showed significant correlations between family social support and creative personality, and between friend social support and creative outcomes, although not in the expected direction. The oldest old showed similar significant negative relationships between family social support and creative personality and creative outcomes, although friend social support was not significantly correlated with either creative variable. Also, in contrast to the young and young old, self actualisation showed a significantly positive correlation with creative personality for the oldest old.

Finally, for the young old and oldest old, friend and family social support were significantly positive correlated. Family social support also showed significant correlations with self actualisation, although this was a negative relationship for the young old, as compared to the positive relationship found for the oldest old. In contrast, friend social support was negatively correlated with self actualisation for the oldest old.

3.5.2 Path Analysis of Model 1

The hypothesised path model to test model 1 predicted that creative personality would mediate the relationship between self actualisation and creative outcomes, a relationship that would be stronger with increasing age. As well, creative personality was predicted to affect creative outcomes, as mediated by the social support of family and friends. The R^2, degrees of freedom, *F* statistic, and significance of these relationships are shown in the table below, whilst the

unstandardised b, the standard error, the *t* statistic, and the significance of each predictor are described in Appendix D. The path coefficients are shown in the subsequent path model.

Table 3.3

R^2, Degrees of Freedom, F, and Significance Statistics for the Relationships in Model 1 for all Age Groups

Model	Criterion	Predictors	R^2	df	*F*	*p*
1.1 Young	Creative Outcomes	Creative Personality Family Social Support Friend Social Support Self Actualisation	.25	43	.28	.90
	Creative Personality	Self Actualisation	.21	47	12.25	.00
	Family Social Support	Creative Personality	.00	47	.12	.74
	Friend Social Support	Creative Personality	.00	47	.00	.97
1.2 Young Old	Creative Outcomes	Creative Personality Family Social Support Friend Social Support Self Actualisation	.02	52	.12	.14
	Creative Personality	Self Actualisation	.50	55	54.98	.00
	Family Social Support	Creative Personality	.09	55	5.58	.02
	Friend Social Support	Creative Personality	.03	55	1.69	.20
1.3 Oldest Old	Creative Outcomes	Personality Family Social Support Friend Social Support Self Actualisation	.33	49	6.12	.00
	Creative Personality	Self Actualisation	.49	52	51.24	.00
	Family Social Support	Creative Personality	.09	52	5.64	.02
	Friend Social Support	Creative Personality	.07	52	3.95	.05

As shown, in the first set of multiple regressions, creative outcomes was regressed on creative personality, family and friend social support, and self actualisation. A comparison of the coefficients for the young group showed that the

combined effect of all the predictors was not significant, and that contrary to the hypothesised relationships, creative personality, family social support, and friend social support did not have any significant direct effects on creative outcomes. Neither was the direct effect of self actualisation on creative outcomes significant.

The same regression showed similar results for the young old group, as the model did not significantly account for the variance in creative outcomes. Also, self actualisation, personality, and family social support did not have a significant direct effect on creative outcomes, although the effect of friend social support approached significance.

However, for the oldest old group, the model did significantly account for the variance in creative outcomes, and self actualisation, family social support, and friend social support each had a significant direct effect on creative outcomes, although family social support was in the opposite direction to that which had been hypothesised. The direct effect of creative personality on creative outcomes was nonsignificant.

In the second step of model testing, personality was regressed on self actualisation for each age group. The results showed a significant direct effect of self actualisation on creative personality for all age groups. As expected, the strength of this relationship was greater for both the older groups than the young group, as the model accounted for a larger proportion of the variance for the older groups.

Finally, in the third step of the model, the social support of family and friends was regressed on creative personality. Personality significantly accounted for the variance in family social support for both the young old group, and the oldest old group. A significant direct effect of creative personality on family social support was found for both the young old group and the oldest old group, although this

relationship was not in the hypothesised direction. Personality did not significantly account for the variance in family social support for the young group however; thus creative personality did not have a significant direct effect on family social support.

In contrast, creative personality did not significantly account for the variance in friend social support in any age group, nor did creative personality have a significant direct effect on friend social support for any age group, although this effect was approaching significance for the oldest old group.

Thus, based on these regressions, the indirect paths between self actualisation and creative outcomes, as mediated by creative personality did not prove significant for any age group, as calculated using Sobel's (1982) approximate significance test for indirect effects. Similarly, the indirect path from creative personality to creative outcomes via friend social support proved insignificant for every age group, as did the paths for the same variables via family social support, although the indirect path from creative personality to creative outcomes as mediated by family social support approached significance for the oldest old.

The residuals for each dependent variable in the model were also calculated to account for the unexplained variance in each. The results of these analyses are shown below.

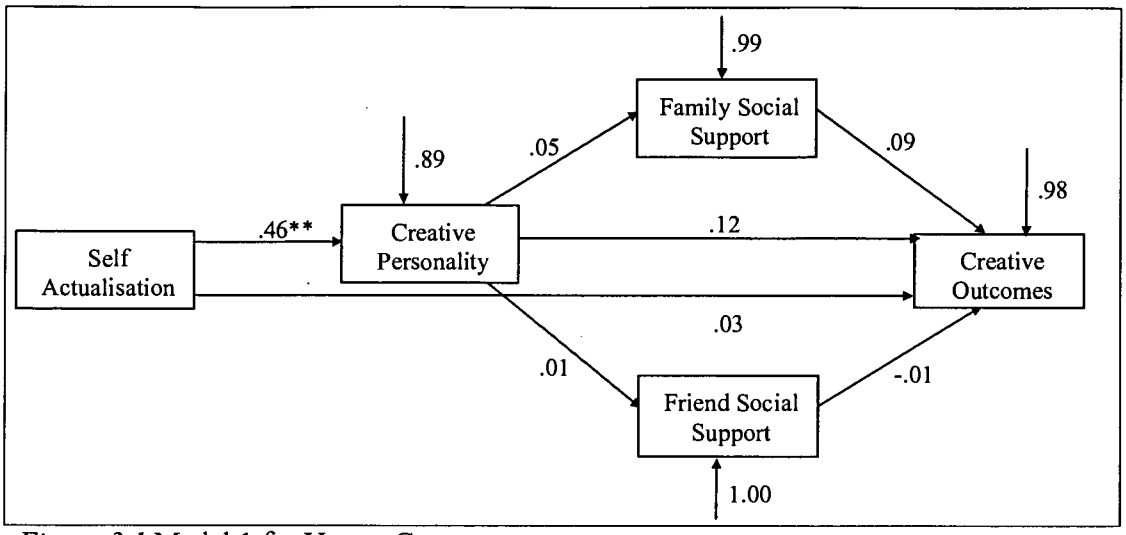

Figure 3.1 Model 1 for Young Group Note: *p<.05, **p<.01.

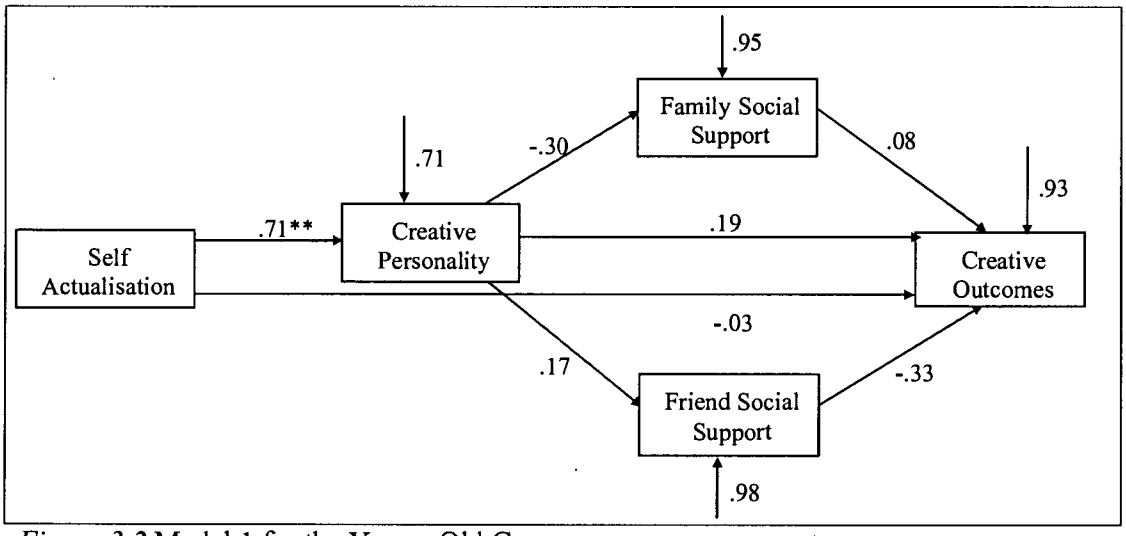

Figure 3.2 Model 1 for the Young Old Group Note: *p<.05, **p<.01.

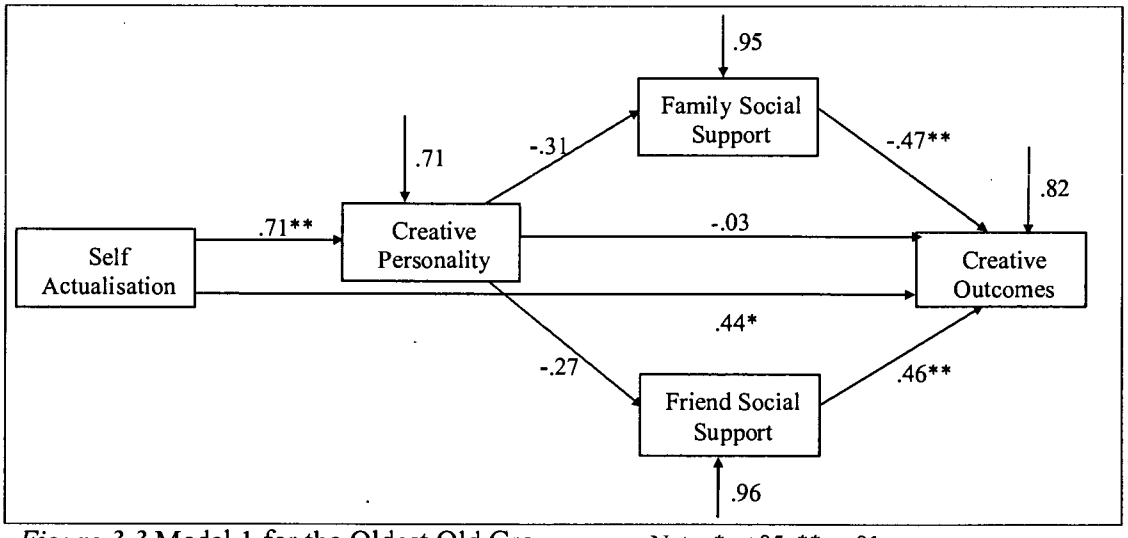

Figure 3.3 Model 1 for the Oldest Old Group Note: *p<.05, **p<.01.

3.5.3 Path Analysis of Model 2

In a competing hypothesis regarding the relationships between creative personality, social support and creative outcomes, the path analysis for model 2 predicted that family and friend social support would act as a moderator, rather than a mediator, between creative personality and creative outcomes. Therefore, the first two sets of multiple regressions were identical to those in model 1.1, and only the final regressions will be discussed for model 1.2.

To construct the interaction variables, the three predictor constructs of creative personality, family social support, and friend social support were centred in order to reduce multicollinearity as suggested by Baron and Kenny (1986). The scores on the creative outcomes variable and each source of social support were multiplied together to provide two new moderator constructs. Thus, in the third step of the model, creative outcomes was regressed on these new constructs for each age group to assess their relationships for significance. Contrary to expectation, the results indicated that these predictors did not significantly account for the variance in creative outcomes for any age group, nor was creative outcomes significantly related to creative personality as moderated by family social support (young: $\beta = .14$; young old: $\beta = .16$; oldest old: $\beta = .09$) or friend social support (young: $\beta = .-.19$; young old: $\beta = -.33$; oldest old: $\beta = .10$).

3.5.4 Direct and Indirect Relationships for Path Analyses

The direct, indirect, and total effects in the first path model are presented below.

Table 3.4

Standardised Direct and Indirect Effects of Model 1 for all Age Groups

Independent Variable	Dependent Variable: Creative Outcomes								
	Direct			Indirect			Total		
	Y	YO	OO	Y	YO	OO	Y	YO	OO
Self Actualisation	.03	-.03	.44	.05	.13	-.02	.08	.02	.42
Creative Personality	.11	.19	-.03	.00	.08	.02	.11	.21	-.01
Family Social Support	.09	.08	-.47	-	-	-	.09	.08	-.47
Friend Social Support	-.01	-.33	.46	-	-	-	-.01	-.33	.46
Independent Variable	Dependent Variable: Family Social Support								
	Direct			Indirect			Total		
	Y	YO	OO	Y	YO	OO	Y	YO	OO
Self Actualisation	-	-	-	-	-	-	-	-	-
Creative Personality	.05	-.30	-.31	-	-	-	.05	-.30	-.31
Family Social Support	-	-	-	-	-	-	-	-	-
Friend Social Support	-	-	-	-	-	-	-	-	-
Independent Variable	Dependent Variable: Friend Social Support								
	Direct			Indirect			Total		
	Y	YO	OO	Y	YO	OO	Y	YO	OO
Self Actualisation	-	-	-	-	-	-	-	-	-
Creative Personality	.01	-.17	-.27	-	-	-	.01	-.17	-.27
Family Social Support	-	-	-	-	-	-	-	-	-
Friend Social Support	-	-	-	-	-	-	-	-	-
Independent Variable	Dependent Variable: Creative Personality								
	Direct			Indirect			Total		
	Y	YO	OO	Y	YO	OO	Y	YO	OO
Self Actualisation	.46	.71	.71	-	-	-	.46	.71	.71
Creative Personality	-	-	-	-	-	-	-	-	-
Family Social Support	.05	-.30	-.31	-	-	-	.05	-.30	-.31
Friend Social Support	.01	-.17	-.27	-	-	-	.01	-.17	-.27

Note: Y = Young, YO = Young Old, OO = Oldest Old

Chapter 4: Discussion

4.1 Summary of Results

Although positive psychology suggests that phenomena such as creativity deserve further investigation, little research has been conducted to understand creativity in older adulthood, or how certain constructs relevant to development during that period may influence creativity. Therefore, the aim of the current study was to explore the relationships between creative outcomes, creative personality, self actualisation, social support, and age.

Although the hypotheses of this study were not generally supported by the present findings, the results provide important insight into the relationships between creativity and age. Specifically, the results showed no significant age differences in creative personality, self actualisation, or the social support of family members. However, the young group did show significantly higher friend social support, and creative outcomes. The results also showed that creative personality did not mediate the relationship between self actualisation and creative outcomes for any group, although self actualisation was strongly positively correlated with creative personality. Finally, for both the young and young old, social support did not act as a mediator or moderator for the relationship between creative personality and creative outcomes. However, social support was an important variable for the oldest old, as family social support showed a trend towards mediation, and direct relationships were found between social support and creative outcomes, in a negative and positive direction for family and friend social support, respectively.

4.2 Creativity Across the Lifespan

The relationships between age, creative personality, and creative outcomes were investigated to identify any existence of age differences.

4.2.1 Creative Personality

Although the hypothesis that creative personality would be significantly higher for older individuals was not supported by the present research, neither did creative traits decline significantly with age. This contradicts Alpaugh and Barren's (1977) and Klein's (1982) findings of lowered creative personality in older adulthood, although this discrepancy may reflect the faulty methodologies of the previous studies, which measured traits only indirectly on the basis of participants' judgements about the creativity of others.

Instead, the present findings are consistent with Dudek and Hall's (1991) study which found no loss of creative traits over a twenty five year period (1991), and Helson, Roberts, and Agronick's (1995) findings that creative personality in women remained stable across the lifespan. Thus, although the present findings do not preclude the instability of personality traits in other domains, they do suggest that theories of personality may require greater specificity regarding change and stability when applied to various domains, such as creativity. Moreover, this study may be of particular value as it the first research to extend to those in very late adulthood, providing an optimistic trajectory for creativity and ageing, as creative personality does not appear to decline across the lifespan.

4.2.2 Creative Outcomes

As the young group showed significantly higher levels of creative outcomes than the young old, the results of the present study did not support the hypothesis that older individuals would be more creative. However, creative expression does not simply decline over the lifespan, as no significant differences were found between the creative outcomes of the young and the oldest old.

Thus, the present findings appear to contradict Lehman's (1953) study which found that individuals showed their greatest creativity before the age of 35. Instead, this research provides support for the 'constant-probability-of success' model (Simonton, 1992), which suggests that although subject to minor fluctuations, the quality of creative works should continue across the lifespan.

The slight decline in creativity for those between the ages of 65 and 74 was unexpected however. One possible interpretation of this finding may be that the freedoms associated with retirement may no longer apply to those just entering older adulthood as a result of recent demographic shifts and increasing longevity. Instead, these individuals may pursue paid employment until a later age, and may also face commitments associated with ageing parents. Thus, the beneficial nature of the greater resources associated with age, such as decreased time constraints, increased financial freedom, and greater life experience may not begin to affect creative outcomes until much later in life.

Therefore, despite the slight decline in creative outcomes found in early older adulthood, it appears that the oldest individuals do not accept the popular myth that age must be associated with senility, rigidity and learning deficits (Stevens-Long, 1988), instead showing comparable levels of creativity to their younger counterparts,

suggesting an optimistic understanding of creative expression into the very later ends of the lifespan.

4.3 Creative Outcomes, Self Actualisation and Creative Personality

As personality was hypothesised to mediate the relationship between self actualisation and creative outcomes, it was expected that creative personality would show significant positive relationships with both self actualisation and creative outcomes. However, this was not supported by the present study. As expected, self actualisation showed a strong positive relationship with creative personality for all age groups, providing support for Maslow's (1968) theory that self actualised creativity is most readily expressed as an embedded facet of an individual's personality. Interestingly, this relationship was strongest for older individuals, suggesting that whilst self actualisation is important for the creative personalities of those in later adulthood, other factors may account for this in young people.

However, no significant relationships were found between creative personality and creative outcomes for any age group. This surprising finding contradicts both the theory (Guilford, 1950) and research (eg. Feist, 1998; Gough, 1979) which suggests that creative personality traits facilitate greater creative expression. However, as much of the previous research has investigated only artistic forms of creativity, rather than the multiple types found in the current study, the discrepancy in these findings may suggest that not all forms of creative expression are related to creative traits. This interpretation is consistent with Wolfradt and Pretz's findings (2001) that only 1.9% of the variance in creative personality was explained by the story writing exercise used to measure creative outcomes. Thus, theoretical explanations for the relationship between creative personality and creative outcomes may require greater

specificity to better explain how traits may influence the creativity of various domains.

Based on these findings, creative personality does not appear to mediate the relationship between self actualisation and creative outcomes. Interestingly however, a direct significant positive relationship was found between self actualisation and creative outcomes for the oldest old. As no significant age differences were found for self actualisation, it may not be the amount of self actualisation which impacts upon creativity as suggested by Maslow (1968). Instead, concurrent influences such as the greater meaning of existence which often accompany older adulthood (Antonucci, Okorodudu, & Akiyama, 2002; Levy & Langer, 1999) may combine with self actualisation to more highly influence creative outcomes. This interpretation is consistent with Landau and Maoz's (1978) findings that older individuals showed similar correlations between creativity and self actualisation, and creativity and the meaning given to life and death.

4.4 Creative Personality, Social support and Creative Outcomes

The hypotheses that the social support of family and of friends would mediate the relationships between creative personality and creative outcomes were not clearly supported by the results. Specifically, no significant relationships were found between family social support and creative outcomes for either the young or young old group, nor did the young group show any significant relationship between creative personality and family social support. Thus, for the young and young old groups, family social support does not appear to mediate the relationship between creative personality and creative outcomes. Similarly, no significant indirect relationships

were found between creative personality and creative outcomes as mediated by friend social support for any age group.

The absence of these predicted relationships appears to contradict the mediation interpretation of the creative ecosystems theory (Harrington, 1990) which suggests that the presence of creative personality traits will motivate individuals to seek out social support to assist their creative expression. However, this discrepancy may be explained by the nature of certain creative personality traits such as independence and confidence, as those possessing these traits may be so autonomous by nature and confident enough in their creative potential that the social support of family members is simply redundant. As Madjar et al.'s (2002) found that the output of individuals with more creative personalities occurred irrespective of the social support of family and friends, this possibility seems likely.

The finding of an indirect effect of creative personality on creative outcomes which approached significance for the oldest old suggests a further challenge to creative ecosystems theory, as family social support was negatively related to both these creative variables, in contrast to the positive relationships predicted by the theory. Thus, although older individuals with more creative personalities receive less family social support, it appears they actually produce more creative outcomes. Moreover, these relationships were sustained even after a post hoc analysis controlled for the possible effects of ill health. Therefore, these results provide strong support for the counter productive nature of family social support in very late adulthood.

One possible interpretation of this finding is that the creativity of older individuals is a more solitary task, providing support for those theories which suggest that creative activity occurs best in isolation by supplying the necessary time to acquire and practice creative skills (Levy & Langer, 1999; Olszewski-Kubilius, 2000).

Alternatively, as this finding relates specifically to the oldest old, it may also be explained by the nature of family social support in older adulthood. Rather than reflecting the encouragement and practical assistance identified as beneficial by the creative ecosystems theory (Harrington, 1990), younger individuals may feel responsible for the older adult's welfare, thus infringing upon the older individual's sense of autonomy and negatively impacting their creativity and spontaneity (Bruhn & Philips, 1984). This is further supported by this study's finding of a significant negative relationship between creative personality and family social support also for the young old, but not the young.

In contrast, a significant positive relationship was found between friend social support and creative outcomes for the oldest old. Thus, as suggested by the creative ecosystems theory (Harrington, 1990), some social support does appear to have a beneficial effect, perhaps due to the nature of these friendships, which may provide greater encouragement and motivation for creative endeavours without any loss of autonomy. This interpretation is consistent with Csikszentmihalyi's (1990) domain theory of creativity which suggests that peers, who share an understanding of the challenges faced and resources required during this period of life, will play a more important role than family in the creativity of older individuals. Finally, the finding that the social support of friends is so important in very late adulthood may be particularly interesting, as the present results showed they had less of this construct that younger individuals, yet showed higher correlations with creative outcomes.

Thus, this study contributes significantly to the literature by providing a more specific understanding of the differential effects of family and friend social support on creativity, both in the young and old, the latter of whom have never before been studied empirically in this area.

4.4.1 Moderating Effects of Family and Friend Social Support

To better understand the relationships between creative personality, social support, and creative outcomes theorised by the creative ecosystem theory (Harrington, 1990), the present study also tested a moderator hypothesis for these relationships. However, the results did not support this hypothesis for any age group. As such, this finding, in tandem with the mediating and direct effects found between social support and creative outcomes for the older age groups, suggests that creative outcomes are not dictated by existing levels of social support for those with creative personalities. Instead, it appears creative older individuals will seek out the amount and specific type of social support they feel is appropriate, or in its absence continue producing creative outcomes in some form. This finding may be of particular value as it suggests that this relationship is more complex than previously conceptualised, and that creative older individuals may be more pro-active in their social environment than thought.

4.5 Limitations

Some caution is necessary when interpreting the findings of the present study, due to several limitations.

4.5.1 Sample

The extent to which the current results may be generalised to the wider population may be limited due to the use of a non random sample in the present study. Instead, a sample of convenience was drawn primarily from community-based organisations, which may present an overly optimistic portrayal of ageing and

creativity, as such individuals may show a more autonomous and active lifestyle than is present in a normally distributed population.

Further, as with most gerontological research, due to the age requirements of participation it proved difficult to find a very large sample size, thus resulting in some limitations in the power of this study, which may have hindered the identification of significant results when the effect sizes were small. However, as this was an exploratory study in an area of little previous research, these findings may provide a useful basis for calculating the required sample sizes of future research.

4.5.2 Design

One important methodological limitation of the present study involved the diversity of the Creative Expression Measure, as time constraints allowed for only a writing exercise, rather than providing opportunities for creativity in other domains. In future, this could be addressed through the inclusion of more extensive creative measures, or an observational methodology. However, as the formulation of the Creative Expression measure was derived from both theory and research, and the simplicity of the task provided an opportunity for every individual to express creativity, this measure provides important insight into the creativity of older individuals not previously explored by empirical study.

The self report nature of this study may have also been problematic, as social desirability biases may have influenced individuals' responses to questions concerning social support from others, and their own levels of autonomy, self expression, and self awareness. However, many of the scales used in the present study have been validated with numerous samples, indicating that their usefulness is not limited by the nature of the data collection. Finally, as the cross sectional nature of

the present study precludes any definitive conclusions regarding age based changes, future longitudinal research would be useful to address this limitation.

4.6 Practical Implications

Despite these limitations, the results of the present study suggest some important implications for a life span developmental perspective. For example, the finding that creative personality does not decline over the lifespan suggests that important traits like independence, flexibility and confidence which contribute to optimal ageing continue into older adulthood, providing an optimistic understanding of the ageing process. Also, the finding that the quality of creative outcomes did not differ significantly between the youngest and oldest participants suggests that the everyday creativity which promotes greater health and life satisfaction (Bonhote, Romano-Egan, & Cornwell, 1999; Cusack, Thompson, & Rogers, 2003; Simonton, 2002) is not impeded even into very late adulthood.

The relationships found between self actualisation, social support, creative personality and creative outcomes also suggest some important implications. Specifically, the finding that self actualisation is positively related to creative personality suggests that self actualisation should be encouraged where possible, to increase those creative personality traits which may enable an individual to better face the adaptive challenges associated with later life. Also, as the social support of family was found to be negatively related to creative outcomes, it is important to recognise the continuing importance of autonomy across the lifespan, which promotes greater spontaneity, flexibility, and confidence. Finally, the discovery that the influence of different sources of social support may vary across the lifespan has important implications for developmental perspectives, as this research suggests those models

which apply to 65 and 75 year olds may not adequately explain the experiences of 80, 90 or 100 year olds. Instead, the results of the present study suggest that very late adulthood is a specialised time of creative expression.

4.7 Research Directions

Based on the findings of the present study, several directions for future research are suggested. First, to provide greater understanding of everyday creativity and its relationships with socio-psychological influences like those explored in the present study, future research could investigate the differential development of creativity across the lifespan based on career choice, cultural background, or hereditary influences. As well, because the social support of friends was significantly correlated with creative outcomes for the oldest adults, further research on the manner in which various types of social support may differentially influence creativity may be useful, to provide greater understanding of how to appropriately provide encouraging emotional, instrumental and informational support for older adults. As western societies have primarily explained creativity as an individual pursuit (Simonton, 2002), explorations of 'group creativity' with older individuals would also be useful, to understand how ongoing interactions with peers may act as a catalyst for the expression of creativity, and how these expressions might differ when undertaken in a group setting.

Future research into the resources which influence creativity and are often specific to older adulthood, such as financial and temporal freedom, may be useful in providing practical grounding for strengthening the creativity of older adulthood. Finally, though not the specific purpose of this study, as the present findings showed that self actualisation and social support were not related to the creativity of younger

individuals, future research may investigate which factors do explain creative outcomes for those just entering adulthood.

4.8 Conclusion

In sum, the results of the present study show that the expression of creativity varies greatly across the lifespan. Creative personality did not mediate the relationship between self actualisation and creative outcomes, although self actualisation and creative outcomes are directly related for the oldest old. Furthermore, for both the young and young old, family and friend social support appeared to neither mediate nor moderate the relationship between creative personality and creative outcomes. However, for the oldest old, the results suggest a trend towards negative mediation by family social support, in contrast to the positive influence of the social support of friends found for this group. Thus, these results suggest that creativity must be understood as a lifespan construct, which continues to develop even into very late adulthood, thus presenting an optimistic portrayal of the ageing process.

The relationships found between creativity, self actualisation, and social support also suggest areas for future research, such as the solitary or social nature of creative expression, and the differential development of various domains of creativity. Finally, this study makes several valuable contributions to the literature by providing insight into the trajectory of creativity in older adulthood which has received little previous empirical attention, and through the identification of how various important constructs of older adulthood may specifically relate to creativity across the lifespan.

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Appendix A

Information Letter

University Logo

University of South Australia
School of Psychology
Dr. Rob Ranzijn (Supervisor)
Ph: 8302 4468
Email: rob.ranzijn@unisa.edu.au

Creativity in Older Adulthood

Dear Sir or Madam:

You are invited to participate in a study being conducted by Jodie George, a fourth year psychology student of the University of South Australia, as part of her Honours Thesis assessment.

The purpose of this study is to explore creativity in older adulthood. If you are willing to participate, you will be asked to fill out a short questionnaire, which should take only 20-30 minutes to complete. Once you have completed the questionnaire, please send it back to the University of South Australia using the Reply Paid envelope provided with the study. Your assistance would be greatly appreciated.

Please note, your responses will be entirely confidential and anonymous. To ensure this, the collected information will be handled only by the researcher. All information collected will be stored securely for seven years in a locked department at the School of Psychology. Of course, your participation is done on a completely voluntary basis, so you are free to withdraw at any time.

This study has been approved by the Divisional Ethics Committee of the Division of Education, Arts and Social Sciences at the University of South Australia. If you have any questions please feel free to contact Dr Sharon Russo on 8302 4469 or at sharon.russo@unisa.edu.au.

Thank you for your assistance.

Kind Regards,

Jodie George

Appendix B

Questionnaire

Thank you for your participation in this study. First, please indicate how well you think the traits listed below describe your own personality by circling the appropriate number appearing beside them. For example, if one of the words was humorous, and you think you're very humorous, you would circle the number 5 'Very like me', but if you think you're not humorous at all, you would circle the number 1 'Not at all like me'.

	Not at all like me		Somewhat like me		Very like me
Independent	1	2	3	4	5
Flexible	1	2	3	4	5
Conscientious	1	2	3	4	5
Tolerate Uncertainty	1	2	3	4	5
Original	1	2	3	4	5
Reserved	1	2	3	4	5
Unstable	1	2	3	4	5
Curious	1	2	3	4	5
Serious	1	2	3	4	5
Unconventional	1	2	3	4	5
Confident	1	2	3	4	5
Deliberate	1	2	3	4	5
Aloof	1	2	3	4	5
Imaginative	1	2	3	4	5
Daring	1	2	3	4	5
Conservative	1	2	3	4	5
Conscious of Beauty	1	2	3	4	5
Broad Interests	1	2	3	4	5
Assertive	1	2	3	4	5
Enjoy Complexity	1	2	3	4	5

Next, I would like you to think about your attitudes towards yourself. Take a moment to read each statement, then please circle the answer you think best describes how you feel about yourself.

1. I am a person who values him/herself _____.

Very little	A little	Somewhat	Very much	Greatly

2. I can express my emotions in any circumstances _____.

With great difficulty	With difficulty	Somewhat easily	Easily	Very easily

3. I can predict my reactions _____.

Very rarely	Rarely	Sometimes	Often	Very often

4. I believe _____ that life is good for me.

Very little	A little	Somewhat	Strongly	Very strongly

5. I adapt to change _____.

With great difficulty	With difficulty	Somewhat easily	Easily	Very easily

6. To know my worth, I base myself _____ on what other people think.

Very little	A little	Somewhat	Very much	Greatly

7. Whatever happens to me, I trust my feelings _____.

Very little	A little	Somewhat	Very much	Greatly

8. I feel I am _____ responsible for my life.

Hardly at all	Not very	Somewhat	Very	Greatly

9. For me, the present moment counts _____.

Hardly at all	Not very	Somewhat	Very	Greatly

10. I know my strengths and limitations _____.

Very little	A little	Somewhat	Very well	Extremely well

11. I am inclined to follow other people's example _____.

Very rarely	Rarely	Sometimes	Often	Very often

12. I listen to my emotions _____.

Very little	A little	Somewhat	Very much	Greatly

13. I _____ try to put myself in other people's shoes in order to understand them.

Very rarely	Rarely	Sometimes	Often	Very often

14. I believe _____ that people are basically good.

Very little	A little	Somewhat	Strongly	Very strongly

15. I can act spontaneously without losing control _____.

With great difficulty	With difficulty	Somewhat easily	Easily	Very easily

16. I insist on making my own decisions _____.

Very little	A little	Somewhat	Very much	Greatly

17. I _____ share my joys and sorrows with a confidant.

Very rarely	Rarely	Sometimes	Often	Very often

18. When thinking about my past life, I _____ suddenly understand why certain things happened.

Very rarely	Rarely	Sometimes	Often	Very often

19. I _____ give my life meaning by the way I look at things.

Very rarely	Rarely	Sometimes	Often	Very often

20. I usually get over major setbacks _____.

With great difficulty	With difficulty	Somewhat easily	Easily	Very easily

21. Criticism _____ prevents me from doing what I feel like doing.

Very rarely	Rarely	Sometimes	Often	Very often

22. When I am with other people, I _____ show the real me.

Very rarely	Rarely	Sometimes	Often	Very often

23. I am _____ inclined to get involve in important causes.

Hardly at all	Not very	Somewhat	Very	Extremely

24. I succeed _____ at giving meaning to life.

With great difficulty	With difficulty	Somewhat easily	Easily	Very easily

25. In difficult situations, I _____ remain true to myself.

Very rarely	Rarely	Sometimes	Often	Very often

26. I express my opinions _____.

With great difficulty	With difficulty	Somewhat easily	Easily	Very easily

27. I can be interested in other people's problems without thinking about my own _____.

With great difficulty	With difficulty	Somewhat easily	Easily	Very easily

Next, below are some questions about the kind of help and support that is available to you from family and friends. For each item, please circle the most appropriate option.

A. Firstly, think of your **family**, especially the two or three people who are most important to you.

1a. How often do they really listen to you when you talk about your concerns or problems?

Never Sometimes Often Usually or Always

1b. And would you like them to do this

More often Less often It was just right

2a. How often do you feel that they really try to understand your problems?

Never Sometimes Often Usually or Always

2b. And would you like them to do this

More often Less often It was just right

3a. How often do they really make you feel loved?

Never Sometimes Often Usually or Always

3b. And would you like them to do this

More often Less often It was just right

4a. How often do they help you in practical ways?

Never Sometimes Often Usually or Always

4b. And would you like them to do this

More often Less often It was just right

5a. How often do they answer your questions or give you advice about how to solve your problems?

Never Sometimes Often Usually or Always

5b. And would you like them to do this

More often Less often It was just right

6a. How often can you use them as examples of how to deal with your problems?

Never Sometimes Often Usually or Always

6b. And would you like them to do this

More often Less often It was just right

B. Now, for the next part, think of the support you receive from those people you consider to be your closest **friends**.

1a. How often do they really listen to you when you talk about your concerns or problems?

Never Sometimes Often Usually or Always

1b. And would you like them to do this

More often Less often It was just right

2a. How often do you feel that they really try to understand your problems?

Never Sometimes Often Usually or Always

2b. And would you like them to do this

More often Less often It was just right

3a. How often do they really make you feel loved?

Never Sometimes Often Usually or Always

3b. And would you like them to do this

More often Less often It was just right

4a. How often do they help you in practical ways?

Never Sometimes Often Usually or Always

4b. And would you like them to do this

More often Less often It was just right

5a. How often do they answer your questions or give you advice about how to solve your problems?

Never Sometimes Often Usually or Always

5b. And would you like them to do this

More often Less often It was just right

6a. How often can you use them as examples of how to deal with your problems?

Never Sometimes Often Usually or Always

6b. And would you like them to do this

More often Less often It was just right

Next, please read the following scenario and make as many suggestions as you can for how this problem might be solved. There is no time limit. If you run out of writing space, please feel free to write on the back of this sheet.

Problem: A 70 year old man has recently had eye surgery and is unable to drive for the next two months, until his eye has completely healed. Although he is able to travel by bus, when grocery shopping, he cannot transport the groceries home, and the local grocery store does not deliver. What should he do?

Possible Solutions

Now, please consider what possible uses the two common objects, a bottle and a paper clip, might have. You may be as creative as you like, and please feel free to suggest uses that involve either one, or both of the objects.

Now here is an opportunity for open creativity. Please describe your favourite place in 50 words or more, and feel free to be as creative as you like when interpreting this question.

Next, please indicate your level of health by circling the answer that best applies in each case.

1. How would you rate your overall health at the present time?	Poor	Fair	Good	Very Good	Excellent
2. Would you say that your health is better, about the same, or worse than most people your age?	Worse		Same		Better
3. Is your health now better, about the same, or not as good as it was about twelve months ago?	Worse		Same		Better

Finally, please provide some general information about yourself.

Age: ..... years. Sex: M/F (please circle)

Level of Education (please circle)

Primary	Secondary	Trade Qualification or TAFE	Undergraduate Degree	Post Graduate Degree

Other: _____

Please feel free to make any other comments:

.....

.....

.....

.....

Thank you for taking part in this research.

Appendix C

Ethics Approval

Division of Education, Arts & Social Sciences
Divisional Human Research Ethics Committee
Y3-39 Academic Services, City West Campus
Ph 8302 0341 Fax 8302 0334
Email **rhonda.porter@unisa.edu.au**

27 May 2004

Jodie George Email geojj001

Dear Jodie

Project Title: Creativity in older adulthood

Thank you for the amended information provided to DHREC about your research project.
Your submission was assessed by the Committee and has been approved as being in accordance with the guidelines set by the Divisional Human Research Ethics Committee.

Best wishes for your study.
Yours sincerely
Rhonda Porter
Executive Officer
Divisional Human Research Ethics Committee
cc Supervisor
Chair – DHREC

Appendix D

Multiple Regression Table

Unstandardised B, standard error (SE), t, and Significance Values for the Relationships in Model 1 for all Age Groups

Model	Criterion	Predictors	B	S.E.	*t*	*p*
1.1 Young	Creative Outcomes	Creative Personality	.01	.02	.65	.52
		Family Social Support	.05	.09	.60	.55
		Friend Social Support	-.01	.09	-.06	.96
		Self Actualisation	.00	.01	.16	.88
	Creative Personality	Self Actualisation	.33	.09	3.50	.00
	Family Social Support	Creative Personality	.01	.03	.34	.74
	Friend Social Support	Creative Personality	.00	.03	.03	.97
1.2 Young Old	Creative Outcomes	Creative Personality	.02	.02	1.06	.29
		Family Social Support	.06	.14	.42	.68
		Friend Social Support	-.26	.13	-1.93	.03
		Self Actualisation	-.00	.02	-.16	.88
	Creative Personality	Self Actualisation	.60	.08	7.41	.00
	Family Social Support	Creative Personality	-.04	.02	-2.36	.02
	Friend Social Support	Creative Personality	-.02	.02	-1.30	.20
1.3 Oldest Old	Creative Outcomes	Personality	-.00	.02	-.16	.88
		Family Social Support	-.38	.13	-2.89	.01
		Friend Social Support	.43	.15	2.89	.01
		Self Actualisation	.03	.01	2.66	.01
	Creative Personality	Self Actualisation	.40	.06	7.16	.00
	Family Social Support	Creative Personality	-.05	.02	-2.38	.02
	Friend Social Support	Creative Personality	-.04	.02	-1.99	.05