

Generativity: An Investigation of its Relationship to Psychological Well-being in Adulthood

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Abstract

Generativity refers to care and concern for the next generation, and a desire to leave a valuable legacy in the form of a contribution to others and to society (Erikson, 1963; McAdams & de St. Aubin, 1992; Stewart, Franz & Layton, 1988). While generativity is assumed to promote psychological well-being in adulthood, the extent to which this is true of all of its components remains uncertain, despite a considerable body of related research in recent years. Also unclear is the extent to which generativity is characterised similarly or differently over the adult lifespan. Using a quantitative approach, this thesis sought to investigate certain motivational, behavioural and perceptual aspects of generativity and their relationships with age and well-being, in young, midlife and older adults.

The thesis is structured in two parts. Drawing on the prior work of several scholars (e.g., McAdams and de St. Aubin, 1992; Keyes & Ryff, 1998; Stewart & Vandewater, 1998), Part 1 focuses on four elements of generativity: (1) generative concern (an expression of generative motivation); self-evaluations of one's (2) current and (3) whole-of-life generativity; and (4) generative behaviour. In a sample of 292 adults (aged 18 to 87 years), using measures that were derived from instruments initially developed by McAdams and de St. Aubin (1992), it examined age-cohort differences in these components, as well as in their relationships with well-being. Support was found for the overarching hypotheses that: (1) generativity is configured differently at different periods of the lifespan, with high self-evaluations of generativity being more characteristic of mature than of younger adulthood; (2) self-evaluations of generativity are more strongly related to psychological well-being than is either generative concern or generative behaviour; and that (3) the extent to

which self-evaluations of current versus whole-of-life generativity predict psychological well-being differs between young, midlife and older adults.

In Part 2 of the thesis, the focus shifts to generativity within the parenting domain. Measures of parental generative behaviour and self-evaluations of parental generative accomplishment, together with self-evaluations of global (whole-of-life) generativity and psychological well-being, were collected from 47 midlife and 60 older parents ranging in age from 40 to 84 years. As expected, midlife parents engaged in higher levels of parental generative behaviour than did older parents, but nevertheless, the relationship between parental generative behaviour and self-evaluations of global generativity was stronger in older parents than in midlife parents. Furthermore, while parental generative accomplishment was related to psychological well-being (integrity and depressed affect) in older adults, only self-evaluations of global generativity predicted well-being in midlife adults. The results of the study highlight the value of investigating generativity at the domain-specific, as well as the global level.

Declaration

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Signed *BW Boyd* Date *7th June 2007*

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Chapter 1 Generativity and its Role in Adult Development

1.1. Overview

Generativity refers to care and concern for the next generation, and a desire to leave a valuable legacy in the form of a contribution to others and to society (Erikson, 1959, 1963; Erikson, Erikson, & Kivnick, 1986; Keyes & Ryff, 1998; McAdams & de St. Aubin, 1992; Peterson & Klohnen, 1995; Stewart, Franz, & Layton, 1988). Since Erikson's early formulations, generativity has been regarded as a hallmark of mature adult development, linking the individual to society through acts of caring, procreation and productivity, and promoting individual psychological well-being and social integration, as well as social cohesiveness, continuity and progress (McAdams & de St. Aubin, 1998). Generativity has been linked to positive outcomes for both the individual and society, including authoritative parenting styles and socialisation practices (Peterson & Duncan, 1999; Pratt, Norris, Arnold, & Filyer, 1999), social involvement and political activism (Cole & Stewart, 1996; Hart, McAdams, Hirsch, & Bauer, 2001; Lawford, Pratt, Hunsberger, & Pancer, 2005; Peterson, Smirles, & Wentworth, 1997; Stewart & Gold-Steinberg, 1990), and volunteering (Fisher, 1995; Snyder & Clary, 2004), to name a few. Not surprisingly, therefore, the nature of generativity and its significance in the adult life cycle have attracted considerable research attention. Recently, this research attention has culminated in the publication by the American Psychological Association of two books entirely devoted to the subject (de St. Aubin, McAdams, & Kim, 2004; McAdams & de St. Aubin, 1998).

Despite the proliferation of research, however, some aspects of the nature of generativity have remained elusive. Firstly, the distinctions between certain motivational and self-perceptual components of generativity require further clarification, as does the nature of the connections linking these and other components of generativity (e.g. generative behaviour) to age and well-being. One aim of this thesis was to shed further light on these questions, using a quantitative approach. In particular, it aimed to disentangle two components of generativity that may have previously been confounded in the literature, generative self-evaluations and generative concern (e.g., de St. Aubin & McAdams, 1995; McAdams & de St. Aubin, 1992; McAdams, de St. Aubin, & Logan, 1993), and to test the hypothesis that generative self-evaluations may be more directly linked to psychological well-being than is either generative concern or generative behaviour.

Another set of questions that invites further investigation concerns the role of age in shaping both the expression of generativity and the extent to which generativity is predictive of well-being. Although prior researchers have investigated similar questions (e.g., Keyes & Ryff, 1998; McAdams, de St. Aubin, & Logan, 1993), it is only comparatively recently that a theoretical framework has emerged for the *systematic* investigation of age effects (Stewart & Vandewater, 1998). This framework proposes that (1) generativity is configured differently at different periods of the adult lifespan, and that (2) age may therefore moderate the relationship between the various components of generativity and psychological well-being. The present thesis aimed to test these assumptions. Given that much prior research on generativity has focused exclusively on the midlife period (MacDermid, De Haan, & Heilbrun, 1996; MacDermid, Heilbrun, & DeHaan, 1997; Stewart & Ostrove, 1998),

it is believed this approach may shed light on the character and implications of generativity in younger and older adulthood, as well as during midlife.

The thesis is structured in two parts, one concerned with global generativity, and the other with domain-specific generativity. Using cross-sectional data collected from a single sample of young, midlife and older adults, Part 1 (Chapters 2 to 5) seeks to elucidate the distinctions among the various components of global generativity and to investigate their respective relationships with age and well-being. It investigates the (1) factor structure of psychological and behavioural components of global generativity, (2) associated age-cohort differences, (3) the relationship of the various components of global generativity with well-being, and (4) the extent to which age moderates these relationships. Part 2 (Study 5) uses data from a second sample to focus on generativity within a single social role – parenthood – in a sample of midlife and older adults.

The research was primarily influenced by the prior work of several prominent scholars in the field, notably Erikson (Erikson, 1963, 1980, 1982; Erikson, Erikson, & Kivnick, 1986), McAdams and his colleagues (e.g., McAdams & de St. Aubin, 1992; McAdams, Hart & Maruna, 1998), Keyes and Ryff (1998), and Stewart, Vandewater and their colleagues (Stewart, Franz, & Layton, 1988; Stewart & Ostrove, 1998; Stewart, Ostrove, & Helson, 2001; Stewart & Vandewater, 1998; Zucker, Ostrove, & Stewart, 2002). These approaches are examined in detail in the remainder of this chapter, along with the associated research and its implications. The chapter concludes with an overview of the five studies comprising this thesis.

1.2. Four Conceptual Approaches to Generativity

1.2.1. Erikson: Generativity as a Stage of Psychosocial Development

As a construct in modern psychological theory and research, generativity originated in Erikson's epigenetic model of psychosocial development (Erikson, 1963). The basic tenets of Erikson's theory are well known, so only a brief summary is presented here. According to Erikson, psychosocial development proceeds through eight discrete stages, from infancy to old age, each of which is governed by its own psychosocial crisis. Each crisis involves a tension or conflict between two opposing psychological tendencies, one "positive" and the other "negative". Crises are "psychosocial" because at each stage, there is a correspondence between the dominant developmental issue facing the individual and the expectations and opportunities of the surrounding society. The four stages or crises of most relevance to adulthood are identity versus identity diffusion (late adolescence), intimacy versus isolation (young adulthood), generativity versus stagnation (middle adulthood), and integrity versus despair (older adulthood). At each stage, successful resolution results in a favourable balance of the positive over the negative tendency (Erikson, 1982; Snarey, 1993), and a further integration of the individual within the wider society. This assists in the negotiation and resolution of subsequent stages, so that development is progressive, with each stage building on the one before.

In his model, Erikson posits that the tension between generativity and its antithesis, stagnation, preoccupies the seventh and longest developmental stage, spanning the midlife period between 30 and 60 years of age. Successful resolution of the two prior stages means that the maturing adult has acquired a secure sense of

identity and has established a stable, intimate partnership with another person. This means that he or she is ready to produce or create, and then care for, the next generation. While procreation and child-rearing represent the biological expressions of generativity, the core generative themes of procreativity, creativity and productivity extend into many life domains including work, interpersonal relationships, and contributions to the wider society (Erikson, 1963, 1980). One important aspect of generativity concerns the conservation and improvement of society that is to be passed on to future generations. Care, defined as the “widening concern for what has been created by love, necessity, or accident” (Erikson, Erikson, & Kivnick, 1986, p. 37), is the psychological “virtue” that aids in the realisation of generativity. This motivates individuals to think beyond the self and to persist in generative endeavours, even when they appear to interfere with one’s own immediate welfare. The antithesis of generativity is stagnation, which results from excessive preoccupation with the self and is characterised by boredom, self-absorption, and a sense of emptiness (Erikson, Erikson, & Kivnick, 1986; Midlarsky & Kahana, 1994). It is also characterised by “rejectivity”, the tendency to exclude particular people or groups from one’s radius of care (Erikson, 1982, p. 70).

Although Erikson ostensibly accorded an important role to society and context in shaping the expression and resolution of generativity (along with his other stages), his model may be described as “ontogenetic” (Levenson & Crumpler, 1996, p. 137): progression through the eight stages of psychosocial development, each of which is qualitatively different from its predecessor, is governed by intrinsic biological and age-related imperatives, so that the organism unfolds in a unidirectional and invariant sequence. Thus, the tension between intimacy and isolation invariably precedes that between generativity and stagnation, which in turn precedes that between integrity

and despair, and generativity is most prominent as a psychosocial issue at midlife. As such, age may be the most reliable correlate of developmental stage.

In Erikson's model, successful realisation of generativity promotes psychological health during midlife, resulting in "an increased sense of inner unity, an increase of good judgement, and an increase in the capacity to do well" (Erikson, 1980, p. 52). An important benefit of generativity is that it provides an avenue through which the individual may leave a lasting and positive legacy of the self. This may take a variety of forms, ranging from one's biological descendants (e.g., children and grandchildren) to other life products or contributions to society (Kotre, 1984). As such, generativity paves the way for resolution of the final developmental stage, the task of achieving integrity, or acceptance of oneself and one's past life (Erikson et al., 1986), and thereby promotes well-being. Through having created a positive legacy, the older individual is able to overcome any potential tendency towards despair (the antithesis of integrity) that may arise from the knowledge that, with life drawing to a close, opportunities to improve or expand one's legacy are diminishing.

In later writings, Erikson developed the view that the psychosocial benefits of generativity are not confined to middle adulthood, but extend into older adulthood as well (Erikson et al., 1986). He used the term "grand-generativity" to describe the kinds of activities that promote "vital involvement" in old age. While not precisely defined, grand-generativity appears to be characterised by a variety of familial and social activities, including caring for children and grandchildren, assisting friends and neighbours, volunteering, engaging in creative leisure pursuits, and expressing active concern for the world and society (Erikson et al., 1986). These kinds of activities serve important psychosocial functions for the older adult. These include the expression of care for future generations and for the world they will inherit; vicarious

realisation of unfulfilled aspects of the self through involvement in the activities of children and grandchildren; the creation of a personal legacy through the transmission of personal characteristics and values to future generations; personal redemption, through reparation of past mistakes and past instances of generative failure (e.g., prior neglect of one's children because of excessive involvement in work); fulfilment of the "need to be needed"; and maintenance of a sense of connectedness to the world (Erikson et al., 1986). Thus, later life grand-generativity appears to fulfil many of the functions served by midlife generativity, particularly if earlier generative efforts have been thwarted, or characterised by disappointment or failure. Grand-generativity has not been accorded the status of a separate stage in Erikson's model, and has attracted relatively little attention among researchers (although see Carlson, Seeman, & Fried, 2000; Midlarsky & Kahana, 1994; Warburton, McLaughlin, & Pinsker, 2006, for exceptions). Nonetheless it appears to have formed an important part of Erikson's thinking about well-being in later life. Therefore, one aim of this thesis is to examine evidence of it in older adults, and its relationship to integrity.

To summarise, then, Erikson conceived of the tension between generativity and its antithesis, stagnation, as occupying a stage of adult development, the core themes of which are the welfare of the next generation and the welfare and continuation of society. Generativity is characterised by both productivity (embracing creativity and procreativity), and care, being most visible in the arenas of parenting and work. However, because the term generativity refers to a life stage, it may equally be applied to the concerns, behaviours, and personality characteristics belonging to that stage, and Erikson makes no systematic attempt to differentiate among these various components. Because the generativity-stagnation conflict belongs to a series of age-

graded stages of adult development, the most important and reliable predictor is age, rather than other individual difference or contextual factors such as personality or social role. Thus, despite Erikson's suggestion that society and culture shape the expression of generativity, individuals' *preoccupation* with generativity (their generativity concerns) may be expected to be more prominent during midlife than at other stages of adulthood, regardless of individual difference or contextual factors. Similarly, the age-graded nature of generativity also implies that *expressions* of generativity (e.g., in behaviour) should be more evident during midlife than at other periods, for example during younger adulthood, when the intimacy-isolation tension predominates, or older adulthood, when the focus is on integrity versus despair. This means that the age trajectory of generativity should follow an inverted U-shaped curve, reaching a crest during midlife. Fourthly, given the importance of generativity to midlife adults, the relationship between the successful realisation of generativity and well-being should be stronger for this age group than for younger and older adults.

Since recent approaches to generativity originated with Erikson, all subsequent research (including the current thesis) is necessarily indebted to his work. As noted by several researchers, however, there are important aspects of Erikson's developmental approach that are unclear. Concerning the overall developmental model, there is some uncertainty concerning the consistency of Erikson's views on the degree of rigidity characterising the timing of the developmental stages, as well as their sequencing and duration in the life cycle (e.g., McAdams & de St. Aubin, 1992; Stewart & Vandewater, 1998); the differential roles played by culture, individual difference factors and/or age (biology) in the timing and resolution of each stage (McAdams, Hart, & Maruna, 1998); and the applicability of the model to women, as

well as to men, in particular the notion that identity invariably precedes generativity (e.g., Stewart, Franz, & Layton, 1988). Regarding generativity in particular, one concern has been the lack of differentiation among its various psychological and behavioural components (McAdams & de St. Aubin, 1992; Stewart & Vandewater, 1998). It is believed that this lack of clarity may have contributed to the “scattered, sparse, and unsystematic” nature of much of the early research on generativity (McAdams & de St. Aubin, 1992, p. 1003).

One of the earlier attempts to organise the various strands of generativity according to clear conceptual themes and associated age trajectories was made by Kotre (1984). He proposed four distinct types of generativity (biological, parental, technical, and cultural), along with separate age trajectories for each. Although this conceptualisation provided a framework for an important longitudinal study of generativity in fathers (Snarey, 1993), it does not appear to have attracted consistent research attention. Other early attempts were made either to refine Erikson’s theory or to operationalise its components. For example Vaillant (G. E. Vaillant, 1977; George E. Vaillant & Milofsky, 1980) proposed an additional stage ‘career consolidation’ as a prerequisite for the development of generativity in men, while Stewart and her colleagues (Stewart, Franz, & Layton, 1988) developed a coding scheme to describe and classify generative themes within life narratives. However, it was not until the formulation of McAdams and de St. Aubin’s (1992) theory of generativity that a fully developed and testable theory emerged. It is to this theory that we turn next.

1.2.2. *McAdams and de St. Aubin's Theory of Generativity*

Although McAdams and his colleagues (e.g., McAdams, Ruetzel, & Foley, 1986; Van de Water & McAdams, 1989), along with other researchers (e.g., Helson & Moane, 1987; Ryff & Heincke, 1983; Ryff & Migdal, 1984; Stewart, Franz, & Layton, 1988; George E. Vaillant & Milofsky, 1980) carried out studies of generativity in the 1980s, the appearance of McAdams and de St. Aubin's theory in 1992 marked the beginning of a systematic programme of theorising about, and research into, the nature of generativity and its correlates (de St. Aubin & McAdams, 1995; McAdams & de St. Aubin, 1992; de St. Aubin & McAdams, 1995; McAdams, Logan, & de St. Aubin, 1993; McAdams, Hart, & Maruna, 1998).

According to McAdams and de St. Aubin (1992, p. 1003), the generative adult “nurtures, teaches, leads, and promotes the next generation while generating life products and outcomes that benefit the social system and promote its continuity from one generation to the next”. Unlike Erikson, McAdams and de St. Aubin specifically define, and differentiate among, the manifold psychological and behavioural components of generativity. Thus, generativity is conceptualised as a complex configuration of seven psychosocial and behavioural components linking the person and environment (McAdams & de St. Aubin, 1992, p. 1003). These seven elements are grouped into four clusters: *motivational sources* (cultural demand, inner desire), *cognitions* (belief in the species, generative concern and generative commitment), *actions*, and *narration*.

Generativity motivation is initially grounded in societal expectations and individual needs, and therefore stems from sources that are both external and internal to the individual. External motivation for generativity entails *cultural demand*

(including normative age-graded expectations and societal opportunities). Cultural demand requires individuals to behave generatively in their middle adult years, through procreation, parenting, work productivity and creativity. At the same time, a two-pronged *inner desire*, comprising agency and communion, prompts individuals to *want* to behave generatively. A desire for *agency* - to extend the self in a powerful way, to achieve symbolic immortality - motivates individuals to create lasting products and “invest ... in forms of life and work that will outlive the self” (Kotre, 1984, p. 16). In addition, generativity is motivated by a longing for *communion* or intimacy, associated with the need to nurture, care for, and be of value to others. Together, cultural demand and inner desire combine to promote a conscious *concern* for the next generation (a sense of responsibility, similar to Erikson’s notion of “care”), which, along with a *belief in the species* (a faith in the value and goodness of humanity), fosters a reasoned *commitment*, as individuals assume active responsibility for the next generation and establish generative plans and goals for promoting its welfare. Generative *actions* take one of three forms: (1) creating (things, people), (2) maintaining (nurturing, cultivating, preserving), and (3) offering (oneself, gifts, autonomy) to others. Finally, the relationships among these components derive meaning from the adult’s generativity *narrative*, the subjective story that the individual creates about providing for the next generation that informs his or her own identity. Generative stories are characterised by themes of involvement with the next generation, and symbolic immortality, as well as those of creating, maintaining, and offering that also typify generative action (McAdams & de St. Aubin, 1992).

Although McAdams et al. (1998) suggest that biology provides the imperative for generativity, they do not claim that it rules in any rigid way the sequencing and

timing of generativity in the life cycle. Indeed, while they support Erikson's positioning of generativity in adulthood, they reject the notion that it occupies a discrete developmental stage during midlife. Instead, they suggest that generativity "ebbs and flows" throughout adulthood as a function of life circumstances (McAdams et al., 1998, p. 17), with different domains of generativity (e.g., parental, civic) developing independently of each other, subject to cultural roles and opportunities (McAdams et al., 1998; see also MacDermid et al., 1998). The extent to which generativity may be more evident during middle adulthood than during earlier or later in adulthood, therefore, is a function of societal expectations concerning the appropriate timing in the lifecycle of generative projects and commitments (e.g., child-rearing, work-related productivity), rather than of an innate surge in the preoccupation with generativity during midlife.

Despite the suggestion that cultural demand plays a dominant role in the developmental trajectory of generativity, McAdams and de St. Aubin's (1992) model as a whole emphasises individual difference, rather than contextual, dimensions of generativity (MacDermid, Franz, & De Reus, 1998). That is, the model is chiefly one in which certain aspects of personality (e.g., generative desire, generative concern) influence, and are influenced by, certain other aspects of personality (e.g., generative commitment, narration). Indeed, the model may be seen as an embodiment of McAdams' overall approach to personality (e.g., McAdams, 1995), in which *personality traits* (e.g., generative concern), *personal concerns* (e.g., generative commitment), and *life narratives* (e.g., generativity narration) represent three increasingly descriptive layers of the person, from the most general at the trait level, to the most individual at the narrative level. This approach is reflected in McAdams

and his colleagues' use of widely differing measurement techniques to assess and distinguish among the components comprising generativity.

Like Erikson, McAdams and de St. Aubin (1992) propose that generativity is an important aspect of adult development, and therefore, by implication, is a contributor to psychological well-being. However, they also speculate that the different facets of generativity may differ in the nature of their impact on well-being. de St. Aubin and McAdams (1995), for example, propose that generative concern (individuals' conscious concern for the welfare of the next generation) may be beneficial to well-being, because individuals with high levels are "concerned with generative projects, which afford them with a sense of satisfaction with their current life modes" (de St. Aubin & McAdams, 1995, p. 193). The influence of generative behaviour, on the other hand, may be more limited, because generative action involves individuals in the "messiness" of human interaction, and may therefore be experienced as difficult and frustrating. Thus, while engagement in generative behaviour may enhance meaning and purpose, or may be ultimately rewarding, it may be unlikely to promote immediate feelings of life satisfaction or contentment.

However, while de St. Aubin and McAdams (1995) conjecture that the links between the various components of generativity and well-being might vary, the model itself does not differentiate among the components according to their possible relationships with well-being. In addition, while generativity plays an important role in identity formation, it is just one of the many facets of identity. Thus, McAdams and de St. Aubin (1992) maintain that the development of an individual identity is a lifelong task that requires the individual to construct and integrate meaningful personal myths or narratives, not only about generativity, but about other psychosocial issues as well, such as intimacy and agency. This means that

experiences of generativity and other psychosocial phenomena are woven into stories that individuals construct and incorporate into their developing sense of self. For Erikson, in contrast, as previously stated, the attainment of identity is a prerequisite for the optimal realisation of generativity.

McAdams and his colleagues' research programme has encompassed a range of topics, including the development of tools for the assessment of generativity (McAdams & de St. Aubin, 1992); patterns of associations among the components of the model (i.e., its internal consistency; McAdams & de St. Aubin, 1992; McAdams, de St. Aubin, & Logan, 1993; Van de Water & McAdams, 1989); patterns of age differences in these components (McAdams, de St. Aubin, & Logan, 1993); the relationships among the components of generativity, personality traits and psychological well-being (de St. Aubin & McAdams, 1995); and the distinguishing characteristics of the life histories of highly generative adults (McAdams, Diamond, de St. Aubin, & Mansfield, 1997). Overall, McAdams and his colleagues have established support for the internal consistency of the model, by finding reasonably strong associations among its components. Other research findings, for example concerning age-cohort differences and well-being, are discussed in subsequent chapters.

In summary, McAdams and de St. Aubin's (1992) model marked a milestone in the conceptualisation and investigation of generativity, in that it defined and differentiated among motivational, cognitive, behavioural and narrative components, and integrated these within a unified model of testable relationships. In addition, the model delineated a clear role for contextual and role-related variables, although this aspect has not been emphasised in subsequent research. An additional contribution of the research has been the development of specific measurement tools, including

extensive and detailed schemes for the coding of personal goals and narratives. Two self-report measures, the Loyola Generativity Scale (LGS) and the Generative Behavior Checklist (GBC; McAdams & de St. Aubin, 1992), were developed to capture generative concern and generative behaviour, respectively. They formed the basis of similar measures in this thesis and will be discussed in greater detail in Chapter 2.

While McAdams and his colleagues' research has undoubtedly been of immense conceptual and empirical importance, there have nevertheless been suggestions that the overall approach has some limitations (e.g., MacDermid et al., 1998). These include the focus on global and psychological, rather than domain-specific and behavioural, expressions of generativity (MacDermid, Franz, & De Reus, 1998), and the emphasis on psychological rather than contextual influences. One limitation of particular relevance to this thesis relates to what may be perceived within McAdams and de St. Aubin's (1992) formulation as the absence of a clear differentiation between generative concern (individuals' conscious *concern* for the next generation) and generative self-evaluations (their appraisals of the *extent* and *value* of their generative contributions; see also Keyes & Ryff, 1998). The absence of this distinction is evident in the content of the LGS (Loyola Generativity Scale), which, as mentioned previously was the instrument developed by McAdams and de St. Aubin (1992) to assess generative concern. While this instrument may be considered to contain some items that express a sense of generative concern (i.e., of the importance of generativity), it contains others that appear more self-evaluative (i.e., of one's generative impact) in nature. By seeming to confound these two elements of generativity in this way, McAdams and de St. Aubin imply that having a conscious concern for the next generation is the same as believing in the *value* of

one's generative impact. However, as will be argued in the following section, even though generative concern and generative self-evaluations may be related, they may also be regarded as conceptually distinct facets of generativity that differ in their relationships with other psychological constructs, particularly psychological well-being. The absence of a clear distinction between them at the measurement level has the potential to conflate and mask these differing relationships. This thesis aimed to develop an expanded LGS, which would explicitly differentiate generative concern from generative self-evaluations at the self-report level and allow the effect of each on well-being to be examined.

A further possible limitation of McAdams and de St. Aubin's (1992) approach concerns the measurement of generative behaviour (although it should be acknowledged that the inclusion of behaviour is an important advance on prior conceptualisations of generativity). The aforementioned GBC (Generative Behavior Checklist) was intended, and has generally been used, as a global behavioural measure (de St. Aubin & McAdams, 1995; Grossbaum & Bates, 2002; McAdams & de St. Aubin, 1992; McAdams, de St. Aubin, & Logan, 1993; but see Morfei, Hooker, Carpenter, Mix, & Blakeley, 2004 for an exception). However, its content is extremely wide-ranging (e.g., "took in a pet off the street", "looked after someone else's children", "was promoted to a leadership position", "planted a tree") so that it is likely that it subsumes several disparate elements or strands of generative behaviour. These elements may also differ in their relationship with age and/or well-being, with some being positively related and others negatively. For example, Morfei and her colleagues (2004) found that so-called "communal" acts emanating from the GBC were negatively related to mothers' psychological well-being, in contrast to "agentic acts", which were not (the classification scheme was not specified). Again,

such relationships may be masked by the use of such an all-encompassing global measure. This thesis aimed to identify the separate elements of generative behaviour comprising the GBC and to examine their relationship with age and well-being.

To conclude, McAdams, de St. Aubin and their colleagues provided this thesis with an initial framework for the conceptualisation of generativity as a multidimensional, rather than undifferentiated, construct. Their work also provided the rationale for the attempt to separate generative concern from generative self-evaluations (and behaviour), as well as the basis for the instrumentation. In an effort to understand more clearly the nature of the conceptual distinction between generative concern and generative self-evaluations, however, the present thesis was further informed by the research of Keyes and Ryff (1998). Their work is described next.

1.2.3. Keyes and Ryff: Generative Concern and Generative Self-Conception

Keyes and Ryff's (1998) large, population-based study sought to examine the role of generativity as a link between the individual and society, particularly as the so-called "nexus" (p. 230) between individuals' personal resources (physical, social, economic) and their psychological and social well-being. Their work addresses three main questions: how generativity is shaped by "social structural contours" (i.e., age, sex and socioeconomic status); the extent to which generativity predicts quality of life (comprising psychological and social well-being); and the extent to which generativity explains or mediates the relationship between age, gender, socioeconomic status (i.e., education) and quality of life. It is their treatment of the second of these three topics that is of most relevance to this thesis.

According to Keyes and Ryff (1998, p. 230), generativity expresses individuals' longing to be socially instrumental, that is "needed by others and capable of creating positive results for others". In this way, Keyes and Ryff shift their focus away from the Eriksonian emphasis on future generations to the human need to contribute to others more generally. Assessments of one's generativity act as a "lens of self-evaluation" (p. 231). The feeling that one has something valuable to offer society and that one is able to "do for others" (p. 254) is crucial to individuals feeling positively about themselves, and having a sense of purpose and meaning. This is particularly the case in a world where individuals are not valued equally or unconditionally, but according to their perceived capacity to contribute to others.

Like McAdams and de St. Aubin (1992), Keyes and Ryff's (1998) configuration of generativity is a complex one, including normative, behavioural and self-conceptual elements. Given that their emphasis is on how generativity links the individual and society, their research focus is as much on socially normed aspects of generativity, (e.g., perceived obligations to family and society, and/or the fulfilment of social bonds through the provision of instrumental and emotional support) as on more internal or psychological aspects of generativity, such as personal generativity motives or narratives (e.g., McAdams et al.). Nevertheless, an important component in their formulation is generative "self-construal", comprising three elements: generative concern, generative qualities and generative traits. Within this cluster, self-perceived generative qualities (and perhaps also generative traits) represent generative self-conception, addressing the question "Am I generative?" Generative concern, on the other hand, addresses the somewhat different question: "Do I think about whether, when, and how much I am generative?" (Keyes & Ryff, 1998, p. 237). To apply the terminology used in the discussion of McAdams and de St. Aubin's

(1992) Loyola Generativity Scale in the previous section of this thesis, generative concern may be conceived as the value or importance the individual places on being generative, while generative self-conception may include self-assessments of the worth (value) of one's generative endeavours and contributions, as well as of one's disposition to be generative, or one's generative impact. Thus, generative self-evaluation may be seen as an important ingredient of generative self-conception.

Keyes and Ryff's (1998) conceptual distinction between generative concern and generative self-conception is to some extent reflected in their development of separate measures of these constructs, and in their examination of the unique contributions of each to psychological and social well-being. However, their measure of generative concern, like that of McAdams and de St. Aubin (1992), contains not only a value-expressive element (i.e., how much thought and effort individuals believe they put into their contributions to the welfare and well-being of others) but also a self-evaluative dimension: it asks respondents to assess the predicted *quality* of their generative contributions within a specified future time period (i.e., 10 years hence), as well as the amount of control they expect to have over those contributions. Thus, like the Loyola Generativity Scale (McAdams & de St. Aubin, 1992) it potentially confounds the importance individuals place on generativity with the estimated value of their generative contributions. Interestingly, and in keeping with the arguments in the previous section, Keyes and Ryff used an abbreviated version of the Loyola Generativity Scale to assess generative self-conception (qualities) rather than generative concern.

Keyes and Ryff's (1998) conceptual distinction between generative self-conception and generative concern does not extend to the prediction of differential relationships between these components of generativity and psychological well-

being. Instead, all components of generativity are treated as equivalent in this regard. However, the results of their (1998) population study showed that, even though generative qualities and generative traits each made a contribution to the prediction of psychological well-being, the unique effect of generative concern, although statistically reliable because of the large sample size, was extremely modest. This supports the view that generative self-conception and generative concern may be differentiated on the basis of their relationship with well-being¹.

This thesis purports that the arguments for proposing that generative self-evaluation (an ingredient of generative self-conception) rather than generative concern, provides the link between generativity and psychological well-being seem compelling. Positive generative self-evaluations may bolster self-regard and one's sense of value to others (Keyes & Ryff, 1998), thereby providing links to self-esteem. They may also provide confirmation that one is succeeding, or has succeeded, in accomplishing normative life tasks in a satisfactory and timely manner. Thus, in Eriksonian terms, positive generative self-evaluations may promote integrity and life satisfaction, particularly in middle and older adulthood (Keyes & Ryff, 1998). A negative generative self-concept on the other hand may undermine the individual's effort to maintain a positive sense of self.

Unlike generative self-conception, generative concern may be less likely to predict psychological well-being. As described in the previous section, generative concern comprises conscious expressions of generative values and desires, including a sense of responsibility for the next generation (McAdams & de St. Aubin, 1992). As such, it may be seen as an expression of explicit or self-attributed generative

¹ Generative concern was somewhat more strongly related to social well-being than to psychological well-being.

motivation (e.g., McClelland, Koestner, & Weinberger, 1989), rather than as an assessment of one's generative impact. Thus, although generative concern might predict generative behaviour, for example, or be correlated with generative self-evaluations, it seems counterintuitive that it should exert a strong positive effect on psychological well-being. This thesis aims to explore these potentially differing relationships.

As described previously, de St. Aubin and McAdams (1995) have put forward an alternative viewpoint, that generative concern *does* promote well-being, because it is associated with involvement in satisfying projects and lifestyles. However, this argument implies that it is the involvement in satisfying projects, rather than generative concern *per se* that may be responsible for the link between generativity and well-being. Indeed, in the absence of a positive generative self-concept, generative concern may be *negatively* associated with well-being because it indicates a lack of generative fulfilment. This argument is taken up further in Chapter 4 of this thesis, during the investigation of generativity and well-being.

In summary, then, Keyes and Ryff's (1998) research provided the current thesis with a framework for the conceptualisation of generative concern and generative self-evaluations as distinct components of generativity with differing consequences for psychological well-being. Using purposely developed measures, this thesis aimed to provide a direct test of the differential relationships of generative concern and generative self-evaluations with psychological well-being.

Like McAdams and his colleagues, however, Keyes and Ryff (1998) do not posit a particular developmental course to generativity (although they do investigate age-cohort differences in the various components). For guidance on age effects, therefore, another approach was consulted, that of Stewart and Vandewater (1998).

1.2.4. *Stewart and Vandewater's Developmental Model of Generativity*

The final theoretical approach that was used to guide Part 1 of the current thesis was that of Stewart and Vandewater (1998). Like Erikson, these researchers have adopted an explicitly developmental approach to their conceptualisation of generativity. Their model was formulated in response both to “theoretical puzzles” (p. 76) inherent in Erikson’s writings (e.g., concerning the sequencing of generativity and identity in women, and the actual position of early parenthood in young adulthood vis-à-vis Erikson’s positioning of generativity in midlife) and to the absence of a clear and consistent pattern of age differences in the various aspects of generativity. They note: “there is some support for the notion that middle-aged people are especially preoccupied with generativity, but there is also considerable evidence that young adults are too and that the decline in the preoccupation may happen both gradually and fairly late” (Stewart & Vandewater, 1998, p. 86).

In an effort to address these issues, Stewart and Vandewater (1998) posit the existence of differing developmental courses for three distinct aspects of generativity, motivation, capacity, and accomplishment. Their thesis is that the *desire* to accomplish generative goals, the perceived *capacity* to accomplish them, and assessments of the extent to which goals have been *accomplished*, display different developmental patterns, reflecting their varying importance and prominence at different stages of the lifespan. Thus, progression through the adult lifespan witnesses a linear decline in generative desire from a high level in younger adulthood to a low level in older adulthood; an increase in generative capacity during the midlife period followed by a gradual decline in later life (the Eriksonian midlife crest); and a linear increase in generative accomplishment from young through

middle and older adulthood. Nevertheless, generativity is conceived as a “uniquely” midlife phenomenon, because during this period of adulthood, generative capacity is at its peak, while desire is still present and a sense of accomplishment is consolidating.

Although not explicitly formulated as such, the projected age trajectories of the respective components of generativity may to some extent be seen as a function of the temporal orientation implied by each. Generative desire is oriented towards the future. Therefore, it is prominent in younger adulthood but declines with age, as the available future in which to accomplish prospective goals diminishes, and perhaps as other goals, such as the attainment of integrity (Erikson, 1982; Erikson, Erikson, & Kivnick, 1986) or emotion regulation (Carstensen, 1995; Carstensen, Fung, & Charles, 2003) take precedence in later life. Generative capacity, on the other hand, the only component of the model postulated to show the traditional Eriksonian age trajectory (the midlife crest), implies an orientation towards the present, reflecting the scope of individuals' *current* generative involvements, projects and capabilities. Stewart and Vandewater speculate that two elements of McAdams and de St. Aubin's (1992) model, generative commitment and generative behaviour, may be manifestations of generative capacity (Stewart & Vandewater, 1998). Finally, generative accomplishment implies a retrospective or whole-of-life perspective – the extent to which the person feels that he or she has actually demonstrated generativity over the entire life course. Since Stewart and Vandewater depict this component as increasing into older adulthood, they imply that it must continue to accumulate, even as the capacity for generativity declines.

Importantly, the different developmental trajectories of the components in Stewart and Vandewater's model imply that each component differs in the extent and

importance of its contribution to well-being during the adult lifespan. In this way, Stewart and Vandewater extend the implication of Erikson's original model, that age moderates the relationship of generativity to well-being. Thus, their model postulates that desire, although unrelated to well-being during younger adulthood, is negatively related to it during midlife (and presumably by extension, during older adulthood) and is not normative. Capacity, on the other hand, is assumed to promote well-being during midlife, because it reflects the perceived ability to carry out socially valued, normative tasks, as well as the maturing adult's growing sense of confidence and power across a range of life domains (cf. Helson & Moane, 1987; Helson & Srivastava, 2001). An emerging sense of generative accomplishment also contributes to well-being during midlife. Finally, a fully developed sense of accomplishment may be particularly important for the development of integrity in later life (Stewart & Vandewater, 1998).

Support for Stewart and Vandewater's (1998) model is rather fragmentary, which is perhaps not surprising, given both its comparative recency and the fact that an adequate test of its assumptions really requires longitudinal, rather than cross-sectional, data. Stewart and Vandewater (1998) did, however, report longitudinal evidence from two samples of college-educated women to support the overall proposition that generative desire may be negatively related to well-being at midlife (supporting their contention that generative desire is non-normative at midlife), while accomplishment is positively related to it. However, it should be noted that it was a desire for *productivity* that was negatively related to well-being, possibly implying that it was the lack of a sense of productive fulfilment among these women (rather than the presence of generative desire) that led to the absence of well-being. Further, no indication was given for the correlations between other kinds of generative desire

(e.g., for care, general generative concerns) and measures of well-being, and there was no evidence of a positive relationship between perceived generative *capacity* and well-being.

Despite these possible limitations, by delineating separate developmental trajectories for differing components of generativity, Stewart and Vandewater (1998) provide a valuable framework for understanding the ways in which age may shape the diverse expressions of generativity (e.g., concern, self-evaluations), as well as their relationship with well-being. This framework was therefore adapted and modified for use in the present research. As described earlier, one aim of this research was to examine generative concern, generative self-evaluations and their respective relationships with well-being *across* adulthood. However, given the developmental character of generativity, it was considered of equal importance also to examine the role of age. For these purposes, a further hypothetical distinction was formulated, between two temporal aspects of self-evaluation, one focusing on the present (“How generative am I now?”), and one focusing backwards over the life course, retrospective or whole-of-life (“How generative have I been during my life?”). It was hypothesised that like generative capacity and generative accomplishment are postulated to do (Stewart & Vandewater, 1998), these two dimensions of self-evaluation might display differing age profiles, and might also differ in their relative impact on well-being between middle and older adulthood.

In summary, then, Stewart and Vandewater’s (1998) model was used to inform hypotheses concerning age differences in generative concern, generative self-evaluations and generative behaviours of generativity, as well as the ways in which age might moderate their respective relationships with well-being.

1.2.5. Summary

The preceding sections outlined the four theoretical perspectives that have guided the formulation of the primary research questions in this thesis. While Erikson's initial writings underscored the importance of generativity as a midlife developmental phenomenon, subsequent formulations have differentiated among the psychological and behavioural components of generativity, and have set the groundwork for exploring differential relationships with age and psychological well-being. This thesis aims to test these relationships. The remainder of Chapter 1 outlines the aims and structure of this thesis.

1.3. Aims and Structure of the Thesis

As previously outlined, this research consists of two parts, the first concerned with global or general generativity; and the second with domain- or role-specific generativity (e.g., MacDermid, Franz, & De Reus, 1998). Drawing on the prior research described above, Part 1 was concerned with four hypothetical aspects of global generativity: generative concern, generative behaviours, and generative self-evaluations, the latter being intended to reflect two separate temporal orientations, current and whole-of-life. Measures of these putative constructs were developed, and their factor structure and interrelationships were examined, together with their relationships with age and well-being. The research for Part 1 consists of four studies and is reported as follows:

Chapter 2 (Study 1) describes the construction of measures designed to distinguish among the hypothesised components of global generativity, generative concern, generative self-evaluations (current and whole-of-life), and generative

behaviour. It describes the initial evaluation of these measures using confirmatory factor analysis and correlational analyses. The Loyola Generativity Scale and the Generative Behavior Checklist (McAdams & de St. Aubin, 1992) were used as the basis for these measures.

Chapter 3 (Study 2) examines age profiles associated with these measures of generativity. Using profile analysis (Tabachnick & Fidell, 2001), it aimed to test the hypothesis that generativity is configured differently in young, midlife and older adults, with high generative self-evaluations being more characteristic of middle and older adulthood than of younger adulthood.

Chapter 4 (Study 3) examines the relationships between the components of generativity and psychological well-being across age groups. It aims to test the hypothesis that generative self-evaluations are a stronger predictor of psychological well-being than is either generative concern or generative behaviour; and that generative self-evaluations moderate the relationship between generative concern and psychological well-being.

Finally, *Chapter 5* (Study 4) examines the relationships between the components of generativity and psychological well-being by age group. It aims to test the hypothesis that age moderates the relationships between generative self-evaluations and psychological well-being, as well as the extent to which generative self-evaluations moderate the influence of generative concern on psychological well-being.

In Part 2 of the thesis, the primary focus shifts from global generativity to generativity within a specific domain. The aim is to determine whether certain of the predictions concerning the relative impact of the various components of generativity may be applied to a specific realm. Parenthood in middle and older adulthood

provided the avenue for this investigation. Thus, *Chapter 6* (Study 5) investigates the extent to which parental generative behaviour and self-evaluations of parental generativity are related to psychological well-being, whether global self-evaluations of generativity play a mediating role in these relationships, and whether these relationships differ between midlife and older adults.

Chapter 2 Construction of Measures of Generativity

2.1. Overview

Chapter 1 described four conceptual approaches to generativity that have influenced the conceptualisation of generativity in the present research (Erikson, 1963; Keyes & Ryff, 1998; McAdams & de St. Aubin, 1992; Stewart & Vandewater, 1998). These theoretical formulations also informed the decision to investigate four components of generativity: generative concern, current and retrospective self-evaluations of generativity, and generative behaviour. Chapter 2 describes the development of measures of these aspects of generativity, and the subsequent examination of their measurement properties by means of confirmatory and exploratory factor analyses.

The chapter begins with an overview of existing measures of generative concern, self-evaluations, behaviour, and associated constructs and the rationale for the selection and development of the measures to be used in this thesis. This is followed by a statement of the relevant hypotheses and a brief description of how confirmatory factor analysis (CFA) is employed in the present study. Data screening procedures are described next, followed by CFAs of the measures of generative concern and generative self-evaluation. Principal component analyses of the GBC are then described. Finally, correlational analyses are reported.

2.2. Introduction

2.2.1. *Measurement of Generativity*

Because of the comparative recency of the notion that generativity is a multidimensional construct, researchers have only lately developed separate measures for its various components. Many early studies used trait-like measures of generativity based on measures of personality or ego development (e.g., Helson & Moane, 1987; Ryff & Migdal, 1984), purposely developed inventories of Erikson's developmental stages (e.g., Darling-Fisher & Leidy, 1988; Domino & Affonso, 1990; Ochse & Plug, 1986; Whitbourne, Zuschlag, Elliot, & Waterman, 1992) or other purposely developed rating scales (e.g., Ryff & Heincke, 1983). Typically these measures (like the measures in this study) were self-report, asking respondents to rate themselves on a series of items designed to reflect generative themes. These studies and associated measures appeared to reflect earlier conceptualisations of generativity as a unified dispositional tendency or developmental stage, rather than as a structurally complex phenomenon comprising motivational, behavioural and perceptual components, each of which calls for separate assessment.

Nevertheless, even prior to the appearance of McAdams and de St. Aubin's (1992) seminal model, a variety of alternative approaches to the measurement of generativity had appeared in the literature. For example, Vaillant (George E. Vaillant & Milofsky, 1980) developed an observer-based method of coding men's interview- and survey-based descriptions of their life circumstances for the attainment of Eriksonian stages. In this scheme, generativity was indicated by, among other things, evidence of marital stability, fatherhood, and career consolidation. The scheme was later modified by Snarey (1993) for the coding of societal generativity in his multi-

generational study of parental and societal generativity in fathers. In addition, as mentioned in Chapter 1, Stewart, Franz, and Layton (1988) developed an observer-based scheme for coding autobiographical writings for the presence of key generativity themes (parental generativity, care for others, creativity, productivity, and leadership).

As described in Chapter 1, the present study approached generativity as a multidimensional construct and aimed to develop self-report measures of each of the components under investigation. The following paragraphs describe in more detail existing approaches to the measurement of generative concern, self-evaluations and behaviour that have influenced the approach adopted in the present study.

2.2.1.1. Measurement of Generative Concern and Generative Self-Evaluations

Generative Concern

As described in Chapter 1, the term generative concern in this thesis refers to the explicit psychological value that individuals place on generativity, including their conscious or expressed desire to make a generative contribution in their own lives. As such, it may be seen as an expression of conscious or self-attributed (McClelland, Koestner, & Weinberger, 1989) generative motivation. While concern for the welfare of the next generation is at the core of generative concern (Erikson, 1963; McAdams & de St. Aubin, 1992), the term also embraces the desire to make an important and lasting contribution to society more generally (Stewart, Franz, & Layton, 1988).

McAdams and de St. Aubin (1992) and Keyes and Ryff (1998) have each developed self-report measures of conscious generative concern. These approaches differ somewhat in their design as well as in their substantive emphasis. The Loyola

Generativity Scale (LGS; McAdams & de St. Aubin, 1992) was derived from a pool of purposely developed items that was generated by a team of personality researchers (see McAdams & de St. Aubin, 1992 for details), although it also contains items from prior inventories of Erikson's life stages (e.g., Ochse & Plug, 1986). It was intended to convey the importance to the individual of such themes as: leaving a legacy, being remembered and having an impact on others; passing on skills and knowledge to the next generation; community responsibility and involvement; taking responsibility and caring for others; and productivity and creativity. Thus, the LGS is intended to cover the broad range of generative themes originally formulated by Erikson. However, it intentionally excludes items that refer specifically to parenting, so as to be equally applicable to parents and non-parents alike.

Although the LGS was intended as a measure of generative concern, it is an assertion of this thesis that it also – in fact, substantially – measures generative self-evaluations (see also Chapter 1). That is, the majority of the items are couched in terms that convey the individual's self- or reflected appraisals of the value and impact of their generative contributions, rather than their ratings of the importance of generativity in their own lives. In addition, although there are several items that are value-expressive, there are also others which describe behaviours rather than attitudes or values. Hence, the LGS in its original form poses difficulties for the assessment of generative concern independently from generative self-evaluations, and was therefore considered unsuitable for that purpose without prior modification.

As foreshadowed in Chapter 1, Keyes and Ryff's (1998) measure of generative concern more clearly captures individuals' estimations of the importance they place on generativity, asking respondents to rate the amount of *thought* and *effort* they put into their contributions to others. In this respect it may be seen to offer an advantage

over the LGS. However, one potential drawback of Keyes and Ryff's (1998) approach is that it encompasses a rather limited range of generative content, targeting individuals' expectations for their contributions to others both now and in the future. The LGS is therefore more comprehensive, and, in this respect, was seen as more suitable for the purposes of this study. However, in order to assess generative *concern* (rather than self-evaluations), many items were re-written so as to reflect individuals' sense of the importance of generativity, rather than their estimations of their generative impact. These items formed the first section of an expanded LGS. As described in the following paragraphs, the remaining sections of this expanded LGS were designed to assess generative self-evaluations, both current and whole-of-life.

Before leaving the measurement of generative concern, however, something must be said about the decision to assess generative concern and generative self-evaluations using a common self-report methodology. This method was adopted rather than the more common practice of using differing measurement techniques to assess the two constructs, for example by employing semi-projective (e.g., McAdams, Ruetzel, & Foley, 1986; Peterson & Stewart, 1996) or descriptive (e.g., Emmons & McAdams, 1991) techniques to assess motivation, versus self-report inventories to assess self-evaluation. As described in Chapter 1, McAdams and his colleagues' use of differing measurement techniques for the assessment of different components of generativity (Mansfield & McAdams, 1996; McAdams & de St. Aubin, 1992; McAdams, Diamond, de St. Aubin, & Mansfield, 1997; McAdams, Ruetzel, & Foley, 1986) is consistent with the notion that generative concern, commitment, motivation, and narration correspond to the different layers that comprise McAdams' formulation of personality structure, and for which different measurement techniques are believed to be more or less appropriate. Peterson

(Peterson, 1998; Peterson & Stewart, 1996) also suggests that some aspects of generativity (for example, generative motivation) operate at an unconscious or pre-conscious level and are therefore more amenable to implicit, rather than explicit measurement techniques. The implication is that such measurement techniques get at underlying, unconscious motivations and are therefore more informative than those that merely tap into expressed or conscious motives (Peterson & Stewart, 1996).

The rationale for the decision to adopt a common self-report method to assess generative concern and generative self-evaluations was two-fold. Firstly, no attempt was being made in this thesis to differentiate among levels of personality. Secondly, it was considered that the adoption of a common self-report method would enable a more rigorous test of the proposed distinction between generative concern and generative self-evaluations than would the use of different kinds of measures for concern and self-evaluations. In other words, the use of a common measurement approach would mean that differences between concern and self-evaluations in, for example, their relationship with well-being, would be attributable, not to differences in measurement technique or content, but rather to different attitudinal orientations (value-expressive versus self-evaluative) towards the same content domain.

Generative Self-Evaluations

The measurement of generative self-evaluations has been touched on in the previous section. As described in Chapter 1, the term refers to individuals' assessments of the extent to which they are or have been generative, and importantly, their assessments of the value and impact of their generative contributions. Although other researchers have not explicitly used the term "self-evaluations", they have used comparable descriptors such as accomplishment (Stewart & Vandewater, 1998), self-conception (Keyes & Ryff, 1998), or realisation (Peterson & Klohnen, 1995). What

these appear to have in common is that they reflect estimations of the extent to which individuals have succeeded in attaining generative realisation (to use Peterson and Klohnen's terminology) or fulfilment, by accomplishing generative goals, making a positive difference in the lives of others; creating a worthwhile legacy for the future; and/or demonstrating the constellation of desirable personal qualities or behaviours associated with generativity (e.g., creativity, wisdom, caring, mastery). How the various measures differ – accomplishment, self-conception, realisation – is in the standpoint from which the judgements are made, that is, whether they reflect self- (accomplishment, self-conception), other- (realisation) and/or reflected (self-conception) appraisals of generativity. They may also differ in temporal orientation (e.g., with a greater emphasis on the past or the present), and also differ according to whether they represent explicit, or implicit, measures of these constructs. For example, McAdams and de St. Aubin's (1992) notion of "generative narration", the presence of generative themes in individuals' life narratives, may offer a more implicit parallel to the notion of generative self-conception, since it purportedly taps into the extent to which generativity has been incorporated into the individual's life story and developing sense of identity.

As stated earlier, the focus in this thesis was on the development and use of self-report measures of the various components of generativity, i.e., generative concern, self-evaluations and behaviour. Prior literature shows that the LGS (McAdams & de St. Aubin, 1992), or modifications of it, has been used as the basis for self-report measures of generative self-conception (Keyes & Ryff, 1998) and generative accomplishment (Stewart & Vandewater, 1998). Keyes and Ryff (1998) used a modified six-item version to assess generative qualities, while Stewart and Vandewater (1998) used a 9-item version to assess generative accomplishment.

Interestingly, Peterson (2002) found a substantial correlation (.57) between LGS scores and observer-based measures of generative realisation. It was considered that these decisions by prior researchers supported the position adopted in the present thesis, that the original LGS may be construed as a measure of generative self-evaluation (rather than generative concern). Therefore, the expansion of the LGS referred to in the preceding section was intended to encompass generative self-evaluation, as well as generative concern. For this purpose, many items were retained in their original form.

It was stated in Chapter 1 that one aim of the present research was to investigate the potential differences between current and retrospective self-evaluations of generativity. The reason for this was that, if, as originally suggested by Erikson (Erikson, 1963) and elaborated by Stewart and Vandewater (1998), generativity waxes in midlife and declines in older adulthood, measures that differ according to their temporal orientation might also display differing age trajectories and/or show age-cohort differences in their impact on well-being. In addition, if generativity is most prominent in midlife, a measure focusing on the present tense may be more likely than one adopting either multiple time perspectives or a whole-of-life perspective to show the predicted pattern of age-cohort differences favouring midlife adults over younger or older adults.

In the present research, the aim was to obtain two measures of generative self-evaluation from each participant, one focusing on the present and one focusing backwards over the life course, and to examine both between- and within-subject differences in these measures. A search of the published literature revealed no prior attempts to assess generative self-evaluation in this way, that is, to obtain repeated measures of generative self-evaluation that vary according to temporal focus.

However, early research by Ryff and Heincke (1983; see also Ryff & Migdal, 1984) highlighted the potential value of incorporating different temporal foci into the assessment of generativity, by showing that respondents' self-ratings varied in predictable ways according to whether they were asked to focus on young, midlife or older adulthood. The LGS was therefore expanded to include two sections for the assessment of generative self-evaluation, one focusing on current self-evaluations, the other on whole-of-life self-evaluations.

At this point, it may be pertinent to explain why Stewart and Vandewater's (1998) measure of generative capacity was not used as a measure of current self-evaluations in this thesis. As suggested in Chapter 1, generative capacity refers to individuals' perceived capabilities for carrying out generative tasks, as well as the scope of their generative concerns. It has been assessed using items from Helson and Moane's (1987) Feelings About Life Scale (Stewart & Vandewater, 1998; Zucker, Ostrove, & Stewart, 2002) which are intended to capture respondents' perceptions of having a widening sphere of interest (i.e., expanding radius of care), a new level of productivity or effectiveness, and having something to offer or teach young people. However, generative capacity was not found to be related to psychological well-being (Stewart & Vandewater, 1998). In addition, in differentiating current from whole-of-life self-evaluations, it was considered desirable to keep content similar, and to vary only the temporal orientation. As previously described, it was considered that this strategy would provide a conservative test of the hypothesis that the two are different and having different consequences for well-being, and would mean that any differences that were observed between the two could not be attributed to differences in item content.

Summary and Hypotheses

To summarise, a review of the literature led to the decision to develop an expanded LGS for the assessment of three aspects of generativity, generative concern, and current and whole-of-life self-evaluations of generativity. The resulting measures were subsequently evaluated using confirmatory factor analysis (CFA) and simple correlational analyses. It was expected that these measures would be correlated, but that the two aspects of self-evaluation would be more highly correlated with each other than with the measure of generative concern. Stated formally, the resulting hypotheses were as follows:

Hypothesis 1: The expanded LGS will yield three correlated factors, generative concern, current self-evaluations and whole-of-life self-evaluations.

Hypothesis 2: The correlations between (a) generative concern and current self-evaluations of generativity, and (b) generative concern and whole-of-life self-evaluations of generativity will be weaker than the correlation between current and whole-of-life self-evaluations themselves.

As discussed in Chapter 1, and in the introduction to this chapter, it is a contention of this thesis that the original LGS itself may be viewed as a measure of generative self-evaluation than of generative concern. Consistent with this view, a further hypothesis was formulated:

Hypothesis 3. The correlation between generative concern and scores on the LGS will be weaker than the correlation between the LGS and (a) current

self-evaluations of generativity and (b) whole-of-life self-evaluations of generativity.

2.2.1.2. Measurement of Generative Behaviour

As discussed in the previous chapter, generative behaviour has been less well researched than other components of generativity, although some researchers have developed measures for the investigation of generative behaviour in specific domains, for example, parenting (Snarey, 1993). As with generative concern, however, McAdams and de St. Aubin (1992) and Keyes and Ryff (1998) offer a choice between two approaches for the measurement of general or global generative behaviour. Of these, the Generative Behavior Checklist (GBC; McAdams & de St. Aubin, 1992) has been used in research into a range of topics, particularly the relationship between generative behaviour and psychological well-being (de St. Aubin & McAdams, 1995; McKeering & Pakenham, 2000; Morfei, Hooker, Carpenter, Mix, & Blakeley, 2004). This 40-item, self-report checklist captures such diverse behaviours as picking up litter in the street, becoming a parent, looking after someone else's children, and being promoted or elected to a leadership position. Not surprisingly, given this wide diversity of content, when used as a global instrument the checklist has failed to demonstrate convincing relationships with psychological well-being (de St. Aubin & McAdams, 1995; McKeering & Pakenham, 2000). As suggested in Chapter 1, this implies that the GBC may be of limited use as a global measure of generative behaviour, a view that is supported by Morfei and her colleagues' (Morfei, Hooker, Carpenter, Mix, & Blakeley, 2004) findings of differential relationships linking agentic and communal behaviours from the GBC to life satisfaction.

Keyes and Ryff's (1998) approach to the measurement of generative behaviours is more specific: they ask respondents to indicate whether or not in a typical month they would provide: (1) emotional support (comforting, listening to problems, giving advice) and (2) unpaid assistance (helping around the house, transport, childcare) to each of three targets, namely children or grandchildren, other family members or close friends, and "anyone else" (e.g., neighbours, people at church). Scores on both of these dimensions were included in regression analyses and showed differing relationships with both psychological and social well-being (Keyes & Ryff).

While the greater specificity associated with Keyes and Ryff's approach to the measurement of generative behaviour has possible advantages, it was nevertheless decided in the present thesis to adhere to McAdams and de St. Aubin's (1992) GBC as the basis of a measure of generative behaviour. Again, this was partly because of the restricted content of Keyes and Ryff's measure, which excludes traditional aspects of generativity such as creativity or leadership. The decision also meant that the measurement properties of the GBC could be examined more closely using factor analyses, and specific strands of generative behaviour identified.

The analysis of the factor structure of the GBC was exploratory, using principal components analysis, rather than CFA. Therefore, although the instrument was expected to yield several factors, no firm hypotheses were formulated concerning the number or nature of these.

Before describing the results of the CFAs and their results, an overview is presented of the nature and purpose of CFA, and of how CFA was used in the present study.

2.2.2. Approach to CFA in this Study

2.2.2.1. Overview of CFA

Nature and Purpose

Comprehensive accounts of the purpose and nature of confirmatory factor analysis (CFA) appear in several sources, including Byrne (Byrne, 1998; , 2001), Kline (2005), and Tabachnick and Fidell (2001). Briefly, CFA is a special application of structural equation modelling (SEM) that is used to test hypothetical relationships between one or more sets of observed (manifest) variables (i.e., scale items) and one or more latent variables or theoretical constructs (i.e., factors). In contrast to exploratory factor analyses, in which determination of factor solutions is largely empirically driven by the sample data, CFA requires the researcher to specify *a priori* relationships between the items and the factors according to hypotheses developed from existing theory and/or empirical research (Byrne, 1996). The results of the CFA “confirm” (or disconfirm) the researcher’s hypotheses by indicating the extent to which the hypothesised model fits the sample data. Thus, in the present study, CFA was used to test the extent to which the proposed three-factor model (generative concern, current and whole-of-life self-evaluations) fit the sample data yielded by the purposely developed measures of generativity and by the LGS.

It is generally recommended in SEM that instead of testing just one model, several theoretically plausible *a priori* models be tested (Byrne, 1998, 2001; Kline, 2005; La Du & Tanaka, 1995), and that these models be evaluated according to their relative merits, both substantively (i.e., which ones make better sense?) and statistically (i.e., which ones display better fit?). This allows the researcher to choose

amongst competing plausible models, rather than relying solely on retention and modification of a single model. In the present study, therefore, the intention was to test the proposed three-factor models of the purposely developed generativity measures against more parsimonious models (e.g., those with one or two factors).

Use of Modification Indices

As implied by preceding sections, although CFA is designed primarily for hypothesis testing, it contains elements that allow model exploration and refinement as well (Byrne, 1998). This is particularly so in the case of scale development and, as already suggested, to test the relative merits of competing models. Thus, the fit of a given model may be improved by making adjustments in accordance with modification indices (MIs) generated in the output. MIs show the extent to which model fit will be improved by the specification of additional significant parameters (and/or the removal of non-significant parameters?). Specifically, they indicate the extent to which the χ^2 value associated with the model (of which a lower value indicates a better fit; Byrne, 2001) is reduced by the addition of the parameter in question.

Typically, MIs consist of error correlations and/or additional regression coefficients. In the present study, the indication of isolated pairs of highly correlated errors (e.g., with correlations exceeding .40) was taken to signify redundancy of item content within those pairs (Byrne, 2001), and sometimes led to the deletion from each pair of the item with the lower factor loading. In other cases, for example, where errors were only moderately correlated, the model was revised to include these error correlations. Concerning additional regression coefficients, in a few cases, model

revisions included allowing a particular item to load on more than one factor, providing that this made conceptual sense.

Factor Loadings and Fit Indices

Apart from statistical significance, there appear to be no rules regarding the acceptable lower limit for factor loadings. However, Kline (2005, p. 178) recommends that, for sample sizes that are “not large”, indicators should have “reasonably high” standardised factor loadings, for example .60 or more. In the present study, items were retained if they produced a loading of .50 or greater, so that the relevant factor would account for at least 25% of the variance in each item. In accordance with Byrne’s (2001) recommendations, the fit indices that were employed included the chi-square/degrees of freedom ratio (χ^2/df), which should approach 2 or less; the goodness-of-fit index (GFI) and the comparative fit index (CFI), both of which should be .90 or more (although .95 is preferred); and the root mean square error of approximation (RMSEA) which should be no greater than .08 (and ideally, should approach .05). According to Byrne, the RMSEA is particularly important because it indicates how well the model might be expected to fit the data in the population, rather than be applicable only to the sample under investigation.

The relative fit of competing models was evaluated using the chi-square difference ($\Delta\chi^2$) test (Jöreskog, 1978; Kline, 2005). According to this test, a given model (e.g., Model 1) is considered to be significantly better than a given competitor (e.g., Model 2) if it produces a significantly lower χ^2 value. Significance is evaluated by:

- (1) subtracting the chi-square value associated with Model 1 from the chi-square value associated with Model 2 ($\Delta\chi^2$),

- (2) subtracting the degrees of freedom associated with Model 1 from the degrees of freedom associated with Model 2 ($df_2 - df_1$), and
- (3) comparing the value of $\Delta\chi^2$ against the critical value for χ^2 associated with the difference in degrees of freedom between Model 1 and Model 2.

If the obtained chi-square value is greater than or equal to the critical value, Model 1 is judged to be significantly better than Model 2.

Data Requirements for CFA and Method of Estimation

When conducting CFA, it is highly desirable to have multivariate normality of continuous data because the presence of severely skewed variables may inflate the chi-square statistic (Byrne, 2001), thereby reducing the chances of finding a good fit. In the present study, many variables were skewed, and although provisions exist for the treatment of non-normal and ordinal data in SEM (Byrne, 2001; Kline, 2005), the associated strategies require a much larger ratio of cases to variables than existed in the present study (i.e., $1.5k[k + 1]$ where k is the number of variables; Byrne, 1998). The data were therefore treated as continuous and the maximum likelihood method of estimation (MLE) was used. MLE is considered more robust to violations of normality than is the general least squares method (Tanaka, 1987). Nevertheless, variables that were severely skewed in the present thesis (i.e., showed ceiling or floor effects) or clearly departed from normality in other ways (e.g., had a U-shaped or bimodal distribution) were automatically excluded from CFA.

Regardless of the method of estimation in CFA, large sample sizes are desirable for the production of stable estimates (Byrne, 2001; Kline, 2005; Tabachnick & Fidell, 2001). For MLE, guidelines concerning desirable sample size vary; ranging from 300 cases or more (Tabachnick & Fidell, 2001), to a ratio of 5

(Byrne, 1998) or 10 ((Kline, 2005) cases to each parameter to be estimated. In the present study, the largest number of parameters in the model was 25, so the latter two criteria were satisfied.

2.3. Method

2.3.1. *Participants and Recruitment*

Data were obtained in 1999 from a volunteer convenience sample of 292 adults comprising 121 male, and 17 females (mean age = 48.75, $SD = 21.33$, range = 18 to 87), representing approximately equal numbers of young, middle-aged and older adults. The boundaries defining the age groups corresponded to categories described by Papalia, Camp, and Feldman (1996, p. 11). Thus, young adulthood was defined as 18 to 39 years inclusive (20 is the lower limit for Papalia et al.), middle adulthood as 40 to 64 years, and older adulthood as 65 years and over.

The younger participants were psychology students who completed the questionnaire as part of their course options. As well as being recruited directly by the author or her associates, midlife participants were recruited from service clubs, community groups and seniors' groups, while older participants were recruited from seniors' groups, community groups, and retirement villages. Questionnaires were accompanied by an introductory letter from the author's principal supervisor, advising potential recruits of the purpose of the study. Participants were also advised that they would be eligible to take part in a draw for one of three vouchers valued at \$80 in total. Of 700 questionnaires that were distributed, 301 were returned, giving a response rate of 42.8%. Nine respondents were excluded because they were under the age of 18, leaving a final sample of 292. Of the final sample, 112 (38.4%) took part

because they were known to the author or her acquaintances, 79 (22.1%) were psychology undergraduates, 22 (7.5%) came from volunteer or other community organisations, 66 (22.6%) from seniors' groups, and 3 (1.0%) from retirement villages. The remaining 10 (3.4%) came from other sources. Full details of the sample characteristics are shown at the beginning of the Results section.

2.3.2. *Materials and Measures*

2.3.2.1. *Generative Concern and Generative Self-Evaluations: Development of an Expanded Loyola Generativity Scale*

Because the LGS (McAdams & de St. Aubin, 1992) was used to generate the measures of generative concern and generative self-evaluations (current and whole-of-life) that were used in this thesis, its development is described in some detail here (see also McAdams & de St. Aubin, 1992). The LGS comprises 20 items that were ultimately selected from a 60-item pool generated by researchers familiar with the prior work of Erikson (1963), Kotre (1984), McAdams (1985), McAdams et al. (1986), Stewart and colleagues (Stewart, Franz, & Layton, 1988), and Van de Water and McAdams (1989). The items in the original pool were either purposely generated by the authors and their colleagues or derived from prior generativity scales (e.g., Ochse & Plug, 1986). The items were intended to “cover a wide range of generative content associated with an individual’s concern for the next generation” and to be “structurally simple and easy to understand” (McAdams & de St. Aubin, 1992, p. 1007). From the 60 items forming the original pool, McAdams and de St. Aubin developed a 39-item LGS and administered it to both a college sample ($n = 165$) and an adult community sample ($n = 149$, aged 19 to 68 years). Retention of items for the

final version was guided by evidence of discriminant and convergent validity. Thus, items were retained if they demonstrated (1) significant item-total correlations; (2) correlations of .3 or more with two prior generativity measures (Hawley, 1985; Ochse & Plug, 1986); and (3) correlations of less than .2 with a social desirability measure (Ochse & Plug, 1986). The final LGS demonstrated high internal reliability (alpha approached .85 in both samples), but exploratory factor analysis showed that only 40% of the total variance in both the college and the community samples was accounted for by the resulting two factors (labelled as Positive Generativity and Generative Doubts).

Items forming the LGS are presented in Table 2.1, according to the order in which they appear in McAdams and de St. Aubin (1992). According to McAdams and de St. Aubin, the instrument conveys the importance to the individual of such themes as: leaving a legacy, being remembered and having an impact on others (six items – 4, 6, 8, 10, 13, 14); passing on skills and knowledge to the next generation (four items = 1, 3, 12, 19); community responsibility and involvement (four items – 5, 15, 18, 20); and taking responsibility and caring for others (four items – 2, 9, 11, 16). The remaining two items concern productivity and creativity.

Table 2.1: Items in the Loyola Generativity Scale: Thematic Groupings and Proposed Attitudinal Orientation.

Item		Suggested Themes		Proposed Orientation
#	Description	McAdams & de St. Aubin	This study	
1	I try to pass along the knowledge that I have gained through my experience.	Knowledge/skills	Knowledge/skills	Concern
2	I do not feel that other people need me.	Care/ responsibility	Perceived value to others?	Current SE ¹
3	I think I would like the work of a teacher.	Knowledge/skills	Knowledge/skills	Concern
4	I feel as though I have made a difference to many people.	Legacy/impact	Legacy/ impact	WOL ² SEG
5	I do not volunteer to work for a charity.	Community involvement	Social responsibility	Concern (Behaviour)
6	I have made or created things that have had an impact on other people.	Legacy/impact	Legacy/impact	WOL self-evaluation
7	I try to be creative in most things I do.	Creativity/ productivity	Creativity/ productivity	Concern
8	I think that I will be remembered a long time after I die.	Legacy/impact	Legacy/impact	Current SEG
9	I believe that society cannot be responsible for providing food and shelter for all homeless people.	Care/ responsibility	Social responsibility	Concern
10	Others would say that I have made a unique contribution to society.	Legacy/impact	Legacy/impact	WOL SEG

#	Item Description	Suggested Themes		Proposed Orientation
		McAdams & de St. Aubin	This study	
11	If I were unable to have children of my own, I would like (have liked) to adopt children.	Care/ responsibility	Legacy/care	Concern
12	I have important skills that I try to teach others.	Knowledge/skills	Knowledge/skills	Current SEG /Concern
13	I feel as though I have done nothing that will survive after I die.	Legacy/impact	Legacy/impact	WOL SEG
14	In general my actions do not have a positive effect on others.	Legacy/impact	Legacy/impact	Current SEG
15	I feel as though I've done nothing of worth to contribute to others.	Community involvement	Legacy/impact	WOL SEG
16	I have made many commitments to different kinds of people, groups, and activities in my life.	Care/ responsibility	Social responsibility	Concern/ WOL SEG
17	Other people say that I'm a very productive person.	Creativity/ productivity	Creativity/ productivity	Current SEG
18	I have a responsibility to improve the neighbourhood in which I live.	Community involvement	Social responsibility	Concern
19	People come to me for advice.	Knowledge/skills	Knowledge/skills	Current SEG
20	I feel as though my contributions will exist after I die.	Community involvement	Legacy/impact	Current SEG

¹SE = self-evaluation; ²WOL = Whole-of-Life

While the placement of particular items in these groupings may be open to question (e.g., on the face of it, item 2 “I do not feel that other people need me” seems more like a negative assessment of one’s value to others than an expression of caring and responsibility), it was not the aim of the present thesis to investigate their validity empirically. However, possible alternative thematic groupings are suggested in Table 2.1. According to this alternative scheme, the majority of legacy/impact items also appear to convey (generative) self-evaluation (rather than concern), while the knowledge/skill and social responsibility items appear to denote (generative) concern rather than self-evaluation.

For the purposes of generating separate measures of generative concern and generative self-evaluations for this thesis, each of the 20 LGS items was classified according to whether its predominant attitudinal orientation was initially judged to be value-expressive (concern) or a self-assessment (self-evaluation). This classification scheme produced nine “concern” items and eleven “self-evaluation” items. Self-evaluation items were further classified according to whether their temporal orientation appeared to focus on the present or across the life-course to date, resulting in six items for current self-evaluations and five for whole-of-life self-evaluations. Several LGS items were initially judged to express more than one attitudinal orientation, and/or more than one temporal orientation. For example, item 12, “I have important skills that I try to teach others”, appears to contain elements of both self-evaluation (“I have important skills”) and concern (“that I try to teach others”). Initially, this item was classified as belonging to current self-evaluation. To check inter-rater reliability, the writer and one of her supervisors (MC) independently classified each item. Disagreements were resolved through discussion. Again, the proposed orientation of each item is shown in Table 2.1.

While these groupings formed a starting point, it was considered important that the measures of generative concern and generative self-evaluations developed for this research should cover parallel, rather than diverging item content. This was so that if the measures were to form distinct separate factors that would ultimately demonstrate differential relationships with psychological well-being, such findings would be attributable not to differing diverging item *content* between measures, but rather to the different *attitudinal* (e.g., value-expressive versus self-evaluation) or *temporal* orientations (e.g., current self-evaluation versus whole-of-life self-evaluation) expressed by the various measures to a shared substantive domain (generativity).

In creating the measures, it was also considered important that each should encompass the range of generative themes expressed in the LGS. As summarised in the introduction to this chapter, these themes were: (1) making a difference to, contributing to, and having a positive impact on, others; (2) passing on knowledge/skills; (3) leaving a lasting personal legacy; (4) social responsibility/involvement in community service; and (5) productivity/creativity. They were deemed to cover both communal and agentic aspects of generativity as described by Erikson (1963), and by McAdams and his colleagues (Mansfield & McAdams, 1996; McAdams & de St. Aubin, 1992; McAdams, Hart, & Maruna, 1998; Van de Water & McAdams, 1989). A sixth theme, that of benefiting future generations, which is *not* explicitly addressed in the LGS, was also included because of its centrality in theoretical formulations about generativity (Erikson, 1959, 1963).

To ensure comparability of content across measures, therefore, following their initial classification (i.e., as representing generative concern, current or whole-of-life self-evaluation), the majority of LGS items were reproduced at least once, such that

the content expressed in each of the originals would also be expressed in one or both of the two alternative orientations. Some examples are shown below:

- “I feel as though I have made a difference to many people” (whole-of-life self-evaluation)
- “It is important to me to make a difference to many people” (concern)
- “I feel as though I make a difference to many people (current self-evaluation).

Another example is:

- “I try to support the community in valuable ways” (concern)
- “I believe I support the community in valuable ways” (current self-evaluation),
- “During my life I have given valuable community support” (whole-of-life self-evaluation).

Not all items were reproduced, however, partly because not all items lent themselves to reproduction in the other two orientations. This meant that, in the end, the measures covered similar, but not identical, item content. There were 20 concern items, 18 current self-evaluation items, and 15 whole-of-life self-evaluation items (giving 53 items in total). The items are shown in Table 2.2 (see also Appendix A).

Table 2.2. Expanded LGS: Generative Concern, Current Self-Evaluations, Whole-of-Life Self-Evaluations.

Row	Concern	Orientation	
		Current Self-Evaluations	Whole-of-Life Self-Evaluations
1	<i>1. I try to pass along the knowledge that I have gained through my experiences. (1)</i>	1. I am able to pass along the knowledge that I have gained through my experience.	1. I have been able to pass on the knowledge that I have gained through my experience.
2	2. It is important to me that I make a difference to many people.	2. I feel as though I make a difference to many people.	<i>2. I feel as though I have made a difference to many people. (4)</i>
3	<i>3. I do not volunteer to work for a charity. (5)</i>	3. I give valuable support to a charity or community group.	3. I have given valuable support to a charity or community group.
4	4. One day I hope to make an important contribution to society.	4. Others would say that I'm making a unique contribution to society.	<i>4. Others would say that I have made a unique contribution to society. (10)</i>
5	5. It is important to me that I make or create something that will survive after I die.	5. I feel as though I'm doing nothing that will survive after I die.	<i>5. I feel that I have done nothing that will survive after I die. (13)</i>
6	6. I try to do things that will have a positive effect on other people.	<i>6. In general, my actions do not have a positive effect on others. (14)</i>	6. In general, my actions have not had a positive effect on others.
7	7. I try to spend my time being productive.	<i>7. Other people say that I'm a very productive person.</i>	7. Others have said that I have been a very productive person.
8	<i>9. I have a responsibility to improve the community in which I live. (18)</i>	8. I believe I support the community in valuable ways.	8. During my life, I have given valuable service to the community.
9	8. I try to support the community in valuable ways.		
10	10. It is important to me that I achieve something that will benefit future generations.	9. I feel as though I'm achieving things that will benefit future generations.	9. I feel as though I've achieved things that will benefit future generations.
11	11. It is important to me that I pass on something valuable to the next generation.	10. I am making or creating something valuable for the next generation.	10. I've made or created something valuable for the next generation.

Row	Concern	Orientation	
		Current Self-Evaluations	Whole-of-Life Self-Evaluations
12	<i>12. I try to be creative in most things I do. (7)</i>	11. I make or create things that have an impact on other people.	<i>11. I have made or created things that have had an impact on other people. (6)</i>
13	13. I want to be remembered a long time after I die.	<i>12. I think I will be remembered a long time after I die. (8)</i>	--
14	14. I hope my contributions will exist after I die.	<i>13. I feel as though my contributions will exist after I die. (20)</i>	--
15	15. It is important to me that I pass on my skills to others.	<i>14. I have important skills that I teach others. (12)</i>	--
16	--	<i>15. People come to me for advice. (19)</i>	12. During my life, people have often come to me for advice.
17	--	16. I feel as though I'm doing nothing of worth to contribute to others.	<i>13. I feel as though I've done nothing of worth to contribute to others. (15)</i>
18	<i>16. I have made many commitments to different kinds of people, groups, and activities in my life. (16)</i>	--	--
19	<i>17. I think I would like the work of a teacher. (3)</i>	--	--
20	<i>18. If I were unable to have children of my own I would like [have liked] to adopt children. (11)</i>	--	--
21	<i>19. I believe that society cannot be responsible for providing food and shelter for all homeless people. (9)</i>	--	--
22	20. One day I hope to achieve something of lasting value.	17. I feel as though I am accomplishing things that will have lasting value.	14. I have accomplished things that will have lasting value.
23		<i>18. I do not feel that other people need me. (2)</i>	15. I feel that throughout my life few people have needed me.

Note: Italicised items are from the LGS (ordering within LGS in parentheses).

Scoring

The original LGS uses a 4-point scale from 1 = never true, 4 = always true, while total LGS scores are derived by summing individuals' scores on all 20 items (giving a possible range of 20-80). In the present study, an alternative 7-point response format was chosen (1 = strongly disagree to 7 = strongly agree, with neither agree/disagree as the midpoint). This was partly because the choices offered by the original 4-point scale seemed inappropriate for several items in the original LGS, for example, numbers 3, 5 and 7 (see Table 2.1), and partly so as to make the response format consistent with other measures used in this study. Also, some investigators (e.g., Wink & Dillon, 2003), have speculated that respondents find the 4-point scale confusing.

2.3.2.2. Generative Behaviours: the (Modified) Generative Behavior Checklist

A slightly modified version of the Generative Behavior Checklist (GBC; McAdams & de St. Aubin, 1992) was used to assess generative behaviours (see Table 2.3). The GBC asks respondents to indicate how often over the previous two months (0 = not at all, 1 = once, 2 = more than once) they have performed each of 40 actions intended to reflect themes of creating, maintaining, and offering (see McAdams & de St. Aubin, 1992). In addition, there are 10 "filler" items (e.g., ate dinner at a restaurant, attended a party, learned a new skill). As previously described, the GBC covers a broad range of activities, for example "gave someone constructive criticism", "looked after someone else's children" and "planted a garden or tree", and includes several "rare event" items such as "was promoted to a leadership position", "became a parent", and "invented something".

For the present study several of the original items were altered following initial piloting (e.g., item 38, “offered someone spiritual or moral guidance” replaced “taught someone good from bad, right from wrong”). Seven new items were included (i.e., 8, 29, 33, 46, 50, 54, 55 in Table 2.3), while one of the originals, to do with voting for a political candidate, was removed because of its irrelevance to the Australian context (voting at state and federal elections is compulsory in Australia). In all, there were 55 items, including 10 fillers. The scoring system of the original was retained. Reliability for the 45 generativity items was .85.

A sizeable percentage of the undergraduate participants ($n = 34$) were administered an abbreviated version of the GBC, consisting of 11 items that were originally found to correlate highly with the LGS (see McAdams & de St. Aubin, 1992). This meant that subsequent principal component analyses could only be conducted on the participants who had completed the entire item set.

Table 2.3. The (Modified) Generative Behavior Checklist (adapted from McAdams & de St. Aubin, 1992).

Item #	Description
1	Taught somebody a skill.
2	<i>Went to see a movie, play or concert.</i>
3	Gave money to a charity.
4	Did volunteer work for a charity or community or environmental organisation.
5	Listened to a person tell me his or her personal problems.
6	<i>Purchased a new car or major appliance (e.g. dishwasher, television set).</i>
7	Taught Sunday school or provided similar religious instruction.
8	Baked a cake (or biscuits, muffins, etc.).
9	Told somebody about my own childhood.
10	Read a story to a child, or played a game with a child.
11	Looked after somebody else's children.
12	<i>Took part in an athletic sport or other vigorous exercise.</i>
13	Gave clothing or personal belongings to a not-for-profit organisation (such as Goodwill, Salvation Army, etc.).
14	Was elected or promoted to a leadership position.
15	Made a decision that influenced many people.
16	<i>Ate dinner at a restaurant.</i>
17	Produced a piece of art or craft (such as pottery, quilting, woodwork, painting, etc.).
18	Produced a plan for an organisation or group outside my own family.
19	Visited a non-relative in a hospital or nursing home.
20	<i>Spent time reading a novel.</i>
21	Made something for somebody and then gave it to them.
22	Drew upon my past experiences to help a person adjust to a situation.
23	Picked up rubbish off the street or some other area that is not my property.
24	Gave a stranger directions on how to get somewhere.
25	Attended a community or neighbourhood meeting.
26	Wrote a poem, story or piece of music, or worked on something original for publication (e.g. newsletter, journal article, all or part of book).
27	Took in a pet off the street or from an animal shelter.
28	Did something that other people considered to be unique and important.
29	Attended a religious meeting or service.

Item #	Description
30	Attended a meeting or activity at a church or other place of worship (not including conventional worship service such as Mass, Sunday morning service, etc.).
31	Offered physical help to a friend or acquaintance (e.g. helped them move, fix a car, do housework or gardening.)
32	<i>Had an argument with a friend or family member.</i>
33	Contributed <i>time or skills</i> to a political, social or environmental cause.
34	Contributed <i>money</i> to a political, social or environmental cause.
35	Planted or tended a garden, tree, flower or other plant.
36	Cooked a meal for friends or non-resident family members.
37	Donated blood.
38	Offered someone spiritual or moral guidance.
39	Sewed (knitted, crocheted, etc.) or mended a garment or other object.
40	Restored or renovated a house, part of a house, a piece of furniture, etc.
41	Assembled or repaired a child's toy.
42	Invented something.
43	Provided first aid or other medical attention.
44	<i>Attended a party or dinner party.</i>
45	<i>Took an afternoon nap.</i>
46	Helped to organise a benefit or fund-raiser.
47	Took part in a benefit or fund-raiser organised by somebody else (e.g., bought chocolates for local school; attended a charity concert).
48	<i>Learned a new skill (e.g. a language, musical instrument, welding, embroidery, etc.) or improved an existing skill.</i>
49	Became a parent (had a child, adopted a child, or became a foster parent).
50	Supported an environmental project (e.g. a community or local council recycling campaign, tree planting project, litter clean-up).
51	Served as a role model for a young person.
52	Provided constructive criticism about somebody's performance.
53	<i>Kept a diary or journal.</i>
54	Took family photographs, or recorded family activities.
55	Wrote letters to family or friends.

Note: Items in italics are "filler" items.

2.3.2.3. *Additional Measures*

For the purposes of characterising the sample, additional measures were obtained, including age and gender, marital status, parental status, education level, income and health status.

Age and sex. Respondents were asked to indicate whether they were male or female (coded as 1 and 2 respectively), and their age in years.

Education level. Education level was assessed by asking respondents to tick which of a list of educational categories corresponded to their highest level of educational achievement. The sample was expected to comprise participants with a wide age range, and, particularly, amongst the older respondents, a proportion of English, and possibly continental European migrants. It was expected that the potential diversity in the sample would make it difficult to equate education (particularly years of education) across age groups and cultures. Therefore, adopting a format used in the Australian Longitudinal Study of Ageing (Centre for Ageing Studies, 1992) participants were presented with a list of 13 educational categories, ranging from “No formal education” to “Higher Education (Masters Degree or Doctorate; see Appendix A). Ultimately, these were collapsed into two categories corresponding approximately to a median split, consisting of participants with tertiary education and participants without tertiary education (cf. Keyes & Ryff, 1998).

Marital status. Respondents were asked to indicate whether they were (1) never married (2) married or living in a *de facto* relationship, (3) divorced, (4) separated, or (5) widowed. Two broad categories were formed, comprising participants who did, and participants who did not, have a current partner (see Table 2.1).

Parental status. Respondents were asked to indicate whether they had one or more children.

Income level. Respondents were asked to indicate their annual income by ticking one of seven categories (1) \$9999 or less, (2) \$10,000 to \$19,999, (3) \$20,000 to \$35,999, (4) \$36,000 to \$49,999, (5) \$50,000 to \$99,999, and (6) \$100,000 or more. Two broader categories of annual income were formed: (1) less than \$36000 and (2) \$36000 or more (See Table 2.4).

Employment status. Respondents were asked to indicate whether they were (1) retired, (2) unemployed, (3) engaged in full-time home duties or caring for children, (4) working full-time, (5) working part-time, (6) studying full-time, (7) studying part-time, (8) performing voluntary work, or (other). These eight categories were collapsed into three: employed full-time, employed part-time, not employed.

Health status. Two questions were posed regarding health status. The first was “How would you rate your overall health at the present time?” (1 = excellent, 5 = poor). This question is commonly asked in epidemiological studies and studies of ageing (e.g., Wolinsky & Tierney, 1998). The second question was worded “How often does your health stop you from doing the things you want to do?” (1 = never, 5 = almost all of the time (e.g., Thomas, 1997). The two items were correlated at .50.

2.4. Results

2.4.1. Sample Characteristics

The demographic characteristics of the sample are shown in Table 2.4. There were predictable age group differences in marital status, parental status, income, and education level. A much smaller percentage of younger than midlife or older adults

was married or had at least one child. A greater percentage of midlife adults than either younger or older adults earned more than \$35000 per annum, while more younger than midlife, and more midlife than older adults had at least one year of tertiary education.

Concerning gender differences, a higher percentage of women (62.6%, $n = 107$) than men (29.8%, $n = 36$) had no current partner, $\chi^2(1, n = 292) = 30.55, p < .01$, while a larger percentage (60.2%, $n = 97$ compared with 46.2% of men, $n = 55$) had an income below \$36000, $\chi^2(1, n = 280) = 5.43, p < .05$. There were no other gender differences.

Table 2.4: Demographic Characteristics of Sample.

Characteristic	Age Group			
	Young	Midlife	Older	Total.
N	101	96	95	292
Age:				
<i>M</i>	24.17	50.57	73.63	48.75
<i>SD</i>	6.58	6.63	5.73	21.33
Sex:				
<i>n</i> female	64	49	59	172
% female	62	51	62	58
% married ^{1**}	22	74	63	53
% with ≥ 1 children ^{2**}	11	85	90	62
% > \$35000 annual income ^{3**}	44	58	12	38
% with ≥ 13 years formal education ^{4a*}	89	52	19	53
Employment status: ^{5**}				
% part-time	82	21	2	38
% full-time	16	60	2	24
Self-rated health ^{6*}				
<i>M</i>	3.78 ^a	3.70 ^b	4.30 ^{a,b}	3.92
<i>SD</i>	1.21	1.24	1.60	1.38

¹ $\chi^2(2) = 53.73$; ² $\chi^2(2) = 163.85$; ³ $\chi^2(2) = 32.09$; ⁴ $\chi^2(2) = 84.79$; ⁵ $\chi^2(4) = 271.63$; ⁶ $F(2, 289) = 5.25$.
* $p < .01$; ** $p < .001$; ^{a,b}Means sharing a superscript are significantly different at $p < .05$.

2.4.2. Data Preparation

Data were inspected for the presence of missing values and for whether their distributions would violate the requirements for CFA.

2.4.2.1. Treatment of Missing Values

Inspection of the raw data showed modest amounts of missing data in the items forming the expanded LGS, with the highest number of missing cases for any given item being 13 (4.5%; see Appendix B). According to Tabachnick and Fidell (2001) missing values may be safely imputed when less than 5% of data are missing. Accordingly, missing values were replaced using the expectation maximisation (EM) method in SPSS. According to Tabachnick and Fidell (2001, p. 63) EM imputes missing values by forming “a missing data correlation (or covariance) matrix [that assumes] the shape of a distribution (such as normal) for the partially missing data and basing inferences about missing values on the likelihood under that distribution”. Tabachnick and Fidell (2001) also state that EM has the advantages of “avoiding impossible matrices, avoiding overfitting (making the solution look better than it actually is), and producing realistic estimates of variance” (p. 63).

2.4.2.2. Variables Excluded from CFA

Inspection of the data showed that the distribution of a large number of the items forming the expanded LGS (16 in all, and just under one third of the total of 53 items) were either highly skewed or bi-modal, making the respective items unsuitable for inclusion in CFA. Several of these items also suppressed the value of alpha in their respective scales, suggesting a possible lack of fit between them and the

remaining items in the scales. Eight of the excluded items ostensibly measured generative concern, five current self-evaluations and three whole-of-life self-evaluations. Over half of the items (nine in total) came from the LGS.

Table 2.5 shows the excluded items. As can be seen, six (including four from the LGS) consisted of negative self-assessments of one's value to and impact on others, the longevity of one's achievements and the value of one's contributions. A further four (including two from the LGS) related to community involvement and activity, for example, commitment to groups and activities, volunteering, and support for charity, while another three expressed the aspiration to leave a lasting legacy. The remaining three (all from the LGS) dealt with society's responsibility for the homeless, an interest in teaching as a job, and a willingness to adopt children.

The exclusion of these 16 items left a pool of 37 items (including 11 from the original LGS) with which to begin CFA. These items are shown in Table 2.6. There were 12 items each for generative concern and self-evaluations of whole-of-life generativity and 13 items for self-evaluations of current generativity.

Table 2.5. Items Excluded from Confirmatory Factor Analysis of Expanded LGS.

Items excluded from CFA		
	Description	Distribution
Generative Concern		
1	<i>I do not volunteer to work for a charity or other community organisation.</i> ^{1,2,3}	Ceiling
2	<i>If I were unable to have children of my own, I would like to adopt children.</i> ³	Bi-modal
3	<i>I believe that society cannot be responsible for providing food and shelter for all homeless people.</i> ^{2,3}	Bi-modal
4	<i>I think I would like the work of a teacher.</i> ³	Bi-modal
5	<i>I have made many commitments to different kinds of people, groups, and activities in my life.</i>	Ceiling
6	I hope my contributions will exist after I die.	Ceiling
7	I want to be remembered a long time after I die.	Multi-modal
8	One day I hope to achieve something of lasting value.	Ceiling
Current Self-Evaluations		
9	I give valuable support to a charity or community group.	Bi-modal
10	I feel as though I'm doing nothing of worth to contribute to others. ²	Ceiling
11	<i>I do not feel that other people need me.</i> ²	Ceiling
12	<i>In general my actions do not have a positive effect on others.</i> ²	Ceiling
13	I feel as though I'm doing nothing that will survive after I die. ²	Ceiling
Whole-of-Life Self-Evaluations		
15	<i>I feel as though I've done nothing of worth to contribute to others.</i> ^{1,2}	Ceiling
15	<i>I feel as though I've done nothing that will survive after I die.</i> ^{1,2}	Ceiling
16	During my life I have given valuable support to a charity or community group.	Ceiling

¹ Items in italics are from the LGS. ² Negatively worded items were reverse-scored. ³ Indicates items that also suppressed the value of alpha in their respective scales.

Table 2.6. Items Retained for CFA of Expanded LGS.

	Generative Concern	Current Generative Self-Evaluations	Whole-of-Life Generative Self-Evaluations
1	<i>I try to pass along the knowledge that I have gained through my experiences. (1)</i>	I am able to pass along the knowledge that I have gained through my experience.	I have been able to pass on the knowledge that I have gained through my experience.
2	It is important to me that I make a difference to many people.	I feel as though I make a difference to many people.	<i>I feel as though I have made a difference to many people. (4)</i>
3	One day I hope to make an important contribution to society.	Others would say that I'm making a unique contribution to society.	<i>Others would say that I have made a unique contribution to society. (10)</i>
4	It is important to me that I make or create something that will survive after I die.	<i>Other people say that I'm a very productive person.</i>	In general, my actions have not had a positive effect on others.
5	I try to do things that will have a positive effect on other people.	I believe I support the community in valuable ways.	Others have said that I have been a very productive person.
6	I try to spend my time being productive.	I feel as though I'm achieving things that will benefit future generations.	During my life, I have given valuable service to the community.
7	<i>I have a responsibility to improve the community in which I live. (18)</i>	I am making or creating something valuable for the next generation.	I feel as though I've achieved things that will benefit future generations.
8	It is important to me that I achieve something that will benefit future generations.	I make or create things that have an impact on other people.	I have made or created something valuable for the next generation.
9	It is important to me that I pass on something valuable to the next generation.	<i>I think I will be remembered a long time after I die. (8)</i>	<i>I have made or created things that have had an impact on other people. (6)</i>

	Generative Concern	Current Generative Self-Evaluations	Whole-of-Life Generative Self-Evaluations
10	<i>I try to be creative in most things I do. (7)</i>	<i>I feel as though my contributions will exist after I die. (20)</i>	During my life, people have often come to me for advice.
11	It is important to me that I pass on my skills to others.	<i>I have important skills that I teach others. (12)</i>	I have accomplished things that will have lasting value.
12	I try to support the community in valuable ways.	<i>People come to me for advice. (19)</i>	I feel that throughout my life few people have needed me.
13		I feel as though I am accomplishing things that will have lasting value.	
Total	12	13	12
α	.91	.93	.91

2.4.3. Confirmatory Factor Analyses

2.4.3.1. CFA of the Expanded LGS

The CFAs were conducted in two steps using the AMOS program (Arbuckle, 2003). Firstly, each of the proposed scales was analysed individually, so that the internal factor structure of each could be determined and poorly fitting items identified and discarded. For each scale, internal reliability analyses were initially conducted, so that items suppressing the value of alpha could be excluded automatically from CFA. Secondly, the remaining items in each scale were pooled and CFAs were subsequently performed, to determine the fit of the model outlined in Hypothesis 1.

CFA of Generative Concern Items

The 12 generative concern items were retained for CFA. All were specified to load on a single factor, and with the exception of item 1, which produced a loading of only .34, all had acceptable loadings (range .52-.83; see Table 2.7). However, as shown in Table 2.8, the fit for this model (Model 1) was poor with all indices falling well outside acceptable limits. Inspection of MIs showed substantial correlations between several pairs of errors, suggesting the possible presence of several factors rather than just one. One cluster of paired items (items 2, 4, 7, 9 in Table 2.7) appeared to express an engagement with particular types of generative behaviour (e.g., mentoring, creativity), while a single pair of items expressed concern with community service (items 3, 6). Meanwhile, the five items remaining from the

original factor (items 5, 8, 10, 11, 12) reflected a preoccupation with leaving a legacy and making a contribution to society and the next or future generation(s).

Accordingly, an alternative model was specified, in which items were specified to load on one of three factors: (1) social concern (two items, 3, 6), (2) generative commitment (four items, 2, 4, 7, 9) or (3) the original factor, re-labelled legacy concerns (five items, 5, 8, 10, 11, 12). The factors and associated items are shown in Table 2.7, while the fit indices are shown in Table 2.8. The three-factor model achieved a substantially better fit than did the one-factor model ($\Delta\chi^2(13) = 62.75, p < .01$). Furthermore, while the correlations among the resulting factors were high (range .65 to .73), they were still low enough to indicate some degree of separation among the factors. However, while two of the fit indices (the GFI and CFI) were acceptable, the RMSEA (.10) and χ^2/df ratio (3.61) were still unacceptably high. Modification indices also indicated moderate, positive error correlations between items 2 and 11 ($r = .19, MI = 12.60$), and 7 and 8 ($r = .21, MI = 11.25$). Allowing these errors to correlate reduced the RMSEA to below .08 (to .069). A final modification consisted of allowing item 10 to load on Factor 2, as well as on Factor 1 ($\beta = .31$). This last alteration to the model reduced the RMSEA to below .06 and the χ^2/df ratio to below 3 (see Tables 2.7 and 2.8).

While this three-factor solution was statistically acceptable, it also seemed somewhat complex, particularly given that within each pair of correlated errors, the corresponding items loaded on different factors. To determine whether it would be possible to find a simpler solution, each of the three factors was examined in isolation. The separate analyses showed that while a single-factor model of the five items remaining from the original factor achieved an almost perfect fit, similar analyses of the items in the other two failed to achieve satisfactory solutions, in that

regardless of which items were removed or retained, the RMSEAs did not fall below .08. Consequently, a decision was made to retain the five items from the first factor and to discard the remaining items.

Table 2.7. Generative Concern Items and Factor Loadings

Item		Model				
		Initial 1-Factor	Revised 3-Factor			Final 1-Factor
No.	Description	1	1	2	3	1
1	I try to spend my time being productive.	.34	--	--	--	--
2	It is important to me that I pass on my skills to others.	.61	--	.68	--	--
3	I have a responsibility to improve the community in which I live.	.54	--	--	.74	--
4	I try to pass along the knowledge I have gained through my experiences.	.62	--	.75	--	--
5	It is important to me that I pass on something valuable to the next generation.	.83	.83	--	--	.84
6	I try to support the community in valuable ways.	.54	--	--	.74	--
7	I try to be creative in most things I do.	.58	--	.64	--	--
8	It is important to me that I make or create something that will survive after I die.	.70	.74	--	--	.75
9	I try to do things that will have a positive effect on others.	.62	--	.74	--	--
10	It is important to me that I make a difference to many people.	.83	.60	.31	--	.80
11	It is important to me that I achieve something that will benefit future generations.	.78	.81	--	--	.79
12	One day I hope to make an important contribution to society.	.63	.65	--	--	.65

Table 2.8: Generative Concern Items: Results of CFA.

<i>Model</i>									
#	Description	No. items	χ^2	df	χ^2/df	GFI	CFI	TLI	RMSEA
1	Initial 1-factor	12	371.78	54	6.88	.80	.80	.76	.14
2	Initial 3-factor	11	148.73	41	3.61	.92	.93	.90	.10
3	Revised 3-factor	11	85.98	37	2.32	.95	.97	.95	.07
4	Final 1-factor	5	4.54	5	0.91	.99	1.00	1.00	.00

CFA of Current Self-Evaluation Items

As described in the method section, only 13 of the 18 items that were initially developed to assess current generative self-evaluations were considered suitable for inclusion in CFA (see Table 2.9). These 13 items were specified to load on a single factor. All items produced factor loadings of .50 or above, and two of the fit indices (the CFI and TLI) were acceptable (i.e., greater than .90; see Table 2.9). However, modification indices showed that the error of item 6 was substantially correlated with, among others, the errors of items 8 ($r = .59$, $MI = 29.49$), 2 ($r = -.41$, $MI = 18.15$) and 5 ($r = .35$, $MI = 10.96$). The error of item 2 was also substantially correlated with the error of item 3 ($r = .41$, $MI = 34.91$), as well as with the errors of several other items. Removal of items 2 and 6 improved all fit indices to within acceptable limits. The items and factor loadings are shown in Table 2.9, and the fit indices in Table 2.10.

Table 2.9. Current Self-Evaluation Items and Factor Loadings.

Item		Loading	
No.	Description	Initial	Final
1	People come to me for advice.	.63	.65
2	I am accomplishing things that will have lasting value.	.66	--
3	I feel as though I am achieving things that will benefit the next generation.	.78	.77
4	I make or create things that have an impact on other people.	.68	.68
5	I feel as though my contributions will exist after I die.	.75	.74
6	I believe I support the community in valuable ways.	.56	--
7	Others would say that I'm making a unique contribution to society.	.68	.69
8	I am making or creating something valuable for the next generation.	.84	.85
9	I feel as though I make a difference to many people.	.69	.69
10	Other people say that I'm a very productive person.	.58	.59
11	I think that I will be remembered a long time after I die.	.64	.63
12	I'm able to pass on the knowledge that I have gained through my experience.	.68	.68
13	I have important skills that I teach others.	.69	.70

Table 2.10: Current Self-Evaluation Items: Results of CFA.

	Model	No. items	χ^2	df	χ^2/df	GFI	CFI	TLI	RMSEA
1	Initial	13	223.71	65	3.44	.89	.91	.90	.09
2	Revised	11	98.70	44	2.24	.94	.96	.95	.07

CFA of Whole-of-Life Self-Evaluation Items

The 12 items corresponding to whole-of-life self-evaluations of generativity that were retained for CFA were specified to load on a single factor (see Table 2.11). Except for item 2, "I feel that throughout my life, few people have needed me",

which produced a loading of only .40, all items produced acceptable loadings (range .50-.78). However, as with the current self-evaluation items, although the GFI and CFI approached acceptable values, the remaining fit indices fell outside acceptable limits (see Table 2.12). In this case, modification indices showed two pairs of substantial error correlations, a positive one between the errors of items 4 “I have made and created things that have had an impact on other people” and 5 “I have accomplished things that will have lasting value” ($r = .35$, $MI = 22.34$), and a negative one between those of items 7 “I feel as though I have achieved things that will benefit the next generation:” and 9 “Others would say that I have been a very productive person” ($r = -.33$, $MI = 20.97$). While it appeared feasible to allow a positive correlation between errors of items 4 and 5, the negative correlation between the errors of items 7 and 9 did not make conceptual sense. In the interests of parsimony, rather than allow the errors to correlate, the decision was made to retain the item within each pair that would produce a better fit, discarding the other two. The better fitting items turned out to be 4 and 9. Somewhat counter-intuitively, the inclusion of item 7 - which had the highest factor loading of all (.81) - at the expense of item 9 increased the RMSEA value to above .08. Item 2 was also dropped because of its low factor loading. A CFA of the remaining nine items produced a satisfactory fit.

Table 2.11. Whole-of-Life Self-Evaluations: Items and Factor Loadings.

No.	Items Description	Loadings	
		Initial	Final
1	During my life, people have often come to me for advice.	.55	.56
2	I feel that throughout my life few people have needed me.	.40	--
3	I have been able to pass on the knowledge that I have gained through my experience.	.56	.54
4	I have made and created things that have had an impact on other people.	.64	.61
5	I have accomplished things that will have lasting value.	.76	--
6	During my life, I have given valuable service to the community.	.69	.68
7	I feel as though I have achieved things that will benefit the next generation.	.78	--
8	Others would say that I have made a unique contribution to society.	.66	.68
9	Others would say that I have been a very productive person.	.63	.67
10	In general, my actions have not had a positive effect on others.	.50	.54
11	I feel as though I have made a difference to many people.	.69	.72
12	I have made or created something that I can pass on to the next generation.	.74	.69

Table 2.12. Whole-of-Life Self-Evaluation Items: Results of CFA.

	Model	No. of items	χ^2	df	χ^2/df	GFI	CFI	TLI	RMSEA
1	1. Initial 1-factor	12	202.12	54	3.74	.90	.90	.87	.10
2	2. Final 1-factor	9	66.25	27	2.45	.95	.95	.94	.07

CFA of Pooled Concern, Current and Whole-of-Life Self-Evaluation Items

The CFAs of the separate generativity subscales described in the preceding sections generated a final pool of 25 items (5 generative concern, 11 self-evaluation of current generativity and 9 self-evaluation of whole-of-life generativity) to enter into a combined CFA. The intention was to determine the extent to which these three groups of items, each of which formed a coherent factor when considered in isolation, would form distinguishable factors when considered in combination. The hypothesised three-factor model was tested against several competing models, consisting of three two-factor models (concern versus self-evaluation, concern plus current self-evaluations versus whole-of-life self-evaluations, and concern plus whole-of-life self-evaluations versus current self-evaluations), and a one-factor model.

As described earlier, it is generally considered desirable to avoid multiple error correlations in CFA. However, in the present case errors were deliberately correlated across factors, such that the error of a particular item in one of the proposed orientations (say concern) was specified *a priori* to correlate with the errors from the equivalent item(s) in the other two orientations (current and whole-of-life self-evaluations). The rationale for this approach was that the aim of this set of CFAs was to determine whether the items in the three hypothetical orientations towards generativity - concern, current, and whole-of-life self-evaluations - would form separate factors, after holding generative content constant.

As with the previous CFAs, the fit indices that were used in the present CFAs consisted of the χ^2/df ratio, the GFI, the CFI and the RMSEA. However, because of the relatively high ratio of parameters to cases, it was recognised that it would be

difficult to achieve a good fit across all indices, particularly in the case of the GFI, which is sensitive to sample size (Byrne, 2001). Therefore, the focus was on the χ^2/df ratio, the CFI and the RMSEA, as well as on the relative fit of competing models.

Three-Factor Model

The initial model consisted of three correlated factors, comprising 5, 11 and 9 items respectively, and 14 pairs of correlated errors. The first run produced a reasonable fit, χ^2/df ratio = 2.65, CFI = .89, RMSEA = .08 (see Table 2.14). However, the AMOS output indicated that four of the specified error correlations were non-significant (and therefore should be removed), while another two, which had not been specified, were significant (and therefore should be added). The model was re-run after making the adjustments indicated. This resulted in a significantly better fit, $\Delta\chi^2(3) = 28.89, p < .01$, CFI = .91 and RMSEA = .067.

While the fit of this model was acceptable, the MIs identified two pairs of self-evaluation items showing what appeared to be excessively high error correlations. The two items within each pair belonged to different temporal orientations (i.e., current versus whole-of-life) but expressed similar content (giving advice in the first pair, being seen as productive in the second). In both cases, the correlations were above .50, which seemed to suggest considerable overlap (and little differentiation) in the responses to the current and whole-of-life versions of the items in question. Rather than allowing all four items to remain in the model, the decision was made to remove from each pair the item that had produced the lower factor loading. This turned out to be items 16 from the current self-evaluation scale and 1 from the whole-of-life self-evaluation subscale. Re-running the model without these two items increased the GFI and CFI, while the RMSEA dropped to .066. The result of the χ^2 difference test was also significant $\Delta\chi^2(43) = 107.75, p < .05$. Accordingly, this

solution was adopted as the final one. The correlations between the factors were: .53 between concern and whole-of-life self-evaluations, .62 between concern and current self-evaluations, and .85 between current and whole-of-life self-evaluations.

One and Two-Factor Models

As outlined in section 3.3, three two-factor models were tested: (1) concern versus current plus whole-of-life self-evaluations, (2) concern plus current self-evaluations versus whole-of-life self-evaluations, and (3) concern plus whole-of-life self-evaluations versus current self-evaluations. In all three cases, errors were correlated as they had been for the three factor models. None of these models achieved the degree of fit that had been produced by the three-factor models. Furthermore, in all three cases, the value for $\Delta\chi^2$ was significant. It was concluded that a 3-factor model was superior to a two-factor model. Finally, a one-factor model was tested, and as anticipated, this model produced the worst fit of all. The results of these factor analyses are contained in Table 2.14.

Table 2.13. Generative Concern, Current Generative Self-Evaluation and Whole of Life Generative Self-Evaluation: Items and Factor Loadings.

Item	Model					
	Initial			Final		
	Concern	CSE	WSE	Concern	CSE	WSE
<i>Concern</i>						
1	One day I hope to make an important contribution to society.			.64		
2	It is important to me that I pass on something valuable to the next generation.			.82		
3	It is important to me that I make or create something that will survive after I die.			.76		
4	It is important to me that I make a difference to many people.			.82		
5	It is important to me that I achieve something that will benefit future generations.			.80		
<i>Current self-evaluation</i>						
1	People come to me for advice.		.63		.63	
3	I feel as though I'm achieving things that will benefit future generations		.73		.73	
5	I make or create things that have an impact on other people.		.69		.68	
6	I feel as though my contributions will exist after I die.		.75		.76	
9	Others would say that I'm making a unique contribution to society		.69		.69	
11	I feel as though I make a difference to many people.		.70		.70	
16	Other people would say that I'm a very productive person.		.58			

Item	Model						
	Initial			Final			
	Concern	CSE	WSE	Concern	CSE	WSE	
17	I think I will be remembered a long time after I die.		.65			.65	
19	I am making or creating something valuable for the next generation.		.84			.85	
18	I am able to pass along the knowledge that I have gained through my experience.		.67			.66	
20	I have important skills that I teach others.		.68			.68	
<i>Whole-of-life self-evaluation</i>							
1	During my life, people have often come to me for advice.			.54			--
3	I have been able to pass on the knowledge that I have gained through my experience.			.55			.53
5	I have made or created things that have had an impact on other people.			.60			.62
7	During my life, I have given valuable service to the community.			.66			.65
10	Others would say that I have made a unique contribution to society.			.68			.68
12	Others have said that I have been a very productive person.			.64			.65
14	In general, my actions have not had a positive effect on others.			.50			.50
15	I feel as though I have made a difference to many people.			.67			.67
16	I've made or created something valuable for the next generation.			.75			.76

Table 2.14: Generative Concern, Current Generative Self-Evaluation and Whole of Life Generative Self-Evaluation Items: Results of Combined CFA.

Model	Description	No. items	χ^2	df	χ^2/df	GFI	CFI	RMSEA
1	3-factor	25	686.68	259	2.65	.83	.89	.87 .08
2	3-factor	25	590.68	261	2.26	.85	.91	.89 .07
3	3-factor	23	482.93	218	2.22	.86	.92	.91 .065
4	2-factor	23	741.20	219	3.38	.78	.84	.82 .092
5	1 factor	23	766.97	220	3.48	.78	.83	.80 .094

Summary

Based on the results of the foregoing CFAs, it was concluded that the proposed three-factor model of generativity provided a better fit than did the alternative one- and two-factor models. Accordingly, Hypothesis 1 was supported.

2.4.4. Correlations Among Psychological Components of Generativity

The third and fourth hypotheses to be tested in this section of the thesis concerned the relative strength of the associations among the components of generativity that were identified in this study. To reiterate, it was predicted that, if CFA did confirm the existence of generative concern, current generative self-evaluations and whole-of-life generative self-evaluations as separate factors, the correlations between concern and each of the two self-evaluative components of generativity would be lower than the correlation between the two self-evaluative components themselves.

As reported earlier, the correlations among the three factors were (a) $r = .62$ (concern and current self-evaluations), (b) $r = .53$ (concern and whole-of-life self-evaluations), and (c) $r = .85$ between the two measures of generativity self-

evaluations. The magnitudes of these correlations were compared using Steiger's (1980) method for comparing dependent correlations. The tests showed that the differences were significant: for the comparison of (a) with (c), $t = 6.98, p < .001$; for the comparison of (b) with (c), $t = 10.04, p < .001$. When unit-weighted, rather than factor, scores were used (i.e., by summing the scores from each of the relevant items) the correlation between current and whole-of-life self-evaluations was somewhat lower than when factor scores were used ($r = .76$; see also Table 2.17). However, the differences between correlations were still significant, $t = 5.11, p < .001$ for the comparison of (a) with (c), and $t = 8.46, p < .001$ for the comparison of (b) with (c). Thus, Hypotheses 2.2a and 2.2b were supported.

Finally, to test Hypothesis 3, bivariate correlations were computed between the original LGS and each of the components of the expanded LGS, namely generative concern, current generative self-evaluations and whole-of-life self-evaluations of generativity (see also Table 2.17). The respective coefficients were .55, .85 and .84. As expected, the correlation between the LGS and both types of generativity self-evaluations were stronger than that between the LGS and generative concern: $z = 9.25, p < .001$ for current self-evaluations, and $t = 8.51, p < .001$, for whole-of-life self-evaluations. Thus, hypotheses 3(a) and 3(b) were supported. (The full set of bivariate correlations is displayed in Table 2.17.)

2.4.5. Principal Components Analysis of the Generative Behavior Checklist

A final aim of this section of the thesis was to explore the factor structure of the GBC (McAdams & de St. Aubin, 1992). Chapter 1 described how the GBC, when used as a global measure of generative behaviour, has hitherto failed to show any significant relationship with psychological well-being (de St. Aubin &

McAdams, 1995; Grossbaum & Bates, 2002). It was argued that one reason for this might be the incorporation within the GBC of apparently disparate kinds of generative behaviour. Thus, the initial aim of the factor analyses was to determine whether the GBC would yield separate factors that could be used to explore the relationship between generative behaviour and psychological well-being. Exploratory rather than confirmatory factor analyses were conducted, both because precise hypotheses concerning the structure of the GBC had not been formulated and because the ordinal nature of the data made CFA problematic (Byrne, 2001).

As described in the method section, the GBC had been modified slightly for the present study, having been extended to include 46 items (plus 10 filler items) rather than the 40 in the original version. Initial reliability of these 46 items was .84. Removal of eight items with low item-total correlations (range .01 to .19) increased the level of alpha to .85. The items that were removed are shown in Table 2.15.

Table 2.15. Generative Behavior Checklist: Items Excluded from Principal Components Analysis.

Item Number	Description	Item-total Correlation
27	Took in pet off the street or from an animal shelter.	.00
34	Planted or tended a garden or tree.	.13
36	Cooked a meal for friends or non-resident family members.	.17
37	Donated blood.	.08
39	Sewed or mended a garment.	.13
40	Restored a house or furniture.	.13
42	Invented something	.15
49	Became a parent.	.09

The remaining 37 items were subjected to a principal components analysis. Varimax was chosen as the method of factor rotation so as to maximise the variance

and minimise the correlations among the factors (Tabachnick & Fidell, 2001). As with the CFAs of the psychological components of generativity, loadings of .50 or greater were considered acceptable. Although twelve factors with eigenvalues of greater than one were identified (collectively accounting for 61% of the variance), only four of these (28% of variance) were interpretable. The first (9.5 % of variance in the rotated solution) contained six items pertaining to guiding or influencing others. The second (6.3% of variance) contained four items relating to community involvement and volunteering. The third factor (6.12% of variance) comprised three items pertaining to religious involvement, while the fourth (6.06% of variance) comprised four items reflecting family- and child-centred activities. Alpha levels for the items comprising each of the four factors were acceptable (range .67-.75).

The four retained factors and their associated items, factor loadings and alpha levels are contained in Table 2.16. Variables corresponding to the factors were constructed by summing the scores from the relevant items (Tabachnick & Fidell, 2001). The variables were labelled Guiding and Influencing, Community Service, Religious Observance, and Childcare. The complete factor loadings for all 12 factors are shown in Appendix C.

Table 2.16. Generative Behavior Checklist. Items and Factor Loadings from Principal Components Analysis.

Factor	Item	Description	Loading	Factor
1	1	Taught someone a skill	.63	1
	15	Made a decision that influenced many people	.59	
	18	Produced a plan for an organisation outside my immediate family.	.56	
	22	Drew upon my past experience to help someone adjust to a new situation.	.61	
	51	Served as a role model for a young person.	.53	
	52	Provided constructive criticism about someone's performance.	.68	
2	4	Did volunteer work for a charity or community or environmental organisation.	.71	2
	25	Attended a community or neighbourhood meeting.	.61	
	32	Contributed time or skills to a social, political or environmental cause.	.58	
	46	Helped to organise a fundraiser or benefit.	.66	
3	7	Taught Sunday school	.55	3
	29	Attended a religious service	.85	
	30	Attended a meeting (other than a religious service) at a church or other place of worship	.83	
4	10	Read a story to a child or played a game with a child.	.70	4
	11	Looked after someone else's children.	.69	
	41	Assembled a child's toy.	.76	
	53	Took family photographs, or recorded family activities.	.57	

Finally, bivariate correlations were computed between the behavioural factors of generativity, the components of the extended LGS and the original LGS (Table 2.17). As can be seen, of the four behavioural factors, guiding and influencing was moderately to strongly correlated with the self-evaluative components, and was also significantly correlated with generative concern. There were also more modest, but still significant correlations between community service and the self-evaluative measures, and between childcare and both current self-evaluations and the original LGS. However, generative concern was only weakly correlated with these factors, while the correlations between religious observance and the psychological components of generativity were very weak.

Table 2.17. Bivariate Correlations Among Components of Generativity (unit-weighted scores).

	<i>Component</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1	Guiding & influencing	(.75)	.14	.05*	.15	.21	.44	.37	.42
2	Community service		(.69)	.25	.19	.13	.25	.27	.37
3	Religious observance			(.72)	.19	.04*	.11*	.10*	.13
4	Childcare				(.68)	.17	.23	.18	.24
5	Generative concern					(.87)	.54	.42	.55
6	Generative self-evaluations - current						(.90)	.76	.85
7	Generative self-evaluations - whole-of-life							(.85)	.84
8	Loyola Generativity Scale								(.86)

Note: Cronbach's alpha in parentheses.

*All correlations, except those with an asterisk, were significant at $p < .05$.

2.5. Discussion

This chapter has described the development of measures of generative concern, generative self-evaluations and generative behaviour. Using an expanded Loyola Generativity Scale and a slightly modified version of the Generative Behavior Checklist (McAdams & de St. Aubin, 1992) measures of generativity were constructed and subsequently analysed using confirmatory and exploratory factor analyses. Analyses identified three highly correlated aspects of psychological generativity, generative concern, current, and whole-of-life self-evaluations of generativity, together with four weakly correlated behavioural ones, guiding and influencing, community service, religious observance, and childcare. The processes involved in scale development and analysis are discussed in the following paragraphs.

2.5.1. Nature of Items Excluded from CFA of the Expanded LGS

It will be recalled that a substantial number of the items comprising the original version of the expanded LGS (including some in the original LGS) revealed distributions that departed severely from normality and therefore made them undesirable for inclusion in CFA. With the exception of a miscellaneous group of items emanating from the LGS, the variables in question were for the most part severely skewed, indicating that the largest proportion of participants endorsed the highest (or lowest, in the case of items that were negatively worded and reverse-scored) anchor point. The items in question consisted of negative self-assessments,

statements concerning involvement in community organisations, or statements that expressed aspirations or hopes for a lasting legacy.

Concerning the first of these, it is perhaps not surprising that respondents were inclined to disagree with such negatively worded items, particularly since for the most part they expressed highly negative self-assessments of one's impact on, or value to, others. Of the six items in question, four were taken directly from the LGS. As outlined in the introduction to this chapter, McAdams and de St. Aubin (1992) considered it desirable to include both positively and negatively worded items in the LGS to counteract positive response tendencies and presumably also to convey the "opposite" of generativity (i.e., stagnation). While it is possible that the ceiling (or floor) effects detected for these items in the present study might reflect sample characteristics (see below), it is also possible that the items themselves might have evoked a strongly negative response tendency: that is, they connote generative, and therefore, perhaps personal, failure. Perhaps a better way of capturing the absence or opposite of generativity would be to employ positively worded items that reflect values or self-evaluations that are incompatible with generativity (e.g., stagnation, self-centredness), rather than including negatively worded items that appear to convey such generative failure.

The second group of items in the generativity subscales that showed ceiling effects were those pertaining to community involvement and volunteering. As described in the method section, a large percentage of participants in this study were recruited from community organisations, so that it is not surprising that approximately 50% of all respondents took part in some kind of volunteering. This compares with between 25% and 34% of the Australian population as a whole at the time of data collection (Australian Bureau of Statistics, 2001; Australian Government

Department of Family and Community Services, 2005). Therefore, it is possible that had respondents been more representative of the population in general, these ceiling effects would not have been observed, thus improving the item distributions and rendering them more suitable for inclusion in CFA. Replication of the study in a more representative sample might settle this question.

The final set of items showing ceiling effects were those reflecting wishes or aspirations to achieve a lasting generative legacy. It is possible that these items were phrased too generally or vaguely to discriminate well among participants (i.e., were “motherhood” statements), and therefore were willingly endorsed by the majority.

2.5.2. Results of Confirmatory and Exploratory Factor Analyses

2.5.2.1. CFA of the Expanded LGS

Given the characteristics outlined in the previous section, CFA of the expanded LGS used only half of the items that were originally generated. Nevertheless, they appeared to confirm the existence of the three hypothesised factors, corresponding to generative concern, self-evaluations of current generativity and self-evaluations of whole-of-life generativity. Of the three sets of items, those comprising current self-evaluations produced the clearest solution in CFA, with the items in the final model consisting of respondents’ positive self-assessments of their current legacy and of the value of their current contributions to others and the next generation. Phrasing of the items in the present tense may have provided respondents with an accessible frame of reference (i.e., is this the kind of person I am now?) with which to endorse or reject the items. It is also possible that, as well as capturing participants’ self-assessments of the *worth* of their generative contributions, the current self-evaluation items

captured an element of generative *disposition* or inclination, similar to that targeted in other trait inventories of generativity (Domino & Affonso, 1990; Ochse & Plug, 1986).

The items forming the whole-of-life self-evaluations factor also produced a satisfactory fit. As previously suggested, self-evaluations of whole-of-life generativity may be considered to resemble generative accomplishment in Stewart and Vandewater's (1998) model of generativity. Like generative accomplishment whole-of-life generativity represents individuals' evaluations of their generative highpoints and achievements over their entire life span. In addition, whole-of-life self-evaluations may be linked with the *narrative* component in McAdams and de St. Aubin's (1992) theory. That is, it may be argued that, in the process of constructing a generativity narrative, one evaluates one's generative contributions, resulting in attributions about generative successes or failures. Ultimately, these self-evaluations and attributions that are incorporated into one's generative narrative may form the basis of one's generative identity.

The items that were least amenable to CFA, were those forming the proposed measure of generative concern. These items formed three clusters, of which only one, consisting of participants' desires or intentions to make a lasting contribution to the next generation, produced a cohesive factor. This factor was somewhat restricted in thematic content, but appeared to resemble general, or global, generative concerns or desires, which constitute one of the categories comprising Stewart and Vandewater's (1998) notion of generative desire (see also Stewart et al., 1988).

The majority of the discarded items, however, appeared to resemble a more active sense of generative "striving", similar to that embodied in McAdams and de St. Aubin's (1992) notion of generative commitment. Rather than being phrased as

value statements (i.e., with the stem “it is important that I ...”), some of these statements were phrased in terms of effort or behaviour (i.e., with the stem “I try to ...”). The usual approach to assessing generative strivings has been to employ Emmons’ (Emmons, 1989, 1991) method of having individuals write detailed accounts of their current goals and projects, and to code these descriptions for the presence of generative themes (McAdams & de St. Aubin, 1992; McAdams, de St. Aubin, & Logan, 1993; Sheldon & Kasser, 2001). However, a self-report measure of generative commitment might include items such as those that were discarded from the final measure of concern (cf. also Keyes and Ryff’s (1998) measure, which taps into the thought and effort individuals devote to their contributions to others).

As well as differing in item phrasing, some of the items that were discarded also included a sense of being preoccupied with mentoring or passing on information, rather than with general generative concerns. This focus on passing on knowledge is close to the definition of generativity which appears in the PsycInfo database, which states that generativity represents “the concern with passing on to the next generation knowledge and guidance which will outlive the self” (American Psychological Association, 2001). If this concern with passing on knowledge is deemed to be at the heart of generativity, it is important that it be included at some level of measurement. Although this theme was excluded from the final measure of generative concern in this study, it was captured to some extent in the behavioural factor, guiding and influencing.

Of the other three items that did not make it into the final measure of generative concern, one related to productivity, while the other two had to do with a sense of community responsibility. Concerning the first of these, it is quite possible that the phrasing of the item in question may have been too vague to capture an

intense desire for productivity. Interestingly, however, Himsel and her colleagues (Himsel, Hart, Diamond, & McAdams, 1997), in their study of the personality characteristics of highly and less generative adults, found that productivity did not differentiate between these two groups, but was equally common in both. Similarly, Peterson and Stewart (1996) found that generatively motivated women who were highly invested in their careers derived satisfaction from a sense of mastery in their work, but not from a sense of productivity. Thus, despite the importance of productivity in theoretical formulations of generativity, its highly normative status in Western society may mean that most people feel obligated to be productive in some form or other, regardless of their psychological investment in generativity.

Community responsibility is another important theme that “dropped out” of the final measure of generative concern. Community responsibility may be regarded as an expression of so-called societal generativity, which according to Snarey (1993) is a hallmark of generativity in mature adulthood, succeeding the concern in early adulthood with parenthood and one’s own children (see also George E. Vaillant & Milofsky, 1980). Again, although not represented in the psychological measures of generativity, the theme was captured in the behavioural factor, community service.

In all three of the psychological components of generativity (concern, current, and whole-of-life self-evaluations) the items with the highest factor loadings were those referring to contributions to the next generation. It is possible, or even likely, that many participants had their own children or grandchildren in mind when responding to them. Other items with high factor loadings reflected themes of making a lasting contribution, leaving a legacy or making a difference. Thus, although the initial measures were designed to capture a broad range of generative content, at their core appeared to be a narrower concern with the welfare of future

generations (possibly, although not necessarily, limited to participants' own descendants), and the value of one's personal legacy.

2.5.2.2. Correlations Among the Components of the expanded LGS

The factors that emerged from the expanded LGS were moderately to highly correlated, which is perhaps not surprising given their overlapping content. Nevertheless, the correlation between the measures of current and whole-of-life self-evaluation was particularly high. On the face of it, this result suggests that, to a large extent, these two scales may have been measuring the same thing and/or that participants either did not detect, or did not find meaningful, the attempted distinction between the two temporal perspectives. However, the correlations between factor scores were not excessively high according to Kline's criterion of greater than .85 (Kline, 2005). Also, it is likely that there is a high degree of continuity in individual levels of generativity across time, which would also result in a high correlation between the two measures. Ideally, longitudinal analyses would be conducted to resolve this question. However, in the absence of longitudinal analyses, a fuller assessment of the extent to which these measures actually succeeded in capturing distinct, rather than overlapping, constructs, is possible from gaining knowledge of their relationships with age and well-being. These relationships are the subject of Chapters 3, 4 and 5.

While the correlations between generative concern and the two self-evaluation factors were moderately high, they were nevertheless lower than that between the two self-evaluation factors themselves. This gave preliminary support to the notion that the measure of concern and the measures of self-evaluation were tapping into somewhat different, if related, aspects of generativity. However, again, a final

judgement concerning their discriminant validity requires knowledge of their respective relationships with age and psychological well-being.

Finally, findings of higher correlations between scores on the original LGS and the self-evaluative measures of generativity than between the LGS and the measure of generative concern gave preliminary empirical support to the view that the LGS primarily taps into a self-evaluative aspect of generativity, rather than a value-expressive aspect such as generative concern (see also Keyes & Ryff, 1998; Stewart & Vandewater, 1998).

2.5.2.3. PCA of Generative Behavior Checklist

Principal component analyses of the GBC identified four meaningful factors of which three - guiding and influencing, community service and childcare - were correlated with the measures derived from the expanded LGS. The items forming these factors appeared to capture four of the five generative themes delineated by McAdams et al. (McAdams & de St. Aubin, 1992), although the factors themselves did not clearly differentiate themselves along these thematic lines. Thus, guiding and influencing expresses elements of offering, creating, and involvement with the next generation; childcare clearly entails offering and involvement with the next generation; and community service involves offering and maintaining. The guiding and influencing factor was most strongly correlated with the components derived from expanded LGS. As mentioned earlier, it also closely resembles the American Psychological Association's (2001) emphasis on passing on knowledge and guidance in the definition presented above.

In contrast to the psychological components of generativity, the correlations among the behavioural components were low, confirming the original impression

that, rather than being a homogeneous measure, the GBC may be regarded as an amalgam of disparate strands of generative behaviour (although it is acknowledged that the varimax method of rotation in principal component analysis minimises the correlations among the resulting factors). Of the four components, guiding and influencing was most strongly correlated with the psychological measures, followed by community service and childcare. It was suspected that the low correlation between the religious observance factor and any of the psychological measures of generativity may have reflected the low levels of religious participation in Australia. Inspection of the variable's distribution confirmed that nearly half the sample ($n = 143$) scored 0 (indicating no religious participation at all in the previous two months), making the variable severely skewed. In any case, because of its distribution and its low correlation with the psychological components of generativity, the decision was made to exclude religious observance from the remainder of the analyses.

Although the GBC is a general measure, some of the items in the guiding and influencing factor give a clue to their likely context. For example, the items "produced a plan for an organisation outside my own family" and "made a decision that influenced many people" suggest generative behaviours undertaken in public or civic domains (e.g., work- or volunteer-related) rather than in private or personal ones (e.g., within the family or among friends). Other behaviours in this factor, for example, "drew upon my past experience to help someone adjust to a new role", or "provided constructive criticism for someone", also suggest public roles. The relatively low correlation between guiding and influencing on the one hand and community service on the other suggests that volunteering was not the context in which these behaviours took place. This leaves work, and possibly personal

relationships, as more likely avenues for these kinds of behaviours. Future research could examine these patterns of correlations further.

2.6. Summary and Conclusion

The analyses in this study supported the hypotheses that a modified (i.e., initially expanded and then truncated) LGS would yield three factors, corresponding to generative concern, self-evaluations of current generativity, and self-evaluations of whole-of-life generativity. However, this was at the expense of over half of the original items, all of which were discarded because of their poor distributions, low factor loadings or highly correlated error terms. The resulting measures, while somewhat restricted in thematic content, probably represent a conservative test of what should or could be included in global measures of generative concern and self-evaluation. As such they were considered suitable for testing of subsequent hypotheses concerning relationships among generativity, age and well-being.

Chapter 3 Chapter 3: Age Differences in Generativity

3.1. Overview

Chapter 2 described the construction and analysis of measures of four components of generativity, concern, self-evaluations (current and whole-of-life) and behaviours. Chapter 3 describes the age effects associated with these measures using profile analysis (Tabachnick & Fidell, 2001). The analyses were guided by the overarching hypothesis that the different aspects of generativity have different age profiles (Stewart & Vandewater, 1998).

The initial sample and the measure were the same as for Chapter 2. The chapter begins with a summary of the relevant findings concerning age differences in generativity, particularly generative concern and related constructs, self-evaluations and related constructs and generative behaviour. Formal hypotheses are also stated. In the results section, two profile analyses are presented, one for generative concern, current, and whole-of-life self-evaluations of generativity, and one for the three types of generative behaviour.

3.2. Introduction

As discussed in Chapter 1, the four theoretical approaches that initially informed this thesis imply somewhat differing positions concerning age-related changes in generativity. Firstly, Erikson's stage model (Erikson, 1963) proposes that age-graded biological and psychosocial imperatives dictate that generativity is the dominant psychosocial issue facing adults in their middle years. Evidence of

generativity, therefore, whether motivational, behavioural, or self-evaluative, should be stronger during midlife than during younger or older adulthood. McAdams and his colleagues (McAdams & de St. Aubin, 1992; McAdams, Hart, & Maruna, 1998), on the other hand, propose that generativity is a preoccupation of adulthood more generally, fluctuating in psychological importance according to changes in life circumstances. Therefore, no clear or consistent patterns of age effects may necessarily be expected among the various components of generativity. In addition, the extent to which generative expressions may be *particularly* evident during midlife may represent a response to increased societal demands and opportunities at this time, rather than to universal biological or psychosocial influences. In Keyes and Ryff's (1998) formulation the theoretical focus is on the extent to which generativity explains age-related differences in psychosocial well-being, rather than on the age trajectories associated with generativity itself (although age-cohort differences are also examined). Finally, Stewart and Vandewater's (1998) model proposes differing age trajectories for differing components of generativity, (generative) desire, capacity, and accomplishment.

As stated in Chapter 1, this thesis adopts Stewart and Vandewater's (1998) general position, that specific components of generativity may demonstrate differing age trajectories, even though, overall, generativity may be regarded as a distinctively midlife phenomenon. The remainder of this introduction summarises evidence concerning age effects, both generally, and as they relate to the components of generativity under investigation in this thesis, namely generative concern, self-evaluations and behaviour. Interwoven with the evidence are the arguments for the hypotheses, and the hypotheses themselves.

3.2.1. *Generativity and Age Effects*

3.2.1.1. *Age Differences in Trait- or Stage-Based Measures of Generativity*

Cross-sectional studies of age differences of generativity using trait-based measures or inventories of Eriksonian stages have shown a somewhat confusing pattern of age differences. For example, using an experimental design (age group by temporal focus) and measures developed by the authors themselves, Ryff and Heincke (1983) found age differences in self-perceived generativity and integrity that were consistent with Erikson's (1963) stage model. Young, midlife and older adults were asked to rate their generativity at one of three time periods corresponding to young, middle or older adulthood. Across age groups, ratings of midlife generativity (whether prospective, concurrent, or retrospective) were higher than ratings of generativity for either younger or older adulthood. Ratings of integrity, on the other hand were highest in older adulthood. Thus, for both types of self-assessments, the observed patterns of age differences were consistent with Erikson's stage model.

Ryff and Migdal (1984), however, in a similar investigation of self-perceived transitions in intimacy and generativity in younger and midlife women, found that women in *both* age groups were likely to give higher ratings to concurrent levels of generativity than to either prospective levels (in the case of younger women) or retrospective levels (in the case of midlife women). Furthermore, the younger women gave higher self-ratings of generativity overall. Thus, the results indicated that it was the younger women, and not their midlife counterparts, who demonstrated a generativity advantage, so that the results for the later study (Ryff & Migdal, 1984) appeared to contradict those of the earlier one (Ryff & Heincke, 1983).

Several investigations provide overall support for the notion that trait- or stage-based generativity may be higher in mature rather than in younger age groups, but have not clearly differentiated midlife adults from older ones. For example, Ochse and Plug's (1986) cross-cultural investigation of the validity of Erikson's life stages found that self-ratings of generativity were higher in mature and older adults than in younger ones, but the authors did not report the precise location of the significant group differences. As part of a longitudinal study of personality change from young adult to middle age, Helson and Moane (1987) had women college graduates in their early 40s assess their feelings about life both concurrently (at age 43), and retrospectively (at age 30). They found that, overall, the women's concurrent ratings of generativity, as well as of confidence, competence, concern for others and intimacy, were higher than their retrospective ones, suggesting a midlife increase in generativity. However, the upper age limit meant that older women were not included in the study. Finally, Darling-Fisher and Leidy (1988) found age differences in self-perceived generativity between three groups of adults, aged 19 to 39, 40 to 55, and over 55. This time, the pattern of differences suggested a positive, linear relationship between age and generativity, but again the authors did not report the sources of the group differences.

Some research has failed to find any evidence of an age-related increase in self-reported generativity. For example, Domino and Affonso (1990) found no evidence of age-cohort differences in a personality measure of generativity among groups of individuals aged between 15 and 71. Finally, Whitbourne and her colleagues (Whitbourne, Zuschlag, Elliot, & Waterman, 1992) found that neither of two cohorts taking part in a sequential study of psychosocial development in adulthood demonstrated an age-related increase in self-reported generativity, either between

ages 31 and 42 (Cohort 1), or between ages 20 and 31 (Cohort 2). This was despite the fact that the mean of the first cohort at age 31 was higher than that of the second cohort at age 20.

As described in Chapter 2, it was these inconsistent patterns of age differences that led assorted researchers to differentiate among components of generativity (e.g., McAdams & de St. Aubin, 1992; Peterson & Klohnen, 1995; Peterson & Stewart, 1996; Stewart & Vandewater, 1998), and that led Stewart and Vandewater (1998) to propose different age trajectories for the different components. The evidence on generative concern, generative self-evaluations and generative behaviour is reviewed next.

3.2.1.2. Age Differences in Generative Concern and Related Constructs

The published evidence concerning age-cohort differences in generative concern is limited to a handful of cross-sectional studies, and findings vary according to the measures used. In a two-part investigation of age-cohort differences in generative concern, commitment, behaviour and narration, McAdams and his colleagues (McAdams, de St. Aubin, & Logan, 1993) found that on the first, but not the second, of two measurement occasions, midlife adults obtained higher scores on the Loyola Generativity Scale (LGS; McAdams & de St. Aubin, 1992; purportedly generative concern) than did younger or older adults. In contrast, on the second occasion six months later no significant age group differences were found. The authors reported, therefore, that no firm conclusions regarding the effect of age on generative concern could be drawn. However, the possibility that the LGS assesses generative self-evaluations as much as (or rather than) generative concern (as discussed in Chapters 1 and 2 of this thesis) means that even if statistically reliable

age differences had been found, their significance and meaning may have been unclear.

Similarly, in an investigation of associations between generativity, moral development and the kinds of value-socialisation narratives that are constructed for adolescents by young, midlife and older adults, Pratt and his colleagues (Pratt, Norris, Arnold, & Filyer, 1999) found no clear evidence of age-cohort differences in generative concern as assessed by the LGS, although LGS scores were negatively correlated with age in the oldest group (aged 60 to 75 years). Again, the significance of these findings is uncertain.

Using their own purposely developed measure, Keyes and Ryff (1998) also investigated age-cohort differences in generative concern and found that both younger and midlife adults obtained higher scores than older adults. As discussed in Chapter 2, their measure more clearly captures the sense of the value and personal importance placed by individuals on generativity than does the LGS. Although limited to one study, therefore, Keyes and Ryff's findings suggest that generative concern may be a preoccupation of younger or middle adulthood, rather than of later life. This is consistent with Erikson's original notion that the preoccupation with generativity may recede with age as other psychosocial issues such as integrity take priority.

Other measures that tap into individuals' conscious generative preoccupations have also shown inconsistent age effects. McAdams et al. (1993) found that generative strivings (a measure of generative commitment), consisting of individuals' daily goals and projects coded for the presence of generative themes, were more frequent among midlife adults than among either younger or older adults. On the other hand, Sheldon and Kasser (2001), in a correlational study of the links between

age, personality development and psychological well-being, found a positive, *linear* relationship between age and measures of generative strivings, with no additional evidence of a curvilinear effect. Finally, Stewart and Vandewater's (1998) longitudinal study of generativity in two samples of college-educated women showed a clear *decline* in generative desire (participants' desired generative goals for the next 10 years), between the ages of 24 and 43 in one sample, and between 30 and 47 in the other. However, the upper age limit of the sample did not allow the trends for older adulthood to be examined.

The contrasting findings of McAdams and colleagues (1993) and Keyes and Ryff (1998) highlight the potential role of differing temporal perspectives in shaping the age cohort differences that may be observed among the various measures of generativity. While the LGS embraces multiple time perspectives (i.e., present, future and backwards over the life-course), the temporal focus of Keyes and Ryff's measure is on the present and the future (10 years hence). Such a measure might therefore be expected to favour younger or midlife adults rather than older ones. As discussed in Chapters 1 and 2, the self-report measure of generative concern that was derived for the present study was believed to capture current generative values, and aspirations for future generative accomplishment. It does not, however, tap into individuals' current generative *strivings* as implied by McAdams and de St. Aubin's (1992) notion of generative commitment. To this extent, therefore, like Keyes and Ryff's (1998) measure, the measure was expected to favour *younger* and midlife adults over older adults.

Hypothesis 3.1: Generative concern will be higher in (a) younger and (b) midlife adults than in older adults.

3.2.1.3. *Generative Self-Evaluations and Related Constructs*

As stated in Chapter 2, the term generative self-evaluations refers to individuals' assessments of the extent and value of their generative contributions. Related terms, such as generative accomplishment (Stewart & Vandewater, 1998), conception (Keyes & Ryff, 1998) and realisation (Peterson & Klohnen, 1995), also denote this evaluative aspect of generativity, conveying notions of generative success or fulfilment. Evidence concerning age differences in these evaluative aspects of generativity is not abundant, but appears to favour mature adults over younger ones. In their large cross-sectional study of generativity and well-being, Keyes and Ryff (1998) found that midlife adults obtained higher self-ratings of generative qualities than did younger and older adults. These qualities were assessed using a 6-item version of the LGS, consisting of participants' reflected appraisals of their engagement in mentoring, guiding and leading others, as well as their enjoyment of teaching as an activity. A positive linear relationship between age and generative traits (respondents' assessments of their wisdom, knowledge and caring) was also identified.

Stewart and Vandewater have not yet published longitudinal findings on age-related trends in generative accomplishment. However, in a longitudinal study of generative realisation (which, according to Stewart and Vandewater, may be seen as an indicator of generative accomplishment), Peterson and Klohnen (1995) found that observer-based ratings of generative realisation in the life narratives of college-educated women (one of the two featured in Stewart and Vandewater's research) were higher when the women were aged 43 than when they were aged 21. These ratings consisted of expert observers' estimations of the extent to which the women's

narratives revealed prototypically generative personality characteristics, such as productivity, care, leadership, and so on (see also Chapter 2). Thus, Peterson and Klohnen's (1995) results suggested an advantage of midlife over younger adults in generative realisation or accomplishment. However, again because of the upper age limit of the sample, no indication for the trends for older adults could be given, limiting the conclusions that could be drawn concerning the predicted rise in generative realisation or accomplishment in later adulthood.

Although limited, then, the evidence concerning age differences in self-ratings of generative self-conception (Keyes & Ryff, 1998) and observer-based ratings of generative realisation or accomplishment (Peterson & Klohnen, 1995) suggests that scores on evaluative measures of generativity may favour midlife adults over younger adults. This is consistent with the view that a sense of generative accomplishment or fulfilment may consolidate in mature adulthood (Stewart & Vandewater, 1998). Further, if such measures adopt a whole-of-life perspective – that is, if they tap into individuals' generative contributions over the life course – they may also be higher in older adults than in younger adults. One might therefore expect a measure of whole-of-life self-evaluations of generativity to reveal differences favouring midlife *and* older adults over younger adults.

The extent to which midlife and older adults themselves differ on measures of generativity may also depend on the temporal orientation of the measure used. As argued in Chapter 2, measures that focus *either* on the present *or* over the life course as a whole might produce differing age profiles along the lines of those predicted for generative capacity and generative accomplishment, respectively (Stewart & Vandewater, 1998). Thus if, as theory suggests, midlife adults are subject to the psychosocial imperative for generativity (e.g., Erikson, 1963), are more engaged with

increasing normative generative demands (McAdams, Hart, & Maruna, 1998), and/or are at the height of their generative capacity (Stewart & Vandewater, 1998) they might be more intensively engaged in generative actions and projects than either younger or older adults. Consequently, their evaluations of their *current* generative impact could be expected to be high also, reflecting this level of generative engagement and power. Conversely, if older adults are more preoccupied with integrity (Erikson, Erikson, & Kivnick, 1986), are less subject to normative generative demands and preoccupations, and/or experience declines in generative capacity and opportunities (McAdams, Hart, & Maruna, 1998; Stewart & Vandewater, 1998), their evaluations of their current impact might be low compared with those of midlife adults.

While the above arguments seem compelling, a recent investigation of personality development, including generative capacity, in three age cohorts of college-educated women by Zucker and her colleagues (Zucker, Ostrove, & Stewart, 2002) found evidence to suggest that self-evaluations of current generativity may be maintained, rather than decline, into older adulthood. This mixed-design study asked women who were themselves in their 20s, 40s or 60s to give concurrent, as well as either prospective or retrospective self-ratings (i.e., corresponding to age 20s, 40s or 60s) of generative capacity, consisting of feelings of being needed, having a widening sphere of influence and interest, having a new level of productivity and effectiveness, and having something to teach young people. Instead of producing lower concurrent self-ratings on these items (as might be expected from an Eriksonian perspective, and indeed from Stewart and Vandewater's own model), the ratings of the oldest women were equivalent to those midlife women, and both were higher than the ratings of the youngest women. Within-group analyses of ratings for the three time periods

confirmed this pattern. Thus, Zucker et al.'s evidence implied that generative capacity – and therefore, as far as this thesis is concerned, self-evaluations of current generativity – may be maintained, rather than lost, in older adulthood.

As pointed out by the authors themselves, however, there may be circumstances in which older adults experience a decline in generative capacity. Likely candidates include the declines in health and energy associated with advancing age. As the upper age limit in Zucker et al.'s study was only 70 years, the older adults could be expected to have been active and in reasonable health. In the current study, however, the age range of the oldest group was considerably wider than in Zucker et al.'s study, and the upper age limit was higher (87 years). For this reason, the prediction that self-evaluations of current generativity would be lower in older than in midlife adults was maintained.

The following hypothesis was formulated:

Hypothesis 3.2: Self-evaluations of current generativity will be higher in midlife adults than in (a) younger and (b) older adults.

For whole-of-life self-evaluations, on the other hand, the reverse pattern might be expected. Because many of the generative projects in which midlife adults are engaged may be underway rather than complete, midlife adults' evaluations of their whole-of-life generativity (i.e., their generative accomplishments) may be more qualified than their assessments of their current generative impact. In contrast, older adults, who may be able to enjoy the fruits of earlier generative endeavours (e.g., in the form of their adult children, their grandchildren and/or their great-grandchildren), may evaluate their whole-of-life generativity more highly. Thus, in line with Stewart and Vandewater's (1998) model, whole-of-life self-evaluations might be expected to

display a linear relationship with age, rather than the Eriksonian midlife crest anticipated for current self-evaluations. The resulting hypothesis is stated as follows:

Hypothesis 3.3: Self-evaluations of whole-of-life generativity will be higher in older adults than in (a) midlife and (b) younger adults. They will also (c) be higher in midlife adults than in younger adults.

3.2.1.4. Generative Behaviour

McAdams and his colleagues (McAdams, de St. Aubin, & Logan, 1993) and Keyes and Ryff (1998) have each examined age differences in their respective measures of generative behaviour, and again have obtained somewhat different results. On the one hand, McAdams and colleagues found that, as with generative concern, midlife adults scored more highly than both younger and older adults, but only on the second measurement occasion. On both occasions, the scores of older and younger adults did not differ. However, as mentioned previously, the wide-ranging content of the Generative Behavior Checklist (GBC; McAdams & de St. Aubin, 1992) means that it would be difficult either to anticipate or to interpret any particular pattern of age differences. Keyes and Ryff, on the other hand, found that on one aspect of generative behaviour, unpaid assistance, both midlife and older adults obtained higher scores than younger adults. Thus, there was again only limited support for a midlife advantage in generative behaviour.

In Stewart and Vandewater's (1998) model, generative behaviour is conjectured to be an indicator of generative capacity, which according to their model is highest at midlife. In addition, as previously described, the pressing generative demands of work and family associated with midlife may require midlife adults to

behave generatively more often than their younger or older counterparts. In keeping with this reasoning, therefore, the following hypothesis was formulated:

Hypothesis 3.4: Levels of generative behaviour will be higher in midlife adults than in younger or older adults.

3.2.1.5. Within Age-Group Differences in Generativity

Stewart and Vandewater's (1998) model implies that, as well as displaying diverging patterns of age-cohort (between-subject) differences, the various components of generativity may be configured differently within age groups. For example, it is implied that generative desire will be higher in younger adults than either generative capacity or generative accomplishment, while generative accomplishment is expected to be higher in older adults than either generative desire or generative capacity. In midlife adults, on the other hand, although the three elements appear to converge, it appears as though generative capacity may be higher than either generative desire or generative accomplishment.

A search of the published literature revealed no prior studies that have attempted to investigate age-cohort differences in within-subject effects in the differences between components of generativity, as well as between-subjects effects. However, following the rationale of Stewart and Vandewater's model, specific predictions may be made concerning these. For example, because younger adults are unlikely to have consolidated a sense of generative impact or accomplishment, their levels of concern may be expected to be higher than either their current or whole-of-life self-evaluations. On the other hand, because midlife adults are in the "thick" of generativity, but have not yet acquired a fully developed sense of generative

accomplishment, their current self-evaluations may be higher than their whole-of-life self-evaluations. Finally, because older adults may be withdrawing or retiring from generative engagements, their evaluations of their current generativity may be lower than their assessments of their generative accomplishments over the life course.

The following hypotheses were accordingly formulated.

Hypothesis 3.5: In younger adults, *generative concern* will be higher than either (a) current generative self-evaluations or (b) whole-of-life self-evaluations.

Hypothesis 3.6: In midlife adults *current generative self-evaluations* will be higher than whole-of-life self-evaluations.

Hypothesis 3.7: In older adults, *generative accomplishment* will be higher than either (a) generative concern or (b) current generative self-evaluations.

No hypotheses were formulated concerning the configuration of generative behaviours within age groups.

3.2.2. Age Differences in the Loyola Generativity Scale

A supplementary aim of Study 2 was to examine age differences in the Loyola Generativity Scale. As previously discussed, no consistent patterns of age differences have been found for this instrument. However, in keeping with the position adopted in the remainder of this thesis, that is, that the LGS may be construed as a measure of

generative self-evaluations rather than of generative concern, the following hypothesis was formulated:

Hypothesis 3.8: Scores on the Loyola Generativity Scale will be higher in midlife and older adults than in younger adults.

3.3. Method

The participants, measures and procedures for the current study were described in Chapter 2. Variables corresponding to the generativity measures were initially constructed by summing the unit-weighted scores of the items constituting the factors identified in Chapter 3. Based on the recommendations of Tabachnick and Fidell (2001) unit-weighted scores were used in preference to factor scores. A summary of the sample composition is presented in Table 3.1 and of the measures in Table 3.2.

3.4. Results

In the results section, data preparation and preliminary analyses (including the effects of gender and self-rated health on the generativity variables) are presented first, followed by descriptions of hypothesis testing of interaction effects, age-cohort differences and within-group differences in the psychological components of generativity. Finally, analysis of hypothesised age-cohort differences in generative behaviour is described, followed by supplementary analyses examining within-cohort differences. All analyses were conducted using SPSS Version 12 (SPSS, 2003).

Table 3.1. Composition of Sample for Analyses.

Full sample (<i>n</i> = 292)					Sample after removal of outliers (<i>n</i> = 287)		
Age group		Sex		Total	Sex		Total
		Male	Female		Male	Female	
Young	n	38	63	101	37	63	100
	%	37.62	62.38	100.00	37.00	63.00	100.00
Midlife	n	47	49	96	46	46	92
	%	48.96	51.04	100.00	50.00	50.00	100.00
Old	n	36	59	95	36	59	95
	%	37.89	62.11	100.00	37.89	62.11	100.00
Total	N	121	171	292	119	168	287
	%	41.44	58.56	100.00	41.46	58.54	100.00

Table 3.2. Summary of Generativity Variables

Component of Generativity	<i>N</i> items	Description
Psychological		
Concern/desire	5	Conscious concern with generativity, including desire to be generative in one's own life
Current self-evaluations	10	Evaluations of the value and impact of current generative endeavours and contributions
Whole-of-life self-evaluations	8	Evaluations of the value and impact of generative endeavours and contributions over the life course
Behavioural		
Guiding & influencing	6	Guiding, influencing, leading others; also includes creativity, productivity
Community service	4	Attending community meetings, supporting fundraisers, volunteering
Childcare	4	Engaging with and doing things for young children

Data Preparation

3.4.1.1. Treatment of Missing Data

As described in Chapter 2, there was a sizeable quantity of missing data from the GBC because an abbreviated version had been administered to the undergraduate participants. As it turned out, complete data were available for the items forming the variable guiding and influencing, as well as for generative concern and generative self-evaluations (both current and whole-of-life), so that the missing data were confined to community service and childcare. However, in Chapter 2, it was also reported that the participants who had received the abbreviated version belonged to the cohort of younger adults (aged 18 to 39), and furthermore, were significantly younger than the other participants in this cohort (mean age = 21.7 compared with 25.5 years), presumably reflecting their undergraduate status. To determine whether these participants differed in generativity from the other members of their age cohort (i.e., who had been administered the full GBC), independent *t*-tests were run on generative concern, current and whole-of-life self-evaluations and guiding and influencing. No significant differences between the two groups were found (see Appendix D).

In order to retain the community service and childcare variables in the analyses, therefore, and at the same time to maximise the number of available cases for analyses, missing values for these variables were imputed using the EM procedure. Two sets of analyses were subsequently run on the behavioural variables, one on the entire sample of 292 (i.e., including imputed means for the missing behavioural data) and one on the 249 cases who had actually completed the GBC. The overall patterns

of age cohort differences in the generative behavioural variables were the same for both sets of analyses. In addition, the patterns of within-subject differences in the generative behaviours characterising the younger cohort were essentially the same, regardless of whether all 100 cases were included, or only the 68 who had completed the GBC (see Appendices E and F).

3.4.1.2. Treatment of Non-Normal Data

Inspection of stem-and-leaf plots for each of the components of psychological generativity showed that generative concern/desire was substantially negatively skewed, $z = -4.57$, $p < .01$, with the mean being well below the median. The removal of five outliers with extremely low scores produced a substantially better distribution, even though the skew was still significant, $z = 2.71$, $p < .05$. Tabachnick and Fidell (2001) advise that with a large sample (e.g., $n \geq 100$), a relatively minor skew is likely to be significant because of the reduced standard error of skew. Thus, since the distribution was visually acceptable and the value of the mean and median were similar, the decision was made simply to retain the variable in its existing form after discarding the outliers, without attempting any transformations. Of the five discarded cases, four were midlife adults, and one was a younger adult. Thus, there were now 287 cases for the remainder of the analyses (see Table 3.1).

Inspection of stem-and-leaf plots for the rest of the variables in the analyses showed substantial positive skew for the behavioural variable, community service, $z = 4.34$, $p < .01$, and substantial negative skew for the variable corresponding to self-rated health, $z = 5.13$, $p < .01$. A logarithmic transformation rendered the skew of self-rated health almost negligible, $z = .42$, while a square root transformation of

community service improved the distribution for that variable also, $z = 2.12$. These transformed variables were standardised and used for hypothesis testing.

3.4.2. Preliminary Analyses: Effects of Gender and Health on Generativity

Prior to testing hypotheses, all generativity variables were examined for the effects of gender and self-rated health to determine whether these variables should be included as covariates in the analyses on the basis of their effect on the relationship between age and generativity (see Table 3.3 for means and SDs). For gender, two two-way multivariate analyses of variance (MANOVAs) were conducted, one on the psychological components, and the other on the behavioural components, to determine whether gender would moderate the influence of age group. None of the age by sex interactions approached significance, however, suggesting that the effect of age was similar for both males and females. In addition, the only variable for which gender showed a significant main effect was guiding and influencing, $F(1,286) = 4.56, p < .05$, with the difference favouring men over women. Gender was therefore not included in analyses of age effects.

As described in Chapter 2, self-rated health was higher in younger adults than in older adults, creating a potential confound between the effects of age and the effects of health on generativity. However, bivariate correlations showed that self-rated health was only weakly correlated with two of the components of generativity: negatively with generative concern, $r(290) = -.21, p < .001$, and positively with guiding and influencing, $r(290) = .14, p < .001$. On this basis, therefore, it was decided not to covary health in the analyses.

Table 3.3. Mean Scores and Standard Deviations on Six Components of Generativity by Age Group and Sex (Raw Scores)

Component of Generativity	Sex	Young		Midlife		Older		Total	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Concern/desire	Men	25.74	6.05	25.30	5.45	24.91	5.38	25.32	5.59
	Women	26.38	5.56	26.43	6.21	26.63	4.72	26.48	5.45
	Total	26.13	5.73	25.86	5.84	25.98	5.02	25.99	5.53
Current self-evaluation	Men	46.34	10.88	51.23	9.58	47.74	11.35	48.64	10.67
	Women	44.62	9.85	51.58	11.29	47.91	9.86	47.71	10.59
	Total	45.28 ^a	10.24	51.41 ^{a,b}	10.41	47.84 ^b	10.39	48.10	10.61
Whole-of-life self-evaluations	Men	36.73	7.83	41.20	6.97	41.54	7.90	39.87	7.77
	Women	37.13	6.95	41.51	8.72	39.94	7.41	39.34	7.81
	Total	36.98 ^{a,b}	7.26	41.36 ^a	7.85	40.55 ^b	7.60	39.56	7.78
Guiding and influencing	Men	6.27	2.95	5.76	2.77	3.71	2.82	5.32	3.01
	Women	5.18	2.84	5.42	3.50	2.89	2.33	4.45	3.09
	Total	5.60 ^a	2.91	5.59 ^b	3.15	3.20 ^{a,b}	2.54	4.82	3.08
Community service	Men	1.39	1.40	2.42	2.40	3.57	1.88	2.43	2.14
	Women	1.67	1.46	2.20	2.35	3.09	2.15	2.31	2.07
	Total	1.56 ^{a,c}	1.44	2.31 ^{a,b}	2.37	3.27 ^{b,c}	2.05	2.36	2.09
Childcare	Men	2.38	2.18	2.94	2.29	3.37	2.47	2.89	2.33
	Women	3.06	1.93	3.04	2.29	2.97	2.16	3.02	2.10
	Total	2.80	2.05	2.99	2.28	3.13	2.28	2.97	2.20

^{a,b,c}For each component of generativity, means sharing a superscript are significantly different at $p < .05$.

3.4.3. Hypothesis Testing: Analysis of Age Effects

3.4.3.1. Overview of Profile Analysis

As mentioned previously, age effects in the various components of generativity were examined using profile analysis (Tabachnick & Fidell, 2001). Two sets of analyses were conducted, one on the psychological components of generativity (i.e., concern, current and whole-of-life self-evaluations) and one on the behavioural components (guiding and influencing, community service, childcare). By combining between-subjects with repeated measures analysis of variance (ANOVA), profile analysis allows the researcher to determine whether or not the groups or cohorts under investigation yield parallel (i.e., similar) or different profiles on the repeated measures. The presence of a significant interaction effect signifies that the profiles are *not* parallel (i.e., are different), and that further investigation of between- and within-subjects effects is warranted. In this case, age group was the between-subjects variable, with three levels (young, midlife, older), and either psychological generativity (i.e., concern, current self-evaluations and whole-of-life self-evaluations) or generative behaviour (guiding and influencing, community service and childcare), as the within-subjects factor, also with three levels. Analyses were conducted on the standardised (z) scores of the generativity variables so that meaningful comparisons could be made across measures.

Following the recommendations of Tabachnick and Fidell, age-cohort (between-subjects) effects were examined using a multivariate ANOVA and associated univariate tests, while within-subjects effects were examined using univariate within-subjects ANOVAs. Again, following Tabachnick and Fidell's

(2001) recommendations, for all ANOVAs Scheffé's adjustments were made to the value of critical F to control Type 1 error, although it was recognised that this would result in a conservative test of hypotheses. For the single-factor, between subjects ANOVAs, adjusted $F_{\text{crit}} = 6.18$ for each of the three ANOVAs, while for within-group analyses, adjusted $F_{\text{crit}} = 6.08$. During post hoc analyses, Scheffe's test was used in preference to the least significance difference test, again to control Type 1 error. For the most part, results are reported in the same order as the hypotheses, with the exception that the analyses of both between- and within-subjects effects for the psychological variables are presented in a block before the corresponding results for the behavioural variables.

3.4.3.2. Generative Concern, Current and Whole-of-Life Self-Evaluations

The initial results of the profile analysis of the psychological components of generativity showed that the age (young, midlife, older) by generativity (concern, current self-evaluations, whole-of-life self-evaluations) interaction was significant, multivariate $F(4,568) = 8.95$, $\eta^2 = .06$, $p < .001$, indicating significant differences among the profiles of the three age groups. A plot of the interaction is shown in Figure 3.1.

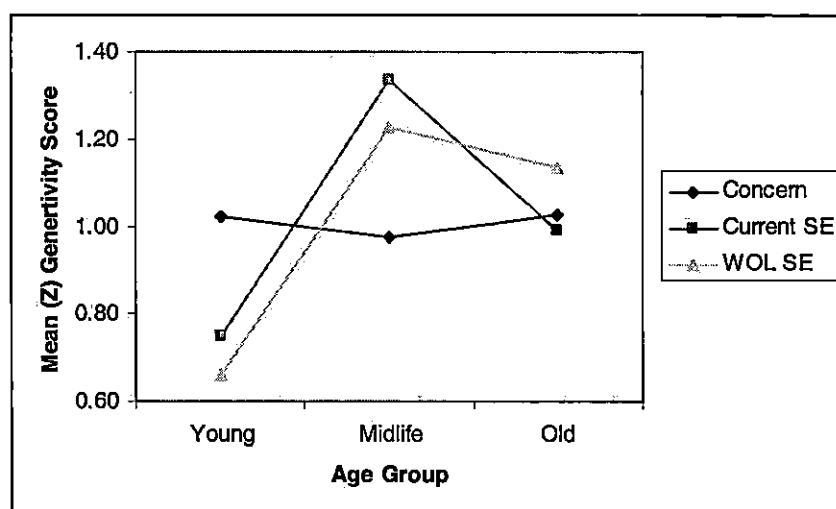


Figure 3.1. Plot of the age group by generativity interaction. Note: Current SE = Current self-evaluations of generativity; WOL SE = Whole-of-life self-evaluations of generativity.

Although not pertinent to specific hypotheses, it is worth noting that the main effect of generativity across age groups was not significant, $F(1,284) = .12$, *ns*, but that the main effect of age across generativity components was, $F(2,284) = 5.43$, $p < .01$. Post hoc tests showed that, when the scores for the three components were averaged, the mean (of the averages for the three components) for midlife adults was higher than the mean for both younger and older adults, while the mean for older adults was higher than that for younger adults.

As foreshadowed earlier, the detection of the significant interaction effect paved the way for analysis of the predicted simple (between-subjects) effects and within-subjects contrasts in psychological generativity (Tabachnick & Fidell, 2001).

Age-Cohort (Between Subjects) Differences in Psychological Generativity

The initial multivariate analysis of variance showed that the effect of age group was significant across the three components of generativity (concern, current, and whole-of-life self-evaluations), multivariate $F(6,566) = 6.99$, $p < .001$, $\eta^2 = .07$. As

was indicated in section 3.4.2 means and standard deviations of the three variables by age group are shown in Table 3.3. For ease of interpretation, raw, rather than standardised scores are shown. The results of single-factor ANOVAs are displayed in Table 3.4 and are described below.

Table 3.4. ANOVA Summary Table: Generative Concern, Current Self-Evaluations and Whole-of-Life Self-Evaluations by Age Group.

Between subjects		Component of Generativity			
		Concern	Current	Whole-of-Life	
Source	<i>df</i>	<i>F</i>			
Age	2	0.69	7.14*	9.89*	
Within group error	284	(0.68)	(6.73)	(9.21)	

Within subjects		Age Group					
		Young		Midlife		Older	
Source	<i>df</i>	<i>F</i>	<i>df</i>	<i>F</i>	<i>df</i>	<i>F</i>	
Generativity	2 ^a	11.81*	2	7.32*	2	1.90	
Error	198	(.41)	182	(.34)	188	(.37)	

Note. Values in parentheses represent mean square errors. ^aWithin-subjects degrees of freedom adjusted for multivariate non-sphericity are: young adults = 1.70,170.43; midlife adults = 1.39,131.99; older adults = 1.85,173.68. * $p < .05$ (based on Scheffe's adjustments for multiple comparisons).

Generative Concern

Hypotheses 3.1 predicted that (a) younger and (b) midlife adults would show higher levels of generative concern than would older adults. However, the effect of age group was not significant, $F(2,284) = .50$, *ns*, and post hoc comparisons revealed no significant group differences. Therefore, Hypotheses 3.1a and 3.1b were not supported.

Current Self-Evaluations

Hypothesis 3.2 predicted that midlife adults would show higher levels of current generativity self-evaluations than would (a) younger and (b) older adults. For current self-evaluations, the overall effect of age group was significant, $F(2,284) = 9.73, p < .05, \eta^2 = .06$. Post hoc tests showed that, consistent with both hypotheses, the mean for midlife adults was higher than that for younger adults, $p < .01$, and was also higher than that for older adults, $p < .05$. Thus, there was support for Hypotheses 3.2a and 3.2b.

Whole-of-Life Self-Evaluations

Hypothesis 3.3 predicted that whole-of-life self-evaluations would be higher in (a) midlife and (b) older adults than in younger adults, and (c) higher in older adults than in midlife adults. The effect of age group was significant, $F(2,284) = 10.48, p < .01, \eta^2 = .07$. According to the results of post hoc tests, and consistent with Hypotheses 3.3a and 3.3b, the means of midlife and older adults were higher than the mean of younger adults ($p < .01$ in both cases). However, contrary to Hypothesis 3.3c, the mean for older adults was *not* higher than that of midlife adults. Thus, Hypothesis 3.3c was not supported.

Within-Subject Differences in Psychological Generativity by Age Group

For analyses of within-subject differences in psychological generativity, three separate repeated-measures ANOVAs were conducted, one for each of the three age groups (Tabachnick & Fidell, 2001).

Younger Adults

Hypothesis 3.5 predicted that younger adults would report higher levels of generative concern relative to their levels of (a) current self-evaluations and (b) whole-of-life self-evaluations. The multivariate effect of generativity was significant, $F(2,198) = 11.81, p < .001, \eta^2 = .11$. Consistent with hypotheses, within-subjects contrasts showed higher levels of generative concern than of either current self-evaluations, $F(1,99) = 17.82, p < .01, \eta^2 = .15$, or whole-of-life self-evaluations $F(1,99) = 10.51, p < .001, \eta^2 = .10$. Hypotheses 3.5a and 3.5b were therefore supported.

Midlife Adults

As detailed in Hypothesis 3.6, midlife adults were expected to have higher levels of current self-evaluations than of either (a) generative concern or (b) whole-of-life self-evaluations. The multivariate effect of generativity was significant, $F(2,182) = 7.32, p < .01, \eta^2 = .07$. Within-subjects contrasts, showed that levels of current self-evaluations were higher than levels of generative concern, $F(1,91) = 12.18, p < .05, \eta^2 = .12$, but were not higher than levels of whole-of-life self-evaluations, $F(1,91) = 4.50, \eta^2 = .04, ns$. Thus, Hypothesis 3.6a was supported, but Hypothesis 3.6b was not.

Older Adults

Older adults were expected to have higher levels of whole of life generativity than of either (a) generative concern or (b) current self-evaluations (Hypothesis 3.7). Contrary to expectations, the multivariate effect of generativity was not significant,

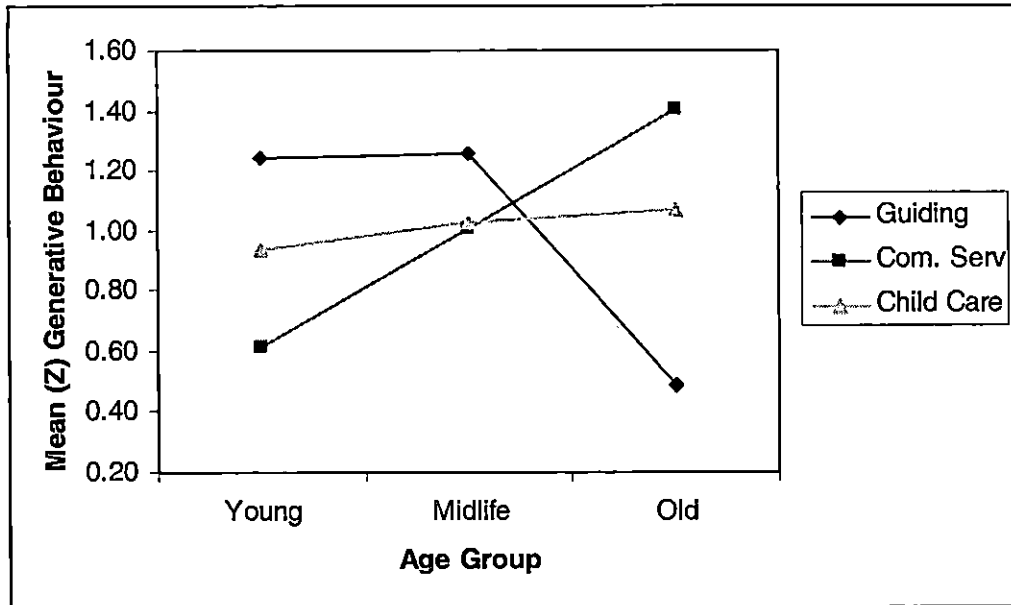
$F(2,188) = 1.75$, *ns*, and neither were the results of within-subjects contrasts using Scheffé's adjustments to critical F ; $F(1,94) = 1.15$, *ns* for whole-of-life generativity versus generative concern, and $F(1,94) = 4.26$, *ns* for whole-of-life generativity versus current generativity. Thus Hypotheses 3.7a and 3.7b were not supported.

3.4.3.3. *Generative Behaviour: Guiding and Influencing, Community Service and Childcare*

Age-Cohort Differences

Hypotheses 3.4 predicted that midlife adults would achieve higher scores on all three components of generative behaviour (guiding and influencing, community service, childcare) than either younger or older adults. Although no interaction between age group and behaviour was explicitly predicted, profile analysis was again used, both to be consistent with the approach to the psychological components of generativity (concern, current, and whole-of-life self-evaluations), and to identify any interaction effect that might be present. As with the earlier analysis, the between-subjects factor was age group (young, midlife, older), while the within-subjects factor was behaviour (guiding and influencing, community service, childcare). Prior to the analyses the unit-weighted scores for each of the three variables were standardised.

The multivariate interaction between age group and behaviour was significant, $F(4,568) = 21.56$, $p < .001$, $\eta^2 = .13$, but the two main effects were not, $F(2,284) = .02$, *ns*, for age group, and $F(2,284) = .04$, *ns*, for generative behaviour. The interaction effect is depicted in Figure 3.2. As can be seen, the profiles for the three types of behaviour differ markedly by age group.



Note: Guiding = Guiding & influencing; Com. Serv. = Community Service.

Figure 3.2. Plot of the age group by generative behaviour interaction.

A single-factor MANOVA showed that the multivariate effect of age group across the three types of behaviour was significant. Univariate analyses showed that the effects of age were highly significant for guiding and influencing, $F(2,284) = 21.18, p < .001, \eta^2 = .13$, and for community service, $F(2,284) = 16.05, p < .001, \eta^2 = .10$, but were not significant for childcare, $F(2,284) = .50, ns$. Post hoc tests showed that for guiding and influencing, the means of younger and midlife adults were higher than that of older adults ($p < .001$ in both cases). For community service, the mean of older adults was higher than the means of younger and midlife adults ($p < .01$ in both cases), while the mean of midlife adults was higher than that of younger adults ($p < .05$). Thus, Hypothesis 3.4, that midlife adults would report higher levels of generative behaviour than would either younger or older adults, received only partial support. None of the other hypotheses concerning generative behaviour was supported.

Within-Subject Differences in Generative Behaviour by Age Group

Because no specific hypotheses had been formulated concerning within-subjects effects, the profile plot was used to guide the setting up of the contrasts for each group.

In younger adults, the overall effect of behaviour was significant, $F(2,198) = 16.15, p < .01, \eta^2 = .14$. Within-subjects contrasts showed that younger adults reported higher levels of guiding and influencing than of either community service, $F(1,99) = 36.36, p < .01, \eta^2 = .27$, or childcare, $F(1,99) = 6.54, p < .05, \eta^2 = .06$. They also reported higher levels of childcare than of community service, $F(1,99) = 9.11, p < .05, \eta^2 = .08$.

In midlife adults, by contrast, there were no significant differences among the components of generative behaviour.

Finally, older adults reported higher levels of community service than of either guiding and influencing, $F(1,94) = 65.84, p < .001, \eta^2 = .41$, or childcare, $F(1,94) = 6.57, p < .05, \eta^2 = .07$, but also reported higher levels of childcare than of guiding and influencing, $F(1,94) = 23.96, p < .01, \eta^2 = .20$. Thus, for older adults, the trends were almost exactly the opposite of those for younger adults.

Table 3.5. ANOVA Summary Table: Generative Behaviour

Between subjects		Behaviour				
		Guiding & influencing	Community service	Childcare		
Source	<i>df</i>	<i>F</i>				
Age	2	20.49**	17.82**	.54		
Within group error	289	(.87)	(.88)	(.54)		
Within subjects		Age Group				
		Young		Midlife		Older
Source	<i>df</i>	<i>F</i>	<i>df</i>	<i>F</i>	<i>df</i>	<i>F</i>
Generative behaviour	2 ^a	16.15**	2	2.09	2	29.03***
Error	198	(.62)	182	(.84)	188	(.70)

Note. Values enclosed in parentheses represent mean square errors. ^aWithin-subjects degrees of freedom adjusted for multivariate non-sphericity are: young adults = 1.92, 190.31; midlife adults = 1.98, 179.82; older adults = 1.94, 182.09. ** $p < .01$ (based on Scheffe's adjustments for multiple comparisons); *** $p < .001$.

3.4.3.4. Age Differences in the Loyola Generativity Scale (LGS)

The final hypothesis, 3.8, predicted that, consistent with the proposition that the Loyola Generativity Scale measures generative self-evaluations, LGS scores would be higher in older and midlife adults than in younger adults. The results of a univariate ANOVA indicated that the effect of age was significant, $F(2, 284) = 5.68$, $p < .01$, $\eta^2 = .04$. Post hoc tests revealed that the mean for younger adults (97.30, $SD = 15.25$) was lower than that of midlife adults (105.01, $SD = 17.62$) and older adults (103.00, $SD = 16.11$). Therefore, Hypothesis 3.8 was supported.

3.4.4. Supplementary Analyses

It was reported in Section 3.2 that Zucker and her colleagues (2002) found no difference in self-reported generative capacity between a cohort of women in their

40s and a cohort in their 60s. Instead, the two groups were equivalent, and were also superior to a cohort of women in their 20s. It was suggested by this author that the absence of lower levels of generative capacity in the oldest cohort might have been attributable to the relatively youthful upper age limit in this group. The finding in this study that the much older participants reported lower self-evaluations of current generativity than the midlife adults is consistent with this view. To explore this possibility further, however, additional analyses were conducted on only those participants whose ages corresponded to those in Zucker et al's study. Three groups were formed: young adults (aged 23 to 30 years; $n = 24$), midlife adults (aged 46 to 50 years, $n = 26$), and older adults (aged 66 to 70 years, $n = 34$). The dependent variables were self-evaluations of current and whole-of-life generativity respectively. In both cases, the midlife and older groups obtained higher scores than the youngest group, but were equivalent to each other. Thus, the pattern for current self-evaluations mirrored that found by Zucker et al. for generative capacity, while that for whole-of-life self-evaluations was the same as for the whole sample.

3.5. Discussion

This chapter aimed to describe the relationship between age-cohort (young, midlife, and older adults) and generativity. Generativity comprised three psychological components (concern/desire, current self-evaluations, whole-of-life self-evaluations) and three behavioural ones (guiding and influencing, community service, and childcare). Results showed that the three age groups were characterised by distinctive generativity profiles. Findings of diverging patterns of both age-cohort differences among the components and within-subject differences among the age-

cohorts were consistent with the view that expressions of generativity differ over the lifespan and vary according to the domain in which generativity operates (Stewart & Vandewater, 1998).

The following sections elaborate the implications of the results. For the most part, they are organised to follow the order of the hypotheses and the results. Psychological components are discussed first (between- followed by within-subject differences), and behavioural components are presented second. The discussion closes by identifying limitations of the current study, and implications for future research.

3.5.1. Age Differences in Psychological Components of Generativity

3.5.1.1. Age-Cohort Differences by Generativity Component

For the three psychological components of generativity, four of the predicted age/cohort differences were found. These consisted of a midlife advantage over both younger and older adults in current generative self-evaluations (Hypotheses 3.2a and 3.2b), and advantages of both midlife and older adults over younger adults for whole-of-life generative self-evaluations (Hypotheses 3.3a and 3.3b). Contrary to expectations, older adults did not show higher whole-of-life generative self-evaluations than midlife adults (Hypothesis 3.3c). Groups were equivalent on generative concern (Hypotheses 3.1a-c).

Overall, the findings were consistent with those of earlier studies showing that positive evaluations of generative realisation or fulfilment (e.g., Keyes & Ryff, 1998; Peterson & Klohnen, 1995) are more characteristic of mature adulthood than in younger adulthood. Current generative self-evaluation was the psychological

component that was most sensitive to age-cohort effects. This component displayed the predicted Eriksonian midlife peak, and was robust to a very conservative test of the hypothesis. The results are consistent with the view that measures that either focus on a single time period (e.g., the present, as in this study) or distinguish among temporal perspectives (e.g., by differentiating prospective or retrospective assessments from concurrent ones; Ryff & Heincke, 1983) may be more likely than those that combine multiple timeframes within a single measure (McAdams, de St. Aubin, & Logan, 1993) to discriminate among young, midlife and older adults in ways predicted by Erikson's theory. Interestingly, the shape of the line for current generativity was very similar to that reported by Ryff and Heincke (1983). Importantly, the results suggest that individuals' sense of their generative impact is likely to be highest during midlife. This may be because it is at midlife that individuals are most likely to occupy simultaneously the core roles of parent, spouse, worker and adult child (cf. Antonucci, Akiyama, & Merline, 2001), and therefore to be engaged with the generative tasks and opportunities associated with these roles (e.g., parents guiding their children through adolescence and into adulthood; adult children caring for ageing parents; paid workers assuming positions of authority and responsibility; artists reaching peak creativity). In contrast, younger adults have yet to attain this level of generative engagement, while, as suggested earlier, older adults may have withdrawn from the intense involvement with generative tasks that characterised their middle years, despite maintaining a high level of generative concern.

As reported in the supplementary analyses in section 3.4.4, current generative self-evaluations were *not* lower in adults aged 65-70 than in those aged 46 to 50. This was consistent with Zucker and colleagues' findings concerning ratings of generative

capacity (Zucker, Ostrove, & Stewart, 2002). Together, these results support Stewart and Vandewater's (1998) view that the decline in generativity may happen late in life. They also underscore the desirability of incorporating very old adults into studies of aging and generativity.

As expected, and in contrast to current self-evaluations, both midlife and older adults reported higher levels of whole-of-life self-evaluations than did younger adults. Common sense suggests that, even though older adults may evaluate their current generative impact as somewhat low in comparison to midlife adults, their sense of whole-of-life generative accomplishment should be higher relative to that of younger adults. This is because even though they are not *currently engaged* in fulfilling generative tasks and demands at an intense level, they have been earlier in life, and as suggested in the introduction, may be in a position to witness the fruits of their earlier generative endeavours. Thus, high self-assessments of this aspect of generativity are characteristic of maturity rather than of youth.

Nevertheless, the absence of a difference favouring older adults over midlife adults contradicts Stewart and Vandewater's (1998) proposition that a global sense of generative accomplishment – the sense of having made significant generative contributions throughout one's life – should increase linearly with age, gradually accumulating through middle into older adulthood. Rather, it supports the alternative thesis that this aspect of generativity may remain relatively stable following midlife. This may be because older adults, even active ones such as those that took part in this study, do not maintain the level of generative engagement that characterised their middle years, and are therefore unable to add to their “stock” of generative accomplishments. This view is supported by findings that the older participants also reported lower levels of current generativity than did the midlife participants, as well

as lower levels of the specific generative behaviour, guiding and influencing. As reported in Chapter 2, of the three behavioural variables, this one was most strongly correlated with current self-evaluations.

However, although the findings did not suggest a linear increase with age in whole-of-life self-evaluations, they did not point to an age-related decrease either. Rather, the equivalence of midlife and older participants on this dimension suggests that a sense of generative accomplishment may be consolidated in midlife and maintained into older adulthood as part of one's continuing mature identity.

Turning finally to generative concern/desire, the absence of any significant age-cohort differences in our results is at odds with the findings of some earlier studies. For example, as described in the introduction, Keyes and Ryff (1998) found that their measure of generative concern favoured younger and midlife adults over older adults, while Stewart and Vandewater (1998) found that women in their longitudinal samples obtained higher scores on generative desire in early adulthood than in middle adulthood. (In both cases, the relevant measures also asked participants to project 10 years into the future; this may have also contributed to the age effects.) The absence of age-cohort differences in the present study suggests that the measure used may have captured a dimension of generative concern or desire that remains high, and relatively stable throughout the adult lifespan (cf. McAdams, Hart, & Maruna, 1998).

Despite the absence of age-cohort differences, however, there were differences in the prominence with which generative concern featured in the generativity profile of each age group. That is, generative concern was higher in younger adults than generative self-evaluations, while in midlife adults the reverse was the case. This finding suggests that the extent to which generative concern versus generative self-evaluations plays the dominant role in shaping a sense of generative "self-construal"

(Keyes & Ryff, 1998; see Chapter 1 of this thesis) may vary depending on age, even if generative concern itself does not differ between age groups.

When the three components of generativity, concern, current and whole-of-life self-evaluations were averaged together, they indicated midlife advantages over both of the other cohorts. This result reflects earlier findings reported by McAdams et al. (1993), that despite different patterns of age effects among various components of generativity, observed differences favoured midlife adults overall. It also supports Stewart and Vandewater's (1998) claim that, despite differences in individual components, middle age may be "uniquely characterized by generativity" because at this time "the capacity is at its greatest, the desire is still present, and accomplishment is becoming visible" (p. 76). In the present study, the additional finding that, on average, differences in generativity favoured older adults over the youngest cohort provides further support to Stewart and Vandewater's further claim that the proposed age-related decline in generativity may occur gradually, rather than dramatically, and may take place fairly late (p.76). However, it should be borne in mind that the older adults in this study were, on the whole, active and healthy. It is possible that a frailer cohort of older adults might have shown a more marked disadvantage relative to midlife adults, and a less clear advantage over younger adults. Indeed, investigation of the possible role of health in shaping generative expressions may be warranted, particularly for gaining further insights into the character of generativity in older adulthood when health concerns become prominent (Cross & Markus, 1991; Ryff, 1991).

3.5.1.2. *Within-Subject Differences in Psychological Generativity*

Of the findings pertaining to within-group differences in the psychological components of generativity, three supported hypotheses while three did not. Consistent with hypotheses were findings of higher levels of concern than of either current or whole-of-life self-evaluations in younger adults, and higher levels of current generative self-evaluations than of generative concern in midlife adults. However, the failure to demonstrate higher levels of current generativity than of whole-of-life generativity in midlife adults did not support hypotheses, and neither did the absence of any clear differences among the components in older adults.

The within-group results for the younger adults were entirely consistent with the predictions stemming from Stewart and Vandewater's (1998) model. Findings of higher levels of concern than of either current or whole-of-life self-evaluations in this group clearly indicated that younger participants' preoccupation with generative values and goals was more prominent than was their sense of their current generative impact or achievements. Thus, as was already suggested, younger adults may regard the formation of their generative legacy as something yet to be achieved, rather than as something that is currently underway or has already taken place. Given that the majority of these younger participants were undergraduate students, it seems plausible that they might regard themselves as preparing for their generative life tasks, rather than as being engaged in, or having completed, them.

In midlife adults, assessments of current generativity were higher than were levels of generative concern, supporting Stewart and Vandewater's (1998) notion that midlife may be characterised by a sense of one's generative impact or capacity more than by a desire for generativity. The trends depicted in Figure 3.1 suggest that during

midlife, the sense that one is actually creating a generative impact may take precedence over formulation of, and concern with, generative values and goals. Put slightly differently, the belief that one is fulfilling one's current obligations to society and the next generation – and indeed, may have little choice but to do so because of the demands of one's social roles – is greater than the need to be preoccupied with one's future generative legacy. This finding, together with the absence of observed age-cohort differences in generative concern, supports the suggestion by McAdams and his colleagues (McAdams & de St. Aubin, 1992; McAdams et al., 1998) that differences favouring midlife adults over other age-cohorts may result from factors other than generative concern or desire, such as the demands and opportunities associated with social roles, and/or one's sense of effectiveness within those roles (see also MacDermid, Franz, & De Reus, 1998; MacDermid, Heilbrun, & DeHaan, 1997).

Neither of the two predictions concerning the configuration of generativity in older adults was clearly supported in this study: thus, using a conservative test of the hypotheses, older adults did not report higher levels of whole-of-life self-evaluations than of either generative concern or current self-evaluations, although, consistent with predictions, they did show a trend towards lower current than whole-of-life self-evaluations. Overall, for these older adults, generative concern and generative self-evaluations tended to converge, rather than diverge. One possible interpretation of this pattern is that, as older adults move into the next of Erikson's developmental stages, the task of achieving integrity (Erikson, 1963; Erikson, Erikson, & Kivnick, 1986), the various components of generativity become integrated into a wider sense of self. Prior research (e.g., Ryff, 1991) has indicated that older adulthood may be characterised by a convergence between one's ideal and actual selves, principally

associated with a lowering of the standards embodied in one's ideal self. Although this study did not investigate age-cohort differences in ideal selves, the pattern of convergence between generative aspirations and generative self-evaluations that was observed in older adults is consistent with normative patterns of psychological development in older adulthood.

3.5.1.3. Age Differences in Generative Behaviour

The observed patterns of age-cohort differences in generative behaviour varied widely among components. As predicted, midlife adults reported higher levels of guiding and influencing than older adults, as well as higher levels of community service than younger adults. Contrary to hypotheses, however, younger adults also reported higher levels of guiding and influencing than did older adults, and older adults reported higher levels of community service than midlife adults. The finding concerning the comparatively high levels of guiding and influencing among younger adults was particularly unexpected.

As suggested in Chapter 2, guiding and influencing may be regarded as constituting the essence of generative behaviour, particularly given the recent appearance of the American Psychological Association's (2001) definition emphasising the passing on of knowledge and guidance that will outlive the self. As with current self-evaluations, it is plausible that midlife adults engage in more of this kind of guiding and influencing because they occupy a broader range of generative roles, and also may assume more responsibilities within those roles, relative to their older counterparts. Framed within the context of McAdams and de St. Aubin's (1992) model, the results support the notion that the cultural demand, as well as the

societal opportunity, for midlife adults to be generative is greater than for older adults.

Guiding and influencing, however, also suggests a degree of generative capacity (Stewart & Vandewater, 1998). This capacity may not only be associated with a widening sphere of influence or increased productivity and effectiveness as originally suggested by Stewart and Vandewater (see also Zucker, Ostrove, & Stewart, 2002), but also with a feeling of status or authority. Consistent with this notion, some of the items making up the guiding and influencing behaviour are compatible with the role of supervisor or senior colleague in an organisational context, or with the role of teacher (and to a lesser extent with the role of parent). Such roles may confer the authority, as well as the obligation, to assist and influence others, thereby boosting a sense of one's generative impact. The finding that men reported higher levels of this aspect of generativity than did women is consistent with such an interpretation, given that men have traditionally enjoyed more senior roles in the workplace than women (Bolzendahl & Myers, 2004; Dreher, 2003).

The finding concerning younger adults' equivalence to midlife adults and superiority over older adults in guiding and influencing is less easy to explain in terms of social roles or responsibilities, however, or to fit with any existing theoretical accounts of generativity. The younger adults in this study were mostly (although not exclusively) undergraduate students, and very few had either full-time jobs or children, which would have provided them with the most obvious arenas in which to engage in guiding and influencing others (see Table 2.1). However, what distinguished them and their midlife counterparts from the older participants was their engagement in paid work, either part-time or full-time. It is possible that this paid employment provided the arena for their relatively high scores on this variable.

Alternatively, some of the activities typically associated with being a student – leading tutorials, completing group assignments, assisting fellow students – may also have involved guiding and influencing others. Finally, if these younger adults had had younger siblings, they might also have had the opportunity (and/or requirement) to guide and influence others. Given that the measure of generative behaviour used in this study was not domain-specific, further investigation of this type of behaviour within particular life domains is required to identify the source of the associated age differences.

Somewhat paradoxically, and in contrast to the midlife participants, younger participants' engagement in guiding and influencing was not paralleled by comparably high levels of current self-evaluations. This suggests that these younger adults did not see their behaviours in generative terms but rather saw them differently than did midlife and older participants. It is possible that they may have regarded their engagement in generative behaviours as somewhat peripheral to their lives, particularly to the core business of studying, which involves completing assignments and passing exams. In this vein, it is possible that an "older" cohort of younger adults (e.g., aged 25 or 30 plus), with young children and/or emerging careers, might have evaluated their generative impact and accomplishments more highly than the younger participants in this sample.

The one area of generative behaviour that clearly showed an advantage for older adults over midlife and younger adults was community service. This was somewhat surprising, given that in the Australian population as a whole, the highest rate of volunteering is undertaken by people in the 35-45 year age group, who also devote the greatest number of hours per annum (Australian Bureau of Statistics, 2001; Australian Government Department of Family and Community Services,

2005). In fact, in this study there was a clear linear relationship between age and this aspect of generative behaviour, with younger adults being least involved in the community, older adults being most involved and midlife adults lying in between. The high level of community involvement among older participants may have partly been a function of sample characteristics: as described in the method section, a large number of these participants were recruited from community groups, so that the proportion of volunteers was much greater than for the older Australian population as a whole, being 58% in this sample, compared with between 24 and 31% of adults over the age of 65 in the Australian population as a whole at the time (Australian Bureau of Statistics, 2001). It may also reflect the greater opportunity in older adults to devote time to the community (i.e., greater availability of discretionary time) relative to that of their middle-aged or younger counterparts. However, older participants' scores on this variable were not associated with comparably high levels of either guiding and influencing or current generative self-evaluation overall. The former finding suggests that when older adults engage in volunteering or other community activities, they may do so without assuming the high levels of responsibility (and status) associated with paid work. Instead, they may assume, or may be allocated, auxiliary roles, leaving the more demanding or challenging tasks to their younger (and/or paid) counterparts. Also, for older retirees, volunteering may fulfil some of the psychosocial functions previously supplied by employment, such as the structuring of time, the maintenance of a sense of competence, and the provision of social contact (Greenfield & Marks, 2004; Midlarsky, 1991; Musick, Herzog, & House, 1999; Van Willigen, 2000). Therefore, the provision of assistance to the next generation in particular, or to the wider community in general, may be of secondary psychological importance to the fulfilment of these more immediate psychological

and social needs. This may partly account for why high involvement in community service in these older adults did not translate into equally high current self-evaluations of generativity.

The patterns of age-cohort differences in generative behaviour were reflected in the different profiles of generative behaviour observed in the three age groups. In this case, both younger and older adults showed wide divergence among behaviours, while in midlife adults there was evidence of convergence, with no significant differences being observed among them. Thus, while the older participants showed convergence in the psychological components of generativity, the midlife adults showed convergence in the behavioural ones.

3.5.2. Age Differences in the Loyola Generativity Scale

The pattern of age differences observed for the Loyola Generativity Scale (McAdams & de St. Aubin, 1992), showing an advantage of midlife and older adults over younger ones, was the same as the pattern observed for whole-of-life self-evaluations. Thus, while not consistent with prior findings concerning age differences (or their absence) in the Loyola Generativity Scale (e.g., McAdams, de St. Aubin, & Logan, 1993; Pratt, Norris, Arnold, & Filyer, 1999), the results nevertheless provided further support in this thesis for the proposition that the LGS may be more accurately considered a measure of generative self-evaluations rather than of generative concern. It is possible that differences between this and prior studies in the anchor points of the scale or in the positioning of the items throughout the questionnaire may have contributed to differences in the results.

3.5.3. Conclusion

The results of this study found support for Stewart and Vandewater's (1998) general proposition that different components of generativity display different age trajectories, and that different age groups have different generativity profiles. This was true of both psychological components of generativity (generative concern, current, and whole-of-life self-evaluations of generativity) and behavioural ones (guiding and influencing, community service and childcare). Overall, the results supported the notion that self-evaluations of generativity may be higher in midlife and older adults, but that generative concern – at least as measured in this study – is not unique to any age group. The behaviour guiding and influencing was more prominent in younger and midlife adults, while community service was most pronounced in older adults, supporting the notion that behavioural expressions of generativity vary between age groups, according to cultural demand and opportunity.

Since the study employed a cross-sectional design, the results must be interpreted with caution, since age is necessarily confounded with cohort in studies of this type (Papalia, Camp, & Feldman, 1996). However, as well as supporting the notion that different generativity profiles are attached to different age groups, the findings are consistent with prior research suggesting that, overall, generativity emerges more strongly in midlife than in either younger or older adulthood.

The following two chapters explore the relationship between these components of generativity and psychological well-being, both overall (Chapter 4), and by age group (Chapter 5). In Chapter 5, the findings reported in this chapter are used to guide hypotheses concerning the relative impact of current versus whole-of-life self-evaluations in young, middle and older adults.

Chapter 4 Generativity and Well-being

4.1. Overview

Having constructed measures of generative concern, generative self-evaluations and generative behaviour, and examined the associated age-cohort differences therein, we now turn to the central research question of Part 1 of the thesis, namely the nature of the relationship between these various components of generativity and psychological well-being. This topic occupies two chapters. Chapter 4 examines generativity and well-being across age groups. It is primarily concerned with distinguishing among the effects of generative concern, generative self-evaluations and generative behaviour, with a particular focus on the possible differences between generative concern and generative self-evaluations. Chapter 5 investigates whether these relationships differ by age group in ways that are consistent with prior theory, particularly that of Stewart and Vandewater (1998). The particular focus in that chapter is on whole-of-life and current self-evaluations of generativity and whether their role in predicting well-being differs by age group.

4.2. Introduction

In Chapter 1, it was argued that of the components of generativity under investigation in this thesis – concern, behaviour and self-evaluation - it is the latter that is most directly linked to well-being. One reason for this, it was argued, is that generative self-evaluations represent the individual's beliefs about whether he or she is able to, or has been able to, be of benefit to others, and whether he or she is

accomplishing, or has accomplished, socially valued, normative life tasks in the form of a contribution to society and the next generation (Keyes & Ryff, 1998). Therefore, having high positive self-evaluations may foster self-acceptance, boost self-esteem and enhance overall life satisfaction.

Much of the initial evidence for a positive relationship between self-evaluations of generativity and psychological well-being comes from studies of associations between scores on the Loyola Generativity Scale (LGS; McAdams & de St. Aubin, 1992) and assorted measures of psychological well-being. As well as the studies by McAdams and his colleagues that were described in Chapter 1 (de St. Aubin & McAdams, 1995; McAdams, de St. Aubin, & Logan, 1993) several other investigations have shown positive associations between the LGS and well-being outcomes. For example, Ackerman and her colleagues (Ackerman, Zuroff, & Moskowitz, 2000) found that LGS scores were positively correlated with life satisfaction in midlife women, and with work satisfaction in midlife men. Grossbaum and Bates (2002) reported that LGS scores predicted life satisfaction, as well as high scores on each of Ryff's (1989a) psychological well-being scales in a sample of midlife adults. Bellizzi (2004) found positive correlations between LGS scores and indicators of post-traumatic growth (including changes in perceptions of new possibilities, relating to others, personal strength and appreciation of life) in adult cancer survivors. More recently, in a 1990s follow-up study of elderly mothers who had taken part in a child-rearing study in 1951, James and Zarrett (2005a) found that LGS scores predicted scores on integrity (assessed using Ryff's [1989a] self-acceptance well-being subscale), which in turn predicted depression. Finally, in a slightly different vein, separate investigations by McAdams and his colleagues (McAdams, Reynolds, Lewis, Patten, & Bowman, 2001), and McLean and Pratt

(2006) showed positive associations between LGS scores and the presence of “redemption sequences” in the lives of both midlife (McAdams et al.) and very young adults (McLean & Pratt). These redemption sequences were characterised by descriptions of negative or painful events or circumstances that ultimately produced positive outcomes or personal growth for the individual concerned.

As argued in Chapter 1 (and reiterated in Chapters 2 and 3), although the LGS is purported to be a measure of generative concern, it is considered more likely by this author to confound generative self-evaluations with generative concern, with the majority of items being couched in self-evaluative terms (see also Keyes & Ryff, 1998). Therefore, associations between it and psychological well-being may be more likely to indicate that generative self-evaluations, rather than generative concern, predict well-being.

While the argument for a positive relationship between generative self-evaluations and psychological well-being is compelling, the corresponding argument concerning generative concern and psychological well-being is less so. As discussed in Chapters 1 and 2, because generative concern expresses a preoccupation with the importance of generativity and/or a desire to be generative (i.e., expresses conscious generative motivation), there seems no compelling theoretical reason to expect that generative concern per se should promote psychological well-being (although see Chapter 1 for a summary of an alternative view expressed by de St. Aubin and McAdams, 1995). Thus, although generative concern might provide a motivation for the formulation of generative goals, and the execution of generative behaviours, possessing a high level of generative concern does not *necessarily* mean that one is making, or has made, a generative contribution in one’s life.

Although prior researchers have not explicitly aimed to demonstrate that generative concern and generative self-evaluations exert differential effects on psychological well-being, assorted evidence suggests that this may be the case. For example, McAdams and his colleagues (McAdams et al., 1993) found that while scores from the LGS were positively related to life satisfaction and happiness in a sample of young, midlife and older adults, scores on generative strivings (i.e., generative commitment) were not. Keyes and Ryff (1998) found that when age, education, and multiple indicators of generativity were entered into a regression equation predicting psychological well-being, their measures of generative qualities (based on the LGS) and generative traits (together forming generative self-conception; see Chapters 1 and 2) produced higher standardised regression coefficients (.20 and .22, respectively) than did their measure of generative concern (.06)²

Additional evidence comes from studies using more implicit measures of both generative motivation and generative fulfilment or achievement. For example, as mentioned in Chapter 1, Stewart and Vandewater (1998) found evidence to differentiate generative desire from generative accomplishment in longitudinal studies of two samples of college-educated midlife women. In this research, generative desire was measured by coding women's 10-year goals for the presence of five generative themes (general generative concerns, parental generativity, caring for people other than one's children, productivity, and the need to be needed; see Stewart, Franz, & Layton, 1988). Generative accomplishment was measured by coding for similar themes in individuals' descriptions of high points or most

² It should be noted that these authors reported that all aspects of generativity, including behaviour and commitment, made significant contributions to well-being, but with a large sample size ($n = 3032$),

satisfying activities during the previous 10 years. Additional measures of desire were gathered using thematic apperception tests (TAT), and of accomplishment using observer-based, semi-projective techniques (Q-Sort measures of realisation, based on Peterson & Stewart, 1996). Importantly, in one of the samples, a shortened form of the LGS was also used to assess accomplishment (see also Chapters 1 and 2 of this thesis). Consistent with predictions, measures of generative accomplishment (particularly the Q-Sort and LGS) were positively related to well-being at midlife, whilst desire was negatively related. As mentioned in Chapter 1, the authors concluded that generative desire may not be normative at midlife, and may indicate a lack of generative fulfilment.

Using data from the same longitudinal database, Peterson (1998) found that emotional well-being at midlife was positively associated with generative realisation and negatively associated with unfulfilled generative motivation (themes of parenting, insight, care and productivity detected in participants' responses to TAT stimuli). However, Peterson and Stewart (1996), using the same data set, found that midlife generative motivations were positively associated with midlife generative realisation, suggesting that the two are not necessarily mutually exclusive.

Overall, these results suggest that generative self-evaluations may be more strongly (and more positively) related to well-being than is generative concern. This gives rise to the first two hypotheses of Study 3:

H4.1a: Generative self-evaluations are positively related to psychological well-being.

H4.1b: Generative self-evaluations are more strongly (positively) associated with well-being than is generative concern.

As with the prior studies of this thesis (see Chapters 2 and 3), additional analyses were included in this section to investigate the properties of the LGS and compare them with those of the measures of generative concern and generative self-evaluations. In keeping with the assumption that the LGS may be regarded as a measure of generative self-evaluation, the following hypotheses were tested:

H4.2a: There will be a positive relationship between scores on the LGS and psychological well-being.

H4.2b: The LGS will be more strongly associated with psychological well-being than will generative concern.

Returning to generative concern itself, given that there may be uncertainty over the existence of a *direct* relationship between it and psychological well-being, it was suggested in Chapter 1 that an alternative kind of relationship might exist. Specifically, generative self-evaluations may play a moderating role, such that the direction of the relationship between generative concern and psychological well-being may depend on whether accompanying levels of self-evaluation are positive (high) or negative (low). Thus, for individuals with high self-evaluations (i.e., who see themselves as highly generative) the relationship between concern and well-being may be positive, while for those with low self-evaluations, the corresponding relationship may be negative. Underlying this moderation hypothesis is the notion that when an intense concern with generativity is accompanied by high generative self-evaluations, it brings congruence between generativity aspirations and generative

accomplishments. This congruence between these desired and real aspects of the self may result in a sense of satisfaction, as well as the optimistic expectation that generative concerns and desires will continue to be fulfilled by future generative endeavours. On the other hand, self-discrepancy theory (Higgins, 1987) suggests that if high generative desires are accompanied by low self-evaluations, the resulting divergence between generative aspirations and accomplishments may intensify feelings of generative frustration or dissatisfaction and lead to feelings of dejection.

Indirect evidence of an interaction between generative self-evaluations and generative concern is provided by Peterson (1998). His idiographic case studies of 12 women suggested that the strength of the positive relationship between generative realisation and psychological well-being varied according to whether the women had high or low levels of generative motivation. Thus, although the implications of his study differed from that proposed in this study (by suggesting that motivation, rather than realisation, may have been the moderator), the results were nevertheless consistent with the notion that generative self-evaluations and generative concern may interact in the prediction of well-being.

The moderation hypothesis was examined in Study 3 using multiple regression analysis. Its components are formally stated as follows:

Hypothesis 4.3a. There will be a significant interaction between generative self-evaluations and generative concern, such that

Hypothesis 4.3b: For individuals with high self-evaluations the relationship between generative concern and psychological well-being will be positive;

and

Hypothesis 4.3c: For individuals with low self-evaluations the relationship between generative concern and psychological well-being will be negative.

An additional possibility concerning the relationship between generative concern and psychological well-being is that age plays a moderating role (e.g., Stewart & Vandewater, 1998). This notion is considered further in Chapter 5, when the effects of age on the relationships between the various components of generativity and well-being are investigated.

As was discussed in Chapter 1, the relationship between generative behaviour and psychological well-being also requires clarification. Currently, there is little evidence to indicate that global generative behaviour is either positively or negatively related to psychological well-being. For example, using the Generative Behavior Checklist (GBC; McAdams & de St. Aubin, 1992), de St. Aubin and McAdams (1995) found that, in contrast to scores on the Loyola Generativity Scale, generative behaviour was unrelated to either life satisfaction or happiness. Similarly, Grossbaum and Gates (2002) found that, in contrast to generative concern as assessed via the LGS, scores on the GBC did not predict any of Ryff's (Ryff, 1989a) six dimensions of psychological well-being (i.e., self-acceptance, positive relations with others, environmental mastery, purpose in life, personal growth, autonomy). As described in Chapter 1, de St. Aubin and McAdams' explanation for their findings is that actual engagement in generative action may detract from well-being because it involves individuals in the "messiness" of human interaction (de St. Aubin & McAdams, 1995, p. 103). Thus, generative behaviour may require self-sacrifice, involvement in conflict, or the attempt to satisfy obligations imposed by others or by one's role. In apparent support of this view Morfeï and her colleagues (Morfeï, Hooker, Carpenter,

Mix, & Blakeley, 2004) found that “communal”, but not “agentic”, generative acts from the GBC (the nature of which were not specified) were negatively related to the well-being of mothers of emerging adult children. However, it is possible that some generative actions may promote well-being by fostering positive relationships with others or expressing the individual’s competence and creativity. Importantly for this thesis, generative behaviour may also promote positive generative self-evaluations, thereby providing an important route to well-being. The possibility that generative behaviour may have both positive and negative effects on well-being may be masked when an instrument such as the GBC is used as a global measure.

In Chapter 2, principal component analyses extracted four components from the GBC – guiding and influencing, community service, religious observance and childcare – of which three, excluding religious observance, were retained for subsequent analysis. Of these, guiding and influencing was most strongly correlated with the psychological measures of generativity. It was also considered that guiding and influencing was most likely to have a positive effect on well-being. As suggested in Chapter 2, depending on the context, this type of generative activity may be associated with prestige and authority, as well as with responsibility and effort. It may also fulfil the need to be needed (e.g., Erikson, 1963; Keyes & Ryff, 1998; Stewart, Franz, & Layton, 1988). In keeping with these suppositions, Keyes and Ryff (1998) found that, in contrast to the provision of material or instrumental support, the provision of emotional support and guidance to others was positively related to psychological well-being in their large population-based sample. Therefore, the following hypothesis was formulated:

H4.4: The generative behaviour, guiding and influencing will be positively related to psychological well-being.

In addition, it was considered that, because guiding and influencing may promote generative self-evaluations, at least some part of its relationship with psychological well-being may be indirect, being mediated by self-evaluations.

Hypothesis 4.5. Generative self-evaluations will partially mediate the effect of generative behaviour on psychological well-being.

Concerning the other two kinds of generative behaviour, community service and childcare, it is less clear that either would confer the same kinds of benefits as proposed for guiding and influencing. Thus, although community service might bring a sense of satisfaction or self-esteem because it is associated with a sense of making a contribution (Narushima, 2005; Okun, Barr, & Herzog, 1998), it might also be associated with a sense of burden or obligation, particularly if undertaken in the context of demands associated with work or parenthood. Involvement with children might or might not be associated with satisfaction, depending on the circumstances in which it occurs. Therefore, no firm hypotheses were formulated concerning their effects.

Before proceeding further, something must be said about the treatment of generative self-evaluations in this chapter of the thesis. It will be recalled from Chapters 2 and 3 that the two measures of generative self-evaluation that were developed for the present study differed by temporal orientation, invoking self-assessments of either retrospective or current generativity. The purpose of differentiating them in this way was to heighten their sensitivity to the potential age

effects that are characteristic of the theories of Erikson (1963) and Stewart and Vandewater (1998). These age effects were the subject of Chapter 3, and will again be addressed in Chapter 5.

Because this chapter was not concerned with age effects, it was not expected that current and whole-of-life self-evaluations would differ in their effects on well-being. In addition, the high correlation between the two measures ($r = .85$ for the two factor scores, $r = .76$ for unit-weighted scores) suggested that there would be considerable overlap between them. This overlap would likely pose multicollinearity problems (Tabachnick & Fidell, 2001), particularly if both were included in a single analysis of their roles as moderators or mediators of the relationships between generative concern or generative behaviour and well-being. Alternatively, combining them in a single variable would risk masking any distinction that might exist between the two, and would also contradict the intention to assess them separately in the first place. As a result, the decision was made to analyse their effects in separate regression analyses, rather than in combination.

4.3. Method

4.3.1. Participants

The original sample was the same as described in Chapter 2. After the deletion of outliers in Chapter 3, there were 287 cases remaining from an original sample of 292. For the reader's convenience, the sample composition is summarised in Table 4.1.

Table 4.1 Composition of Sample after Deletion of Outliers.

<i>Age Group</i>		<i>Sex</i>		<i>Total</i>
		Male	Female	
Young	n	37	63	100
	%	37.0	63.0	100.0
Midlife	n	46	46	92
	%	50.0	50.0	100.0
Old	n	36	59	95
	%	37.9	62.1	100.0
Total	n	119	168	287
	%	41.5	58.5	100.0

4.3.2. *Materials and Procedures*

The generativity measures and the procedures were the same as described in Chapter 2. Thus, measures were included of generative concern, current self-evaluations of generativity and whole-of-life self-evaluations of generativity; and of guiding and influencing, community service and childcare. In addition, the following instruments were employed to assess psychological well-being.

Integrity

The first measure of psychological well-being was integrity, defined as acceptance of one's past and present life, and in particular, acceptance of and reconciliation with past mistakes and disappointments. Integrity was chosen both because it is the developmental successor to generativity in Erikson's model (Erikson, 1963; James & Zarrett, 2005b), and because it resembles life satisfaction, which is frequently used as an evaluative measure of psychological well-being (e.g., Diener, Emmons, Larsen, & Griffin, 1985). To assess integrity, six items from Ryff's Self-Acceptance well-being subscale (Ryff, 1989a) were selected, along with two items constructed by the writer (i.e., "I feel disappointed because life has not turned

out as I had hoped” and “I feel contented with the way my life is now”. Ryff’s complete self-acceptance subscale is designed to assess the extent to which individuals hold a “positive attitude towards [the] self, acknowledging and accepting [their] good and bad qualities, and feeling positive about [their] past life” (Ryff & Singer, 1998, p. 707). The six items chosen for the present research were designed to focus on individuals’ evaluations of their lives and achievements, rather than on their evaluations of themselves as people. This was so as to differentiate integrity from self-esteem, since self-esteem was also assessed in the study. Alpha for the eight items was .86.

Depressed Affect

Seven items from the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) formed the basis of a measure of depressive affect, a commonly used indicator of psychological well-being (Emmons & Diener, 1985; Ryff, 1989a). The full CES-D is a 20-item scale that asks respondents to indicate how often during the past week (0 = never, to 3 = almost all of the time, with reverse scoring for positively worded items) they have experienced a particular state associated with depression (e.g. ‘felt happy’, ‘felt sad’, ‘felt depressed’, ‘felt hopeful about the future’). Items reflect four content domains: depressed affect, well-being, somatic symptoms, and interpersonal relations (Hertzog, Van Alstine, Usala, Hultsch, & Dixon, 1990; Radloff, 1977). In the present study, only nine items were administered, partly to reduce the response burden on participants, and also because somatic complaints are more common amongst older adults (Nguyen & Zonderman, 2006). Of these seven affective items (four negative, three positive) were retained in the final measure. The content of these items referred to feeling depressed, sad,

afraid, and everything being an effort on the one hand, and feeling hopeful, happy and enjoying life on the other. Cronbach's alpha for the remaining seven items was .83.

Self-Esteem

Self-esteem was measured using Bachman's (1970) revision of the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The instrument contains 10 statements reflecting attitudes to the self and asks respondents to indicate how true of them (1 = almost always true, 5 = never true, with reverse scoring for positive items) they believe each statement to be. Examples are "I feel that I have a number of good qualities" and "I feel that I do not have much to be proud of". The results of a hierarchical, confirmatory factor analysis by Ranzijn and his colleagues (Ranzijn, Keeves, Luszcz, & Feather, 1998) suggest that the scale probably has two dimensions, Usefulness/Competence and Positive Self-Regard, nested within an overall factor General Self-Esteem. In this study, Cronbach's alpha for the 10 items was .85.

Table 4.2. List of Measures

Description	No. items	Source	α
Generative concern/desire	5	Modified Loyola Generativity Scale (adapted from McAdams & de St. Aubin, 1992)	.87
Generative self-evaluations (current)	10	Modified Loyola Generativity Scale (adapted from McAdams & de St. Aubin, 1992)	.90
Generative self-evaluations (whole-of-life)	8	Modified Loyola Generativity Scale (adapted from McAdams & de St. Aubin, 1992)	.85
Generative behaviours:		Generative Behavior Checklist (McAdams & de St. Aubin, 1992)	
Guiding and influencing	6		.75
Community service	4		.69
Childcare	4		.68
Psychological well-being:			
Integrity (self-acceptance)	8	Ryff (1989a)	.86
Depressed Affect	7	CES-D (Radloff, 1977)	.83
Self-esteem	10	Bachman (1970) Revision of Rosenberg (1965)	.85

4.4. Results

Hypotheses were tested using simple correlational and multiple regression analyses (MRA). MRA was chosen in preference to structural equation modelling (SEM) because of the ease and flexibility which it provides for testing interactions between continuous variables (Aiken & West, 1991), as well as between categorical and continuous variables (which will be examined in Chapter 5). In addition, although SEM has the advantage of removing error variance from relationships among latent variables, the results obtained from confirmatory factor analyses (see Chapter 2) engendered confidence in the reliability of the generativity measures that were developed for this study.

Hypotheses were tested in the order in which they were presented in section 4.2. Before the main results sections, descriptions are presented of data preparation, descriptive statistics and variable inter-correlations.

4.4.1. Data Preparation and Preliminary Analyses

4.4.1.1. Data Screening

The treatment of missing values for the generativity variables was described in Chapters 2 and 3. From the 287 cases that remained after the deletion of outliers in Chapter 3, a further four cases were deleted because they had provided no data on the well-being variables. This left 283 cases. Screening for univariate normality showed that depressed affect was substantially positively skewed (z skew = 4.70, $p < .001$). As recommended by Tabachnick and Fidell (2001) a square root transformation was carried out and improved the distribution somewhat, (after transformation, z skew = 3.99, $p < .01$), so the transformed variable was used in regression analyses.

Using the procedures recommended by Tabachnick and Fidell (2001), the remaining 283 cases were screened for multivariate outliers across the nine potential predictors, namely age, sex, generative concern, the three types of generative behaviour, and current and whole-of-life self-evaluations of generativity. In analyses involving nine predictors, it is recommended that cases with a Mahalanobis distance of $\chi^2 > 27.88$, $p < .001$, be deleted (Tabachnick & Fidell, 2001). The highest value was $\chi^2 = 27.28$, so no further deletion of cases was considered necessary.

As reported in Chapter 2, a substantial proportion ($n = 34$) of the younger respondents had received a truncated version of the GBC. As also described in

Chapter 2, to maximise the available data on which to conduct analyses, missing values had been replaced using the expectancy maximisation procedure. To ensure that there were no multivariate outliers among the 249 participants with complete data for the GBC, screening was also conducted on these cases alone. In this case the highest value for Mahalanobis distance was $\chi^2 = 27.63$, just within the limit of 27.88 recommended by Tabachnick and Fidell (2001). Thus, deletion of further cases from this subsample was not required.

As a further precaution against misrepresenting the results for this chapter, each set of well-being analyses was run twice, once for the full sample, and once for the subset that had completed the full GBC ($n = 249$, after the removal of multivariate outliers). For analyses involving generative concern and generative self-evaluations (i.e., *not* those involving the GBC), the results of the two sets of regression were very similar. The only differences were that for the whole sample, the effects of age were slightly stronger, while for the subset, the effects of concern, self-evaluations and their interaction were slightly stronger. However, these differences were minor and did not in any way alter the overall pattern of significant effects. For analyses that did involve the GBC, the results were again comparable across the two groups, with one exception: the effect of guiding and influencing on self-esteem net of generative self-evaluations was significant and positive in the subset, but nonsignificant for the whole sample. However, given that all respondents had completed the items in this section of the GBC, it was decided to base results on the analyses for the whole sample ($n = 283$), rather than on those in the subsample ($n = 249$). The composition of the final sample is shown in Table 4.3.

Table 4.3. Composition of Sample for Analyses.

Age group		Full sample (<i>n</i> = 283)			Subsample with full GBC (<i>n</i> = 249)		
		Sex		Total	Sex		Total
		Male	Female		Male	Female	
Young	n	38	61	99	27	39	66
	%	38.38	61.62	100.00	40.91	59.09	100.00
Midlife	n	46	46	92	46	46	92
	%	50.00	50.00	100.00	50.00	50.00	100.00
Old	n	35	57	92	35	56	91
	%	38.04	61.96	100.00	38.46	61.54	100.00
Total	N	119	164	283	108	141	249
	%	42.05	57.95	100.00	43.37	56.63	100.00

4.4.1.2. Descriptive Statistics

Table 4.4 shows the means and standard deviations for the well-being variables. Two-way ANOVAs (age group by sex) were conducted. These showed that the effects of age, $F(2,277) = 11.41$, $MSE = 117.31$, $p < .01$, sex, $F(1,27) = 4.96$, $MSE = 51.01$, $p < .05$, and the age by sex interaction, $F(2,277) = 3.31$, $MSE = 33.98$, $p < .01$, were significant for depressed affect. For self-esteem the main effect of age was significant, $F(2,277) = 5.64$, $MSE = 134.94$, $p < .01$, as was the age by sex interaction, $F(2,277) = 4.05$, $MSE = 97.08$, $p < .05$. Post hoc tests showed that, compared with midlife and older adults, younger adults had higher levels of depressed affect and lower levels of self-esteem, while women had higher levels of depressed affect than men. For both depressed affect and self-esteem, the differences favouring men over women were most pronounced in the younger age group than in the other two.

Table 4.4. Means, Standard Deviations and Alpha Coefficients for Psychological Well-being Measures.

Criterion	Age Group												
	Young			Midlife			Old			All			
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	
Integrity	<i>M</i>	42.20	42.08	42.13	43.84	43.41	43.63	45.91	41.28	43.04	43.93	42.18	42.91
	<i>SD</i>	9.29	8.70	8.88	9.45	10.86	10.13	8.63	8.88	9.03	9.21	9.39	9.34
Depressed Affect	<i>M</i>	4.84	6.93	6.13 ^{a,b}	3.70	4.57	4.13 ^a	3.96	3.59	3.73 ^b	4.14 ^c	5.11 ^c	4.70
	<i>SD</i>	2.73	3.89	3.62	2.57	2.85	2.73	3.40	3.30	3.32	2.90	3.70	3.42
Self-Esteem	<i>M</i>	42.29	38.89	40.20 ^{d,e}	42.76	43.24	43.00 ^d	42.05	41.74	41.86 ^e	42.40 ^f	41.10 ^f	41.65
	<i>SD</i>	6.06	5.35	5.84	4.75	4.38	4.55	4.78	4.02	4.30	5.18	4.96	5.08
	<i>N</i>	38	61	99	46	46	92	35	57	92	119	164	283

^{a,b,...,f} Means sharing a superscript are significantly different at $p \leq .05$.

4.4.1.3. *Bivariate Correlations between Generativity and Well-being in Males and Females*

Because the studies making up this section of the thesis were concerned with global, rather than domain-specific, generativity, the observed relationships between the components of generativity and psychological well-being were not expected to differ between men and women. As a preliminary check of this assumption, separate bivariate correlations among the variables were computed for men and women, and their magnitude compared using Fisher's z -test (Cohen & Cohen, 1983). Two significant differences between men and women were observed: the correlation between current self-evaluations and depressed affect, although significant for both genders, was weaker for women ($r = -.28$) than for men ($r = -.49$), $z = -2.03$, $p < .05$, as was the correlation between guiding and influencing and self-esteem ($r = .19$ for women, $r = .44$ for men, $z = -2.29$, $p < .05$). Accordingly, for relationships involving these combinations of variables it was decided to examine women and men separately, as well as together.

The full set of bivariate correlations in men and women is shown in Table 4.5. As well as the two significant differences mentioned above, two other differences in the pattern of results are noteworthy: the correlation between guiding and influencing and integrity was significant and positive for men, $r = .27$, $p < .01$, but was nonsignificant for women, $r = .10$, *ns*. Conversely, the correlation between community service and depressed affect was significant for women, $r = -.17$, $p < .05$, but not for men, $r = -.08$, *ns*.

Table 4.5. Bivariate Correlations in Men and Women.

	1	2	3	4	5	6	7	8	9	10
1 Age	--	-.39***	.36***	.13	-.10	.03	.22*	.11	-.11	-.05
2 Guiding & influencing	-.32***	--	.09	.10	.31**	.50***	.34***	.27**	-.17	.44***
3 Community service	.31***	.17*	--	.16	.12	.25**	.23*	.10	-.08	.09
4 Childcare	.01	.17*	.17*	--	.27**	.19*	.19*	.09	.05	-.07
5 Generative concern	.01	.22**	.18*	.04	--	.63***	.50***	.21*	-.20*	.34***
6 Generative self-evaluations – current	.15	.41***	.23*	.19*	.51***	--	.78***	.53***	-.49***	.66***
7 Generative self-evaluations – WOL ¹	.18*	.38***	.30***	.14	.44***	.79***	--	.47	-.44***	.57***
8 Integrity	-.02	.10	.00*	.11	.12	.41***	.41***	--	-.50***	.57***
9 Depressed affect	-.39***	.08	-.17	-.10	-.02	-.27**	-.28***	-.38***	--	-.41***
10 Self-esteem	.24**	.19*	.06*	.02	.20*	.54***	.51***	.45***	-.47***	--

Correlations for men above the diagonal, those for women below.

¹WOL = whole-of-life. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

4.4.2. Generative Self-Evaluations, Generative Concern and Psychological Well-being

4.4.2.1. Differences in the Strength of Bivariate Correlations with Well-being

The first hypotheses to be tested were that the relationships between generative self-evaluations and psychological well-being would be positive (H4.1a), and stronger than those between generative concern and psychological well-being (H4.1b). Bivariate correlations among the respective variables were computed (Table 4.6) and the size of the respective correlation coefficients compared using Steiger's (1980) test. The correlation coefficients are presented in Table 4.6 and the results of the comparisons are shown in Table 4.7.

Inspection of Table 4.6 shows that the two self-evaluation variables were significantly and positively correlated with well-being (negative in the case of depressed affect), supporting Hypothesis 4.1. The correlations between generative concern and well-being were also significant and positive, with the exception that the overall relationship with depressed affect was non-significant. The r values also suggested that the associations between the two self-evaluation measures and the well-being variables (range: $r = -.34$ for depression to $r = .59$ for self-esteem) were higher than those for generative concern (range: $r = -.07$ for depression to $r = .25$ for self-esteem). Steiger's (1980) test provided statistical confirmation that this was the case (see Table 4.7 for t values). Thus, Hypothesis 4.1b, that the association between self-evaluations of generativity and well-being would be stronger than that between generative concern and well-being, was supported.

Table 4.6. Bivariate Correlations for Full Sample

	2	3	4	5	6	7	8	9	10	11	12
1. Age	-.02	-.34***	.33***	.06	-.04	.10	.20***	.12	.03	-.30***	.13*
2. Sex		-.14*	-.03	.03	.10	-.04	-.03	.02	-.09	.14*	-.13*
3. Guiding			.13*	.13*	.24***	.45***	.37***	.42***	.18**	-.03	.31***
4. Good works				.17**	.15*	.24***	.27***	.36***	.04	-.14*	.08
5. Childcare					.15*	.19**	.16**	.22***	.10	-.14*	-.02
6. Generative concern						.55***	.46***	.57***	.15*	-.07	.25***
7. Generative self- evaluations – current							.79***	.85***	.46***	-.35***	.59***
8. Generative self- evaluations – WOL ¹								.84***	.44***	-.34***	.54***
9. LGS									.48***	-.34***	.55***
10. Integrity										-.43***	.51***
11. Depressed affect											-.44***

¹WOL = whole-of-life. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

Table 4.7. Comparisons of Correlations between Generative Concern and Self-Evaluations.

	<i>Self-Evaluations vs Concern</i>		
	Current	Whole-of-life	LGS vs concern
Integrity	6.20***	5.18***	6.53***
Depressed affect	5.33***	4.64**	5.24***
Self-esteem	7.41***	5.48***	6.47***

** $p < .01$; *** $p < .001$; r values compared using Steiger's (1980) t -test.

Hypothesis 4.2 predicted that (a) the LGS would be positively correlated with psychological well-being, and (b) the correlations between the LGS and well-being would be stronger than those between generative concern and well-being. As shown in Table 4.6, Hypothesis 4.2a was supported, with the LGS being substantially correlated with all three well-being measures: $r = .48$, for integrity, $r = -.34$ for depressed affect, and $r = .55$ for self-esteem. Steiger's t -test (1980) showed that the magnitude of the correlations was greater than that of the corresponding correlations between generative concern and psychological well-being. Thus Hypothesis 4.2b was also supported.

As indicated in the previous section, the correlation between current self-evaluations of generativity and depressed affect was significantly lower in women than in men. Nevertheless, the correlation between current self-evaluations of generativity and depressed affect in women was still higher than the corresponding correlation between generative concern and depressed affect, $r = -.27$ and $-.02$, respectively, $t = 3.36$, $p < .01$.

As expected, current and whole-of-life self-evaluations did not differ in the magnitude of their correlations with well-being: for integrity, $t = .59$, ns ; for self-esteem, $t = 1.62$, ns ; and for depressed affect, $t = .32$, ns .

4.4.2.2. *Generative Self-Evaluations as a Moderator of the Relationship between Generative Concern and Psychological Well-being*

It was predicted that generative self-evaluations would moderate the effect of generative concern on psychological well-being (H4.3). To test this hypothesis, six multiple regressions were carried out in total, one for each well-being outcome (integrity, self-esteem, depressed affect) and one for each indicator of generative self-evaluations (current or whole-of-life). In each multiple regression, age and sex were entered as control variables, followed by the generativity variables in the following order: generative concern, generative self-evaluations (either current or whole-of-life), and the concern by self-evaluations interaction term.

Following the recommendations of Aiken and West (1991), each of the three generativity variables was centred prior to analyses by subtracting the sample mean from the raw scores. This was done to minimise collinearity between the interaction term and its constituent variables (Aiken & West, 1991). The concern by self-evaluations interaction terms were formed by multiplying the respective centred variables (i.e., concern by current self-evaluations and concern by whole-of-life self-evaluations).

Integrity

Tables 4.8(a) and (b) show the results of multiple regression analyses for integrity with either current or whole-of-life self-evaluations included as moderators in the model. Turning to Table 4.8(a), it can be seen that at Step 1, the effects of age and sex were nonsignificant. At Step 2 the effect of concern on integrity, although modest, was significant and positive, $\beta = .16, p < .05$. As expected, the effect of

current self-evaluations at Step 3 was strong and positive, $\beta = .55, p < .001$. However, unexpectedly, the effect of concern at this step was *negative* and, although weak, was still significant, $\beta = -.15, p < .05$. Finally, at Step 4 the effect of the interaction term was small but also significant, $\beta = .11, p < .05$, while the simple effects of concern and current self-evaluations remained essentially unchanged despite a small reduction in the effect of generative concern ($\beta = -.13$). Overall, the results supported moderation, although they also hinted at a possible suppressor effect. The model accounted for 25% of the variance in integrity, $F(5,277) = 18.17, p < .001$, of which self-evaluations accounted for 20%.

Table 4.8(b) shows the prediction of integrity when whole-of-life rather than current self-evaluations were included at Step 3. The effect of concern became nonsignificant at the entry of self-evaluations, $\beta = -.07, p = .27$, and the effect of the interaction at Step 3 did not reach significance, $p = .09$. In the final model, the only significant predictor was whole-of-life self-evaluations, $\beta = .47, p < .001$. Thus, results suggested that whole-of-life self-evaluations had mediated, rather than moderated, the effects of concern. Overall, the model accounted for 20% of the variance in integrity, $F(5,277) 15.00, p < .001$. Of this, self-evaluations explained 17%.

Table 4.8. Moderated Regression Analyses for Integrity: Generative Concern x Generative Self-Evaluations

(a) Current Self-Evaluations as Moderator

<i>Model</i>	<i>Predictor</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	<i>F change</i>	<i>df</i>	<i>df2</i>
1	(Constant)	43.27	1.54		28.03***	.01	.00	.01	1.35	2	280
	Age	.01	.03	.03	.51						
	Sex	-1.74	1.12	-.09	-1.55						
2	(Constant)	43.33	1.53		28.38***	.03	.02	.03	7.32**	1	279
	Age	.02	.03	.04	.61						
	Sex	-2.05	1.12	-.11	-1.83						
	Concern	.27	.10	.16	2.71*						
3	(Constant)	44.16	1.36		32.36***	.24	.22	.20	73.04***	1	278
	Age	-.01	.02	-.03	-.57						
	Sex	-1.02	1.00	-.05	-1.02						
	Concern	-.25	.11	-.15	-2.34*						
	Self-evaluations	.48	.06	.55	8.55***						
4	(Constant)	43.62	1.38		31.56***	.25	.23	.01	4.17*	1	277
	Age	-.01	.02	-.03	-.61						
	Sex	-.94	1.00	-.05	-.94						
	Concern	-.22	.11	-.13	-2.02*						
	Self-evaluations	.48	.06	.54	8.56***						
	Concern x self-evaluations	.02	.01	.11	2.04*						

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

Table 4.8 (cont.)

(b) Whole-of-Life Self-Evaluations as Moderator

<i>Model</i>	<i>Predictor</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	<i>F change</i>	<i>df</i>	<i>df2</i>
1	(Constant)	43.27	1.54		28.03***	.01	.00	.01	1.35	2	280
	Age	.01	.03	.03	.51						
	Sex	-1.74	1.12	-.09	-1.55						
2	(Constant)	43.33	1.53		28.38***	.03	.02	.03	7.32**	1	279
	Age	.02	.03	.04	.61						
	Sex	-2.05	1.12	-.11	-1.83						
	Concern	.27	.10	.16	2.71**						
3	(Constant)	45.10	1.41		32.05***	.20	.19	.17	59.48***	1	278
	Age	-.03	.02	-.07	-1.20						
	Sex	-1.34	1.02	-.07	-1.31						
	Concern	-.11	.10	-.07	-1.09						
	Self-evaluations	.58	.07	.48	7.71***						
4	(Constant)	44.70	1.42		31.43***	.21	.20	.01	2.83	1	277
	Age	-.03	.02	-.07	-1.18						
	Sex	-1.32	1.02	-.07	-1.30						
	Concern	-.08	.10	-.05	-.78						
	Self-evaluations	.57	.07	.47	7.57***						
	Concern x self-evaluations	.02	.01	.09	1.68						

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

Depressed Affect

Table 4.9(a) shows the results for depressed affect with current self-evaluations as the moderator of the effect of concern. At Step 1 there was a moderate negative relationship between age and depressed affect, $\beta = -.31, p < .001$, while at Step 2 the relationship between concern and affect was significant and negative, $\beta = -.15, p < .05$. At Step 3, the effect of current self-evaluations was substantial and negative, $\beta = -.37, p < .001$, while the effect of concern on depressed affect became nonsignificant. Finally, consistent with moderation, the interaction between concern and self-evaluations was significant, $\beta = -.11, p < .05$. The model accounted for 23% of the variance in depressed affect, $F(5, 277) = 16.51, p < .001$. Self-evaluations accounted for 9% of the variance, compared with 2% for concern.

Turning to whole-of-life self-evaluations (Table 4.9b), the overall pattern of results was also consistent with moderation. Whole-of-life self-evaluations was negatively related to depressed affect, $\beta = -.32, p < .001$, while the interaction between self-evaluations and concern was significant, $\beta = -.13, p < .05$. The final model accounted for 20% of the variance in depressed affect, $F(5,277) = 15.47, p < .001$, of which 8% was accounted for by self-evaluations.

Table 4.9. Moderated Regression Analyses for Depressed Affect: Generative Concern x Generative Self-Evaluations

(a) Current Self-Evaluations as Moderator

<i>Model</i>	<i>Predictor</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR ²	<i>F</i> change	<i>df</i>	<i>df</i> ₂
1	(Constant)	2.54	.15		16.89***	.10	.09	.10	15.55***	2	28
	Age	-.01	.00	-.31	-5.41***						
	Sex	.14	.11	.07	1.25						
2	(Constant)	2.53	.15		17.03***	.12	.11	.02	7.26**	1	279
	Age	-.01	.00	-.31	-5.56***						
	Sex	.17	.11	.09	1.54						
	Concern	-.03	.01	-.15	-2.69**						
3	(Constant)	2.47	.14		17.54***	.22	.21	.09	33.38***	1	278
	Age	-.01	.00	-.27	-4.96***						
	Sex	.10	.10	.05	.92						
	Concern	.01	.01	.06	.93						
	Self-evaluations	-.03	.01	-.37	-5.78***						
4	(Constant)	2.53	.14		17.73***	.23	.22	.01	4.57**	1	277
	Age	-.01	.00	-.26	-4.96***						
	Sex	.09	.10	.04	.83						
	Concern	.01	.01	.04	.60						
	Self-evaluations	-.03	.01	-.37	-5.78***						
	Concern x self-evaluations	.00	.00	-.11	-2.14*						

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

Table 4.9 (cont.)

(b) Whole-of-Life Self-Evaluations as Moderator

<i>Model</i>	<i>Predictor</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>	R^2	<i>Adj. R²</i>	ΔR^2	<i>F change</i>	<i>df</i>	<i>df2</i>
1	(Constant)	2.54	.15		16.89***	.10	.09	.10	15.55***	2	280
	Age	-.01	.00	-.31	-5.41***						
	Sex	.14	.11	.07	1.25						
2	(Constant)	2.53	.15		17.03***	.12	.11	.02	7.26**	1	279
	Age	-.01	.00	-.31	-5.56***						
	Sex	.17	.11	.09	1.54						
	Concern	-.03	.01	-.15	-2.69**						
3	(Constant)	2.41	.14		16.72***	.20	.19	.08	27.09***	1	278
	Age	-.01	.00	-.24	-4.39***						
	Sex	.12	.10	.06	1.13						
	Concern	.00	.01	.00	.03						
	Self-evaluations	-.04	.01	-.32	-5.20***						
4	(Constant)	2.47	.14		17.06***	.22	.20	.02	6.23**	1	277
	Age	-.01	.00	-.24	-4.46***						
	Sex	.12	.10	.06	1.12						
	Concern	.00	.01	-.03	-.41						
	Self-evaluations	-.04	.01	-.31	-5.03***						
	Concern x self-evaluations	.00	.00	-.13	-2.50**						

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

Self-Esteem

Turning finally to self-esteem, Table 4.10(a) shows that at Step 1, the effects of age and sex were again significant, $\beta = .12$ and $-.12$, $p < .05$, respectively. Thus, consistent with the analyses of variance reported earlier, being older and being male were associated with higher self-esteem. At Step 2, there was a somewhat stronger relationship between generative concern and self-esteem than was the case for either integrity or depressed affect, $\beta = .27$, $p < .01$. The effect of current self-evaluations was also stronger than for the other two criteria, $\beta = .64$, $p < .001$. As with depressed affect, its entry in the model rendered the effect of concern on self-esteem nonsignificant, $\beta = -.09$, while the effect of the interaction term was also nonsignificant, $\beta = .04$, suggesting that self-evaluations had mediated rather than moderated the effect of concern. Overall, the model accounted for 37% of the variance in self-esteem, $F(5,277) = 3.09$, $p < .001$, of which 27% was accounted for by self-evaluations.

Finally, Table 4.10(b) shows that when whole-of-life self-evaluations was the moderator, the effect of concern became nonsignificant upon its addition to the model, while the interaction between concern and self-evaluations was not significant. Thus, like current self-evaluations, whole-of-life self-evaluations appeared to act as a mediator, rather than a moderator, of the effect of concern on self-esteem. The model accounted for 29% of the variance in self-esteem, $F(5,277) = 23.85$, $p < .001$, of which whole-of-life self-evaluations accounted for 20%.

Table 4.10. Moderated Regression Analyses for Self-Esteem: Generative Concern x Generative Self-Evaluations.

(a) Current Self-Evaluations as Moderator

<i>Model</i>	<i>Predictor</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR ²	<i>F</i> change	<i>df</i>	<i>df</i> ₂
1	(Constant)	40.93	0.83		49.24***	.03	.02	.03	4.58**	2	280
	Age	.03	.01	.13	2.13*						
	Sex	-1.27	.60	-.12	-2.11*						
2	(Constant)	40.98	.80		51.08***	.10	.09	.07	21.57***	1	279
	Age	.03	.01	.13	2.37*						
	Sex	-1.55	.59	-.15	-2.65						
	Concern	.24	.05	.27	4.64***						
3	(Constant)	41.51	.67		61.66***	.37	.36	.27	120.32***	1	278
	Age	.01	.01	.06	1.19						
	Sex	-.90	.49	-.09	-1.83						
	Concern	-.09	.05	-.09	-1.64						
	Self-evaluations	.30	.03	.64	10.97***						
4	(Constant)	41.41	.69		60.34***	.37	.36	.00	.56	1	277
	Age	.01	.01	.06	1.17						
	Sex	-.89	.50	-.09	-1.79						
	Concern	-.08	.05	-.09	-1.51						
	Self-evaluations	.30	.03	.64	10.95***						
	Concern x self-evaluations	.00	.00	.04	.75						

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

Table 4.10 (cont.)

(b) Whole-of-Life Self-Evaluations as Moderator

<i>Model</i>	<i>Predictor</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	<i>F change</i>	<i>df</i>	<i>df2</i>
1	(Constant)	40.93	.83		49.24***	.03	.02	.03	4.58**	2	280
	Age	.03	.01	.13	2.13*						
	Sex	-1.27	.60	-.12	-2.11*						
2	(Constant)	40.98	.80		51.08***	.10	.09	.07	21.57***	1	279
	Age	.03	.01	.13	2.37*						
	Sex	-1.55	.59	-.15	-2.65						
	Concern	.24	.05	.27	4.64***						
3	(Constant)	42.03	.72		58.46***	.30	.29	.20	79.00***	1	278
	Age	.01	.01	.02	.46						
	Sex	-1.13	.52	-.11	-2.18*						
	Concern	.02	.05	.02	.34						
	Self-evaluations	.34	.04	.52	8.89***						
4	(Constant)	41.95	.73		57.48***	.30	.29	.00	.35	1	277
	Age	.01	.01	.02	.47						
	Sex	-1.13	.52	-.11	-2.17*						
	Concern	.02	.05	.03	.44						
	Self-evaluations	.34	.04	.52	8.80***						
	Concern x self-evaluations	.00	.01	.03	.59						

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

Summary

In summary, the results of regression analyses supported the role of current self-evaluations as a moderator of the effect of generative concern on integrity and depressed affect (H4.3a), while the results for self-esteem were consistent with mediation rather than moderation. In addition, the results for integrity pointed to a possible suppressor effect, with the effect of concern becoming negative upon the entry of self-evaluations in the model. Whole-of-life self-evaluations moderated the effect of concern on depressed affect, but mediated its effect on integrity and self-esteem. It should be noted that the bivariate relationships between generative concern and the well-being variables were relatively weak, as were the effects of the concern by self-evaluation interactions. Overall, the results suggest that, while current and whole-of-life self-evaluations were similar in their effects on psychological well-being, their effects were not identical.

4.4.2.3. Analysing the Significant Concern by Self-Evaluations Interactions

The regressions for well-being showed that there were three significant concern by self-evaluations interactions, two for current self-evaluations (integrity, depressed affect), one for whole-of-life self-evaluations (depressed affect). To analyse the interactions further, three additional pairs of regression analyses were undertaken. These were to enable calculation of the simple slopes (Aiken & West, 1991) of the regression lines characterising the concern-well-being relationship at either high or low levels of self-evaluations. They were also designed to test the hypothesis that the relationship between generative concern and well-being would be positive at high

levels of self-evaluation and negative at low levels of self-evaluation (H4.3b and 4.3c). As recommended by Aiken and West (1991), one standard deviation above and one standard deviation below the mean of either current or whole-of-life self-evaluations were chosen to represent high and low levels, respectively. Four new variables corresponding to these levels were created for entry into the regression analyses by subtracting or adding the standard deviation of either current or whole-of-life self-evaluations from its mean. In addition, four new interaction terms (concern by high self-evaluations and concern by low self-evaluations) were created. Thus, the variables in the equation were concern, plus either (a) high self-evaluations followed by the high self-evaluations by concern interaction term, or (b) low self-evaluations followed by the low self-evaluations by concern interaction term. Since the value of interest was the simple or main effect of concern when all three variables were present in the equation (Aiken & West, 1991), simultaneous rather than hierarchical regressions were employed.

The results of the regressions are displayed in Table 4.11 (current self-evaluations) and 4.12 (whole-of-life self-evaluations). The first half of Table 4.11 shows the coefficients characterising the simple slope of integrity on concern at either high or low self-evaluations of current generativity. Model 1 shows that for individuals with *high* self-evaluations there was almost no relationship between generative concern and integrity ($\beta = -.06, p = .45$). However, as shown in Model 2, for individuals with *low* self-evaluations, the relationship between concern and integrity was negative, $\beta = -.21, p < .01$. Thus, the hypothesis that the relationship between generative concern and integrity would be positive for individuals with high self-evaluations of current generativity was not supported (H4.3b). However, the

prediction that the relationship between concern and integrity would be negative for individuals with low self-evaluations (H4.3c) received modest support.

The trends for depressed affect were similar to those for integrity, but in the reverse direction. At high levels of current self-evaluation, the relationship between concern and integrity was nonsignificant and negative, $\beta = -.07$, $p > .05$, while at low self-evaluations, the relationship was positive and significant, $\beta = .15$, $p < .05$. Again, H4.3b was not supported, while H4.3c was.

Finally, an almost identical pattern was found when whole-of-life, rather than current, self-evaluations was the predictor of depressed affect. At high self-evaluations the relationship between concern and affect was nonsignificant and negative $\beta = -.10$, *ns*. However, at low self-evaluations the relationship was positive and significant, $\beta = .15$, $p < .05$. Again, only H4.3c was supported.

The results of the regression analyses are presented in Tables 4.11 and 4.12, and depicted in Figures 4.1 to 4.3.

Table 4.11. Analysis of Significant Interaction between Generative Concern and Current Self-Evaluations: Integrity and Depressed Affect

<i>Criterion</i>	<i>Predictors</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>
Integrity					
Model 1	Concern	-.01	.13	-.06	-.76
	High self-evaluations	.48	.06	.55	8.75***
	Concern x high self-evaluations	.002	.01	.14	2.08*
Model 2	Concern	-.36	.11	-.21	-3.10**
	Low self-evaluations	.48	.06	.55	8.75***
	Concern x low self-evaluations	.002	.01	.12	2.08*
Depressed Affect					
Model 1	Concern	-.01	.02	-.07	-.78
	High self-evaluations	-.03	.01	-.37	-5.78***
	Concern x high self-evaluations	.00	.00	-.17	-2.14*
Model 2	Concern	.03	.01	.15	1.93*
	Low self-evaluations	-.03	.01	-.37	-5.78***
	Concern x low self-evaluations	.00	.00	-.14	-2.14*

$R^2 = .24$, $\text{Adj. } R^2 = .24$, $F(3,279) = 29.95$, $p < .001$

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

Table 4.12. Analysis of Significant Interaction between Generative Concern and Whole-of-Life Self-Evaluations: Depressed Affect

<i>Model</i>	<i>Predictors</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>
1	Concern	-.02	.02	-.10	-1.15
	High self-evaluations	-.05	.01	-.38	-6.20***
	Concern x high self-evaluations	.00	.00	-.20	-2.38*
2	Concern	.03	.01	.15	1.99*
	Low self-evaluations	-.05	.01	-.38	-6.20***
	Concern x low self-evaluations	.00	.00	-.17	-2.38*

$R^2 = .16$, $\text{Adj. } R^2 = .15$, $F(3,279) = 17.56$, $p < .001$

* $p < .05$; *** $p < .001$. All analyses controlled for age and sex.

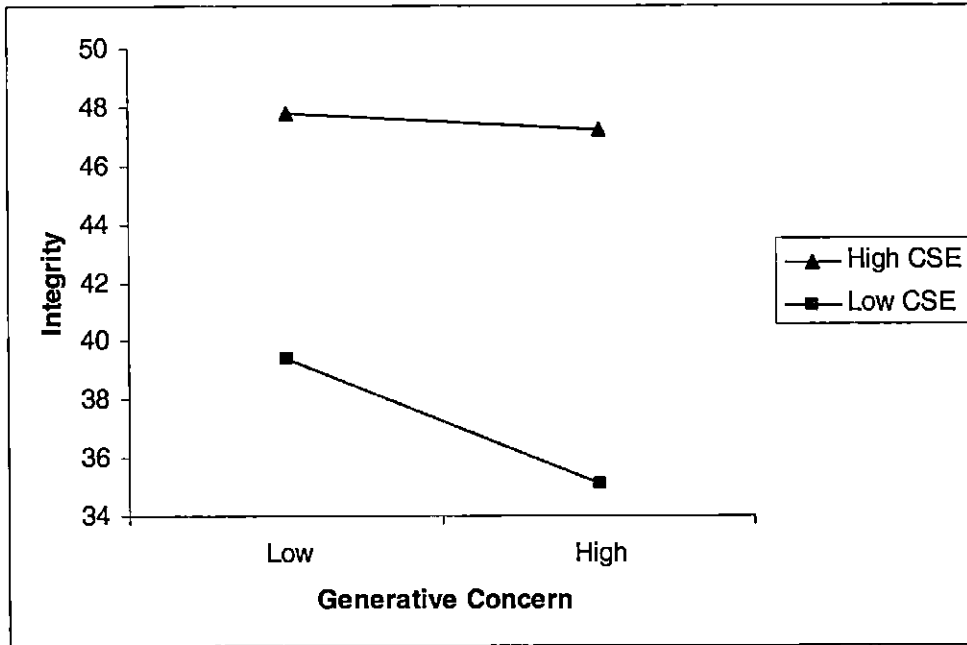


Figure 4.1. Plot of interaction between generative concern and current self-evaluations of generativity (CSE): Criterion = integrity

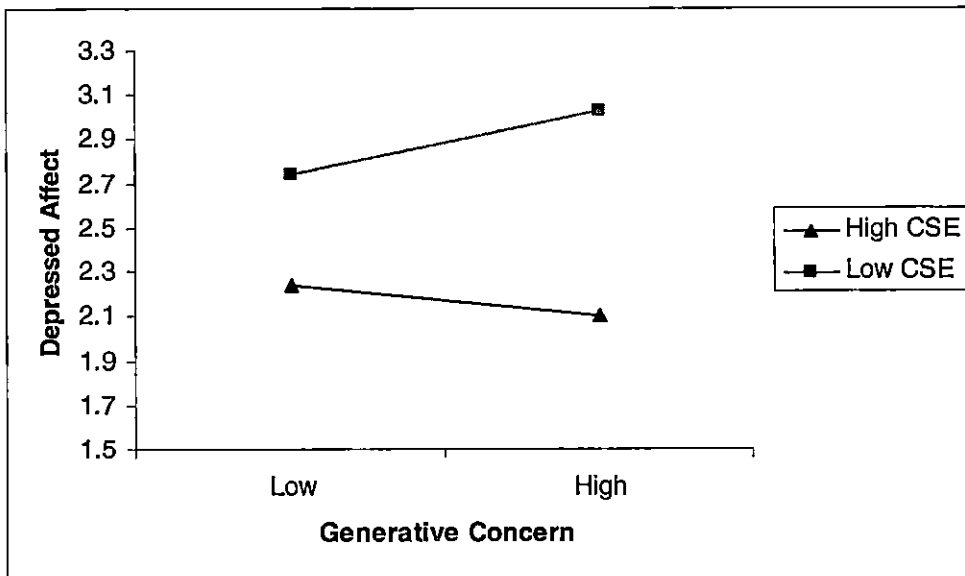


Figure 4.2. Plot of interaction between generative concern and current self-evaluations of generativity (CSE): Criterion = depressed affect.

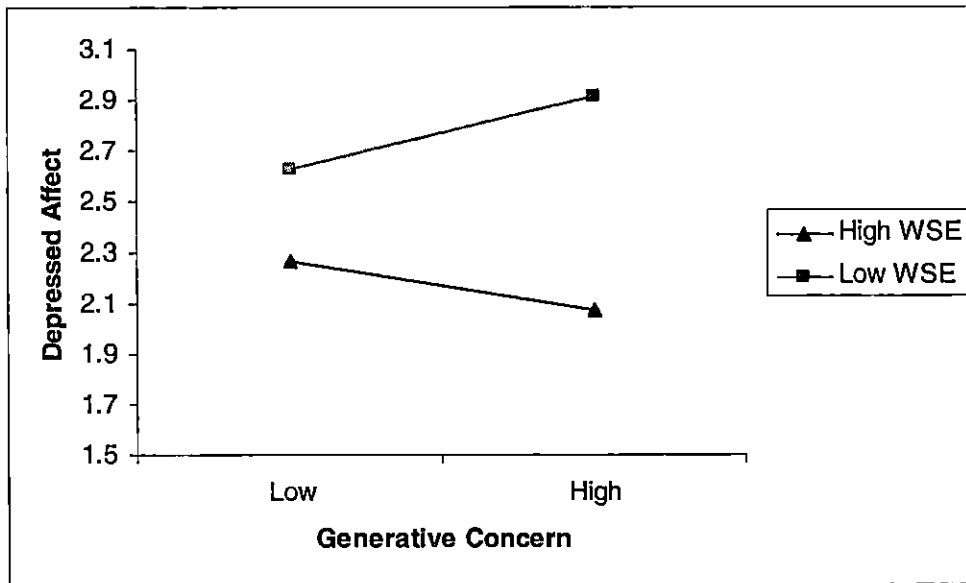


Figure 4.3. Plot of interaction between generative concern and whole-of-life self-evaluations of generativity (WSE): Criterion = depressed affect

Mention was made earlier of the possible existence of a suppressor effect involving generative self-evaluations and generative concern. This was indicated by the change in direction of the relationship between concern and well-being from positive to negative upon the entry of either current (in the case of integrity and depressed affect) or whole-of-life (depressed affect only) self-evaluations into the regression equations. As defined by Paulhus and his colleagues (Paulhus, Robins, Trzesniewski, & Tracy, 2004), a suppressor situation occurs when the addition of a second predictor to a model either changes the direction, or increases the magnitude, of the relationship between the first predictor and the criterion. Such changes are taken to mean that the presence of both variables in the model reveals the “true” relationship of each to the criterion by removing shared variance that suppresses this relationship. In the present case, therefore, it appeared that the addition of self-evaluations may have uncovered an underlying negative relationship between generative concern and integrity.

Aiken and West (1991), however, recommend caution in the interpretation of simple effects in the case of multiple regression analyses that result in significant interactions. In such cases, the simple effect of one variable does not represent its effect at all levels of the second variable, as would be the case if the interaction were not significant. Rather, it represents the effect of the first variable for individuals whose score is equivalent to the mean of the second variable. As shown in the analyses of the interaction effects, the nature of the relationship between concern and the well-being variables ranged from neutral to negative, depending on whether participants' scores on self-evaluations were above or below the mean.

4.4.3. Generative Self-Evaluations, Generative Behaviours and Well-being

4.4.3.1. Bivariate Correlational Analyses

Hypothesis 4.4 predicted that the generative behaviour, guiding and influencing, would be positively related to psychological well-being. Across the whole sample, the associated bivariate correlations with well-being variables were: $r = .18, p < .01$ with integrity, $r = -.03, ns$, with depressed affect, and $r = .31, p < .01$ with self-esteem (see Table 4.6). However, as noted earlier in the results section, the correlation between guiding and influencing and integrity was not significant for women. Thus, there was qualified support for Hypothesis 4.4 for two of the three well-being indicators. Concerning the other two behavioural variables, a small negative correlation was found between community service and depressed affect, $r = -.14, p < .05$. Given that acts of community service were more frequent among the

oldest age group, who in turn were less depressed than the youngest age group, it was suspected that this result might be a function of age, rather than of community service itself. The results of an analysis of covariance (age group x community service) supported this conjecture: $F(2, 279) = 12.15$, $MSE = 9.98$, $p < .001$, for age group, $F(1, 279) = 1.58$, $MSE = 1.28$, *ns*, for community service.

4.4.3.2. *Generative Self-Evaluations as a Mediator of the Effect of Generative Behaviour on Psychological Well-being*

Hypothesis 4.5 predicted that generative self-evaluations would partially mediate the effect of generative behaviour on psychological well-being. To test this hypothesis, hierarchical regression analyses were conducted in which the control variables, age and sex, were entered at Step 1, followed by the three behavioural variables at Step 2, and generative self-evaluations at Step 3. For these results, the initial effects of age and sex are not reported in the text, since they were the same as for the analyses in the previous section.

Integrity

The results for integrity are shown in Tables 4.13(a) and (b). As shown, the effect of guiding and influencing at Step 2 was significant and positive, $\beta = .21$, $p < .05$, but the effects of community service and childcare were nonsignificant. After the addition of self-evaluations ($\beta = .50$, for current, $\beta = .46$ for whole-of-life, $p < .001$ in both cases), the effect of guiding and influencing was also nonsignificant, while the effect of the other two behavioural variables remained unchanged. Thus, self-evaluations fully mediated the effect on integrity of guiding and influencing, but did not alter the effect of the other two behavioural variables.

When men and women were analysed separately, the initial regression coefficients for guiding and influencing were $\beta = .38$, $p < .01$, and $.10$, *ns*, for men and women respectively. Thus, it was only in men that current self-evaluations could potentially mediate the effect of guiding and influencing on integrity. With the addition of current self-evaluations in the regression model for men ($\beta = .50$), the coefficient for guiding and influencing became a nonsignificant $.10$, thus confirming mediation. When whole-of-life self-evaluations replaced current self-evaluations, on the other hand ($\beta = .40$), the coefficient for guiding and influencing was $.19$, $p = .07$, suggesting the possibility of only partial mediation.

Depressed Affect

Turning to depressed affect (Tables 4.14a and 4.14b), none of the behavioural variables was a significant predictor at Step 2. Neither the presence of current, nor the presence of whole-of-life, self-evaluations at Step 3 made any difference to these relationships. Thus, generative self-evaluations had no effect on the relationship between generative behaviour and depressed affect. As with the analyses involving generative concern and generative self-evaluations, the effect of age remained significant, $\beta = -.24$, for current self-evaluations, $\beta = -.22$ for whole-of-life self-evaluations, $p < .05$.

As noted earlier, bivariate correlational analyses had shown that the relationship between community service and depressed affect was significant for women only. Regression analyses conducted on data from women participants showed that, with age present in the model, this effect became nonsignificant, $\beta = -.08$, *ns*. Thus, as previously suggested, the significant, negative bivariate correlation

that was observed between community service and depressed affect could be attributed to age, rather than to community service itself.

Self-Esteem

Finally, when self-esteem was the criterion (Table 4.15), the initial effect of guiding and influencing on self-esteem was strong and positive, $\beta = .42$, $p < .001$, but the effects of community service and childcare were again nonsignificant. With the addition of self-evaluations at Step 3 ($\beta = .64$ for current, $\beta = .52$ for whole-of-life), the effect of guiding and influencing was considerably reduced, but remained significant, $\beta = .13$, $p = .05$, for current self-evaluations, $\beta = .20$, $p < .05$, for whole-of-life self-evaluations. In addition, the effects of community service and childcare became significant and *negative*, although the relationships were small in magnitude, $\beta = -.11$ and $-.13$, $p < .05$, respectively. Thus, self-evaluations substantially, but not totally, mediated the effect of guiding and influencing on self-esteem, and appeared to act as a suppressor of the effect of community service and childcare.

As reported earlier, the bivariate correlation between guiding and influencing and self-esteem was stronger in men (.44) than in women (.19). As with integrity, therefore, additional analyses were conducted for men and women separately. In both cases, when the effect of age was controlled, the initial effect of guiding and influencing was greater than indicated by the bivariate correlation, $\beta = .52$ for men, and $\beta = .33$ for women, $p < .001$ in both cases. When current self-evaluations was added to the model ($\beta = .62$ for men, $\beta = .52$ for women), the effect of guiding and influencing was reduced to $.17$, $p = .06$, for men, and $\beta = .09$, *ns*, for women. When whole-of-life self-evaluations was added ($\beta = .53$ for men, $\beta = .47$ for women), the

residual coefficients for guiding and influencing were somewhat larger, $\beta = .26, p < .05$, for men, and $\beta = .12, ns$, for women. Overall, there was evidence of total mediation for women but not for men. Interestingly, when either current or whole-of-life self-evaluations was present in the model, the negative effect of community service on self-esteem was present only in women ($\beta = -.14 / -.17$, respectively, $p < .05$), while that of childcare was present only in men ($\beta = -.20 / -.19, p < .05$).

Summary

The analyses in this section were designed to test the hypothesis that the relationship between guiding and influencing and psychological well-being would be mediated by generative self-evaluations. The degree of support for this hypothesis varied among the well-being criteria. After controlling for the effect of age, guiding and influencing was moderately (women) to strongly (men) related to self-esteem, and was also significantly related to integrity in men. However, it was unrelated to integrity in women or to depressed affect in either men or women. The effect of guiding and influencing on integrity in men was mediated by self-evaluations of current generativity, and was partially mediated by self-evaluations of whole-of-life generativity. Both current and whole-of-life self-evaluations partially mediated the effect of guiding and influencing on self-esteem in men, and totally mediated the effect in women.

Table 4.13. Regression of Integrity on Generative Behaviour, Generative Self-Evaluations and Interaction Terms

(a) Current self-evaluations

<i>Model</i>		<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR ²	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	43.27	1.54		28.03***	.01	.00	.01	1.35	2	280
	Age	.01	.03	.03	.51						
	Sex	-1.74	1.12	-.09	-1.55						
2	(Constant)	37.75	2.17		17.38***	.05	.04	.04	4.24**	3	277
	Age	.05	.03	.11	1.59						
	Sex	-1.23	1.12	-.07	-1.10						
	Guiding & influencing	.62	.20	.21	3.11**						
	Community service	-.16	.29	-.04	-.55						
	Childcare	.31	.25	.07	1.24						
3	(Constant)	24.26	2.60		9.32***	.23	.21	.17	62.46***	1	276
	Age	-.01	.03	-.01	-.23						
	Sex	-1.54	1.01	-.08	-1.51						
	Guiding & influencing	-.15	.21	-.05	-.72						
	Community service	-.32	.26	-.07	-1.22						
	Childcare	.12	.23	.03	.51						
	Current SE ¹	.44	.06	.50	7.90***						

¹SE = self-evaluations of generativity. ** $p < .01$; *** $p < .001$.

Table 4.13 (cont.).

(b) Whole-of-life self-evaluations

<i>Model</i>		<i>B</i>	<i>SE B</i>	β	<i>t</i>	R^2	<i>Adj. R</i> ²	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	43.27	1.54		28.03***	.01	.00	.01	1.35	2	280
	Age	.01	.03	.03	.51						
	Sex	-1.74	1.12	-.09	-1.55						
2	(Constant)	37.75	2.17		17.38***	.05	.04	.04	4.24**	3	277
	Age	.05	.03	.11	1.59						
	Sex	-1.23	1.12	-.07	-1.10						
	Guiding & influencing	.62	.20	.21	3.11**						
	Community service	-.16	.29	-.04	-.55						
	Childcare	.31	.25	.07	1.24						
3	(Constant)	23.19	2.81		8.26***	.21	.19	.15	53.94***	1	276
	Age	-.02	.03	-.04	-.59						
	Sex	-1.56	1.03	-.08	-1.51						
	Guiding & influencing	-.02	.20	-.01	-.10						
	Community service	-.34	.27	-.08	-1.29						
	Childcare	.19	.23	.04	.81						
	Whole-of-life SE ¹	.55	.08	.46	7.34***						

¹SE = self-evaluations of generativity; ** $p < .01$; *** $p < .001$.

Table 4.14. Regression of Depressed Affect on Generative Behaviour, Generative Self-Evaluations and Interaction Terms

(a) Current self-evaluations

<i>Model</i>		<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>R</i> ²	<i>Adj. R</i> ²	<i>R</i> ²	<i>F</i>	<i>df1</i>	<i>df2</i>
1	(Constant)	2.54	.15		16.89***	.10	.09	.10	15.55***	2	28
	Age	-.01	.00	-.31	-5.41***						
	Sex	.14	.11	.07	1.25						
2	(Constant)	2.88	.21		13.46***	.12	.10	.02	1.98	3	277
	Age	-.01	.00	-.33	-5.02***						
	Sex	.11	.11	.06	.97						
	Guiding & influencing	-.03	.02	-.11	-1.77						
	Community service	-.02	.03	-.03	-.55						
	Childcare	-.02	.03	-.05	-.89						
3	(Constant)	3.92	.27		14.66***	.22	.20	.10	35.17***	1	276
	Age	-.01	.00	-.24	-3.71***						
	Sex	.13	.10	.07	1.25						
	Guiding & influencing	.02	.02	.08	1.16						
	Community service	.00	.03	-.01	-.12						
	Childcare	-.01	.02	-.02	-.30						
	Current SE ¹	-.03	.01	-.37	-5.93***						

¹SE = self-evaluations of generativity; ****p* < .001.

Table 4.14 (cont.)

(b) Whole-of-life self-evaluations

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>B</i>	<i>t</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	2.54	.15		16.89***	.10	.09	.10	15.55***	2	28
	Age	-.01	.00	-.31	-5.41***						
	Sex	.14	.11	.07	1.25						
2	(Constant)	2.88	.21		13.46***	.12	.10	.02	1.98	3	277
	Age	-.01	.00	-.33	-5.02***						
	Sex	.11	.11	.06	.97						
	Guiding & influencing	-.03	.02	-.11	-1.77						
	Community service	-.02	.03	-.03	-.55						
	Childcare	-.02	.03	-.05	-.89						
3	(Constant)	3.97	.29		13.81***	.20	.19	.08	28.97***	1	276
	Age	-.01	.00	-.22	-3.37**						
	Sex	.13	.11	.07	1.25						
	Guiding & influencing	.01	.02	.04	.64						
	Community service	.00	.03	.00	-.07						
	Childcare	-.01	.02	-.03	-.54						
	Whole-of-life SE ¹	-.04	.01	-.34	-5.38***						

¹SE = self-evaluations of generativity; ** $p < .01$; *** $p < .001$.

Table 4.15. Regression of Self-Esteem on Generative Behaviour, Generative Self-Evaluations and Interaction Terms

(a) Current self-evaluations

<i>Model</i>		<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	<i>F Ch</i>	<i>df1</i>	<i>df2</i>
1	(Constant)	40.93	.83		49.24***	.03	.02	.03	4.58**	2	28
	Age	.03	.01	.13	2.13*						
	Sex	-1.27	.60	-.12	-2.11*						
2	(Constant)	36.17	1.11		32.71***	.17	.16	.14	15.59***	3	277
	Age	.07	.02	.30	4.64***						
	Sex	-.63	.57	-.06	-1.10						
	Guiding & influencing	.69	.10	.42	6.79***						
	Community service	-.16	.15	-.07	-1.12						
	Childcare	-.19	.13	-.08	-1.45						
3	(Constant)	27.75	1.25		22.24***	.40	.39	.23	106.01***	1	276
	Age	.04	.01	.16	2.77						
	Sex	-.82	.49	-.08	-1.69						
	Guiding & influencing	.21	.10	.13	2.13*						
	Community service	-.27	.13	-.11	-2.11*						
	Childcare	-.31	.11	-.13	-2.80*						
	Current SE ¹	.27	.03	.57	1.30						

¹SE = self-evaluations of generativity; * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 4.15 (cont.).

(b) Whole-of-life self-evaluations

<i>Model</i>		<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	<i>F Ch</i>	<i>df1</i>	<i>df2</i>
1	(Constant)	40.93	.83		49.24***	.03	.02	.03	4.58**	2	28
	Age	.03	.01	.13	2.13*						
	Sex	-1.27	.60	-.12	-2.11*						
2	(Constant)	36.17	1.11		32.71***	.17	.16	.14	15.59***	3	277
	Age	.07	.02	.30	4.64***						
	Sex	-.63	.57	-.06	-1.10						
	Guiding & influencing	.69	.10	.42	6.79***						
	Community service	-.16	.15	-.07	-1.12						
	Childcare	-.19	.13	-.08	-1.45						
3	(Constant)	27.88	1.39		19.99***	.34	.33	.17	70.98***	1	276
	Age	.03	.01	.14	2.37*						
	Sex	-.82	.51	-.08	-1.60						
	Guiding & influencing	.33	.10	.20	3.23**						
	Community service	-.27	.13	-.11	-2.03*						
	Childcare	-.26	.12	-.11	-2.24*						
	Whole-of-life SE ¹	.31	.04	.48	8.42***						

¹SE = self-evaluations of generativity; * $p < .05$; ** $p < .01$; *** $p < .001$.

4.5. Discussion

The aim of Chapter 4 was to examine the effects of self-evaluations of generativity, generative concern and generative behaviour on psychological well-being (integrity, depressed affect and self-esteem) across a sample of young, midlife and older adults. Overall, it found that generative self-evaluations, whether current or whole-of-life, was a stronger predictor of well-being than was either generative concern or generative behaviour. Consistent with hypotheses, generative self-evaluations moderated the effect of generative concern on two of the well-being indicators, integrity and depressed affect. In men, it also mediated the effect of the generative behaviour, guiding and influencing, on integrity, and partially mediated its effect on self-esteem. In women, the effect of guiding and influencing on self-esteem was totally mediated by self-evaluations.

The implications of these findings are discussed in the following sections, together with limitations of the study and suggestions for future research.

4.5.1. Generative Self-Evaluations, Generative Concern and Well-being

4.5.1.1. Relative Strength of the Relationship between Generative Self-Evaluations, Generative Concern and Well-being

The first aim of this chapter was to test the hypothesis that generative self-evaluations would be a stronger predictor of psychological well-being than would generative concern. The results strongly supported this hypothesis. Bivariate correlations between both current and whole-of-life self-evaluations and well-being

were significantly stronger than those between generative concern and well-being. Moreover, self-evaluations of generativity accounted for substantial proportions of the variance in integrity, depressed affect and self-esteem, while, in contrast, the proportions of variance accounted for by generative concern were small. Overall, the findings were consistent with the view that positive generative self-evaluations per se predict well-being, thereby challenging the notion that generative concern is responsible for the link between generativity and psychological well-being (e.g., de St. Aubin & McAdams, 1995). Furthermore, like the measures of generativity self-evaluation, LGS scores were also more highly correlated with the well-being measures than was the measure of generative concern. This finding provided further support for the view set forth in this thesis that the LGS is more properly viewed as a measure of generative self-evaluation than of generative concern (see also Keyes & Ryff, 1998).

The extent to which well-being was predicted by generative self-evaluations varied according to the criterion of well-being under investigation. Although the overall relationship was apparently strongest for self-esteem, generative self-evaluations accounted for most of the *explained* variance in integrity. While it could be suggested that the latter results may reflect shared method variance, it is worth noting that the generative concern, generative self-evaluation and integrity items were all rated on an identical 7-point scale, and generative concern was only weakly correlated with integrity. The results are, however, consistent with the implications of Eriksonian theory (Erikson, 1963), and with other studies showing strong associations between generativity and integrity (e.g., Hannah, Domino, Figueredo, & Hendrickson, 1996; James & Zarrett, 2005b). That is, integrity may be seen as a

positive developmental consequence of positive generative accomplishments (Stewart & Vandewater, 1998) or generative realisation (Peterson, 1998).

Generative self-evaluations accounted for considerably less variance in depressed affect than in either integrity or self-esteem. This could reflect the short time-frame used as the referent for depressed affect (i.e., the past two weeks), since it is likely that, under normal circumstances, levels of positive or negative affect may fluctuate in response to life events. In addition, depressed affect was strongly associated with age, and these age effects were not accounted for by the generativity variables.

As mentioned earlier, the effect of self-evaluations was particularly strong in the case of self-esteem. This leads to the speculation that positive generative self-evaluations may be a consequence, as well as, or rather than, a predictor, of self-esteem. Prior research has regarded self-esteem, not only as a well-being outcome, but also as an individual difference characteristic (e.g., a psychological resource; Luszcz, 1998; Thoits, 1995) that may protect against psychological distress or influence other aspects of well-being, such as morale and affect. In any case, the especially high relationship between current self-evaluations and self-esteem leads to the conjecture that their relationship might be reciprocal rather than unidirectional. That is, initially high self-esteem might foster positive self-assessments of generativity, which in turn, could further boost self-esteem. Indeed, some degree of self-esteem may be necessary to engage in some types of generative activity, such as guiding and influencing others. Longitudinal research would help to tease out these kinds of reciprocal relationships.

4.5.1.2. Interaction between Generative Self-Evaluations and Generative Concern

An important aim of Chapter 4 was to determine whether generative self-evaluations would moderate the relationship between generative concern and well-being. For two of the criteria, integrity and depression, a small, but significant, interaction between generative concern and current self-evaluations of generativity was observed, while for depressed affect a significant interaction was also found between generative concern and whole-of-life self-evaluations. In all cases, the interaction was such that, for individuals with low generative self-evaluations, the presence of high generative concern further reduced well-being. In practical terms, this means that participants with high self-evaluations experienced contentment and positive affect, regardless of their levels of generative concern: being preoccupied with generativity neither added to nor detracted from these feelings. However, for those with low self-evaluations, low levels of well-being were further undermined by the presence of high levels of concern: these participants experienced the lowest levels of integrity and the highest levels of depressed affect.

Why might this have been the case? One might speculate that participants who fell into the latter category had the desire or will to make a contribution, but perceived that they had been unsuccessful in doing so. As a result they may have suffered from the sense that their contributions were not only less valuable than those of others (as was presumably the case for all participants with low self-evaluations), but also fell short of the criterion demanded by the participants' own values and aspirations. In other words, whatever tendency they may have had to experience generative failure may have been exacerbated by the sense of being unable to fulfil their generative desires or responsibilities. Such a notion is consistent with self-

discrepancy theory (Higgins, 1987), which posits that feelings of dejection result when one's actual self is perceived to fall short of one's desired self.

Another possible reason for the disadvantage suffered by these participants is that their failure to create the generative impact that they desired may have highlighted a perceived lack of generative capacity (Stewart & Vandewater, 1998) or opportunity (McAdams & de St. Aubin, 1992; McAdams, Hart, & Maruna, 1998). Stewart and Vandewater conceive of generative capacity not only as a sense of a widening sphere of generative influence, but also of an increased level of productivity or effectiveness (e.g., Zucker, Ostrove, & Stewart, 2002), suggesting the ability to bring generative tasks or projects to fruition. It is likely that such a capacity depends on a range of physical, personal and social resources (cf. Keyes & Ryff, 1998), the lack of which may limit the range of one's generative enterprises, as well as the success of one's generative endeavours. One can think of many possible examples. Material poverty may restrict the type of opportunities one can create for one's children; a lack of interpersonal skills (e.g., empathy, insight, assertiveness) may prevent one from having a positive impact on others; poor health may deter one from undertaking challenging generative projects; the absence of particular technical or professional skills may curtail one's capacity; and impoverished psychological resources such as optimism or self-efficacy (cf., Peterson, 1998) may limit belief in one's ability to persevere with difficult or demanding generative tasks. The list could go on. In any case, for people with a high level of generative desire, such limitations in generative capacity may be experienced as particularly discouraging or frustrating (cf., Peterson, 1998).

A discrepancy between desire and impact may also reflect a lack of generative opportunity (McAdams & de St. Aubin, 1992). As described in Chapter 1, generative

opportunities are shaped by societal values and mores (McAdams & de St. Aubin, 1992; McAdams, Hart, & Maruna, 1998) as well as by one's role involvements (MacDermid, De Haan, & Heilbrun, 1996; MacDermid, Franz, & De Reus, 1998; MacDermid, Heilbrun, & DeHaan, 1997) and possibly also by the composition of one's social networks. Together, the perceived absence of generative capacity and generative opportunity may create an expectation that one's future generative efforts will be thwarted, or result in failure.

It should be noted that an alternative interpretation of the observed interactions between generative concern and generative self-evaluations is plausible: generative concern may have acted as a moderator of the relationship between generative self-evaluations and psychological well-being. That is, while the impact of generative self-evaluations on well-being may be positive regardless of whether individuals possess high or low levels of generative concern, it may nevertheless be stronger if generative concern is high. Thus, individuals with high levels of generative concern may care more about their generative contributions than individuals with low levels of generative concern, so that the influence of these contributions on their overall self-evaluations may be stronger.

In the case of self-esteem, the effect of concern net of self-evaluations was nonsignificant, as was the interaction between concern and self-evaluations. Since the bivariate relationship between concern and self-esteem was positive, this finding suggests that generative self-evaluations may have mediated, rather than moderated, the effect of concern on self-esteem. This means that the relationship between generative concern and self-esteem was due to the shared variance between concern and self-evaluations. It is not clear why the bivariate relationship between generative

concern and self-esteem should have been stronger than that between concern and either depressed affect or integrity.

In the analysis of integrity involving current self-evaluations, the residual effect of concern was significant, but opposite in direction to that expressed by the bivariate correlation. That is, the effect of concern became negative upon the inclusion of current self-evaluations in the model. As previously mentioned, these results suggest the presence of a suppressor effect (Paulhus, Robins, Trzesniewski, & Tracy, 2004). That is, the relationship between concern and self-evaluations appears to have masked an underlying negative relationship between concern and integrity. Aside from the reasons already proffered (e.g., generative dissatisfaction, frustration, failure), one might speculate as to the reason, particularly since it applied only to current self-evaluations, and not to whole-of-life self-evaluations. One possibility is that, being more highly correlated with generative concern than was whole-of-life self-evaluations, current self-evaluations accounted for more of the variance in integrity that was also shared with generative concern.

4.5.1.3. Generative Behaviour, Generative Self-Evaluations and Well-being

Three types of generative behaviour were under investigation, guiding and influencing, childcare and community service. The aim was to determine whether these behaviours were correlated with psychological well-being, and if so, to what extent this relationship was mediated by self-evaluations.

Across the whole sample, guiding and influencing was positively correlated with integrity and self-esteem, and was also substantially correlated with self-evaluations. However, separate analyses showed that the correlation between guiding and influencing and integrity was significant in men, but not in women. Moreover,

even though bivariate correlations were significant for both sexes, the relationship between guiding and influencing and self-esteem was significantly stronger in men than in women. Together with the finding that male participants performed more guiding and influencing acts than women (see Chapter 3), these results suggest that engaging in the behaviours associated with the position of mentor or guide (or supervisor or boss) may represent a particularly important and psychologically advantageous form of generative expression in men.

Generative self-evaluations mediated the effect of guiding and influencing on integrity in men (in women there was no relationship to mediate), and on self-esteem in both women and men. These findings supported our initial assumption that the relationship between guiding and influencing and well-being is at least partly due to its relationship with self-evaluations: that is, generative behaviour promotes well-being because it also promotes positive assessments of one's generative impact and contributions. However, mediation of the relationship with self-esteem was total in women, but only partial in men. Again, this points to the possible psychological importance of guiding and influencing for men.

Two of the behaviours subsumed within the guiding and influencing factor deserve special attention. These were "developed a plan for an organisation outside my own family" and "produced or created something original". Both behaviours appear to encompass creativity, which represents the productive or agentic aspect of generativity (McAdams & de St. Aubin, 1992). In addition, the former also points to the possibility of exercising influence in a public sphere, either civic or work-related. As suggested in the introduction to this chapter, these kinds of behaviours may offer potential for public recognition and authority, which in turn may help foster and maintain self-esteem.

Concerning the other components of generative behaviour, bivariate analyses indicated that community service was negatively correlated with depressed affect in women. However, this relationship was eliminated by the inclusion of age in regression analyses, which suggests that in women, performing more acts of community service and being less depressed may both be a function of being older.

The effect of community service on self-esteem, net of generative self-evaluations, was negative in women, while a similar effect concerning childcare in men was found. These findings, particularly the latter, were somewhat surprising and difficult to explain. It could be that engaging with children is seen as an “out-of-role” behaviour among some men, or may be associated with a lack of self-confidence.

Overall, the three types of generative behaviour that were initially identified in Chapter 2 were differentially related to well-being, just as they were shown to be differentially related to age in Chapter 3.

4.5.2. Conclusion

This chapter has analysed the extent to which generative concern, generative behaviour and generative self-evaluations predict well-being. Overall, it found support for the hypothesis that generative self-evaluations is a stronger predictor of psychological well-being than is generative concern, and that generative self-evaluations may also moderate the influence of generative concern on integrity and depressed affect. The generative behaviour, guiding and influencing was related to self-esteem in both men and women, and also to integrity in men, and as expected, generative self-evaluations played a mediating role in these relationships.

The following chapter, Chapter 5, further explores the relationship between generativity and psychological well-being by examining the moderating role of age.

Chapter 5 Age and the Relationship between Generativity and Well-being

5.1. Overview

The previous chapter examined the relationships linking generative self-evaluations, concern and behaviour to psychological well-being. It found that overall, generative self-evaluations was a stronger predictor of integrity, depressed affect and self-esteem than was generative concern or generative behaviour. In this chapter the possible age-related differences between current and whole-of-life self-evaluations that were proposed in Chapter 3 are further investigated. Moderated multiple regression analyses were used to identify age-group differences both in the degree to which these two dimensions of generativity would predict well-being themselves and in the extent to which they moderated the effect of generative concern on well-being.

5.2. Introduction

As discussed in Chapter 1, Erikson's (Erikson, 1963, 1980) original notion that the psychosocial imperative for generativity assumes its greatest importance during middle adulthood implies that age moderates the relationship between generativity and well-being. Thus, Erikson's model suggests that generativity should exert its strongest impact on well-being during middle adulthood rather than during younger or older adulthood. Stewart and Vandewater (1998) extend this notion by proposing that the relationships linking the components of generativity (desire, capacity and accomplishment) to well-being may be *differentially* moderated by age. As described

in Chapter 1, their model suggests that the relationship between (generative) desire and psychological well-being becomes progressively negative with age, that between accomplishment and well-being becomes progressively positive with age, and the relationship between capacity and well-being is at its strongest during midlife. Thus, in Stewart and Vandewater's (1998) formulation, it is primarily the relationship between generative capacity and well-being that is hypothesised to demonstrate the predicted Eriksonian pattern. As discussed in Chapters 1 and 2, however, Stewart and Vandewater (1998) failed to find any relationship between their measure of midlife generative capacity and midlife well-being. This led to the decision in this thesis to investigate self-evaluations of current generativity, instead of generative capacity, as an indicator of self-assessed midlife generativity.

In Chapter 4, generative self-evaluations, whether current or whole-of-life were found to predict psychological well-being in a sample of young, midlife and older adults. However, assuming that generativity is developmental in nature, the importance to well-being of the differing temporal foci of self-evaluations may be expected to differ between age groups. Applying the predictions associated with Stewart and Vandewater's (1998) notions of capacity and accomplishment, respectively, current self-evaluations – of the legacy that one *is* creating – could be expected to be of special importance to well-being in midlife adults, while whole-of-life self-evaluations – of the legacy that one *has created* – could be expected to be of particular importance to well-being in older adults. In younger adults, on the other hand, because the formation of a legacy is still in its earliest stages, current and whole-of-life self-evaluations of generativity should be of equivalent, rather than differing, importance.

It will be recalled that in Stewart and Vandewater's formulation, the proposed effect of age on the relationship between generativity and well-being is linked to changes in the prominence of the components as individuals pass from young, through middle to older adulthood. These changes in prominence are reflected in the diverging patterns of age-cohort differences that are assumed to characterise the various components (see Chapter 3). Thus, for example, the assumed importance of generative capacity (in Stewart and Vandewater's model) to midlife well-being is reflected by its prominence in midlife adults, both in comparison to corresponding levels in younger and older adults, and relative to other components of generativity in midlife adults themselves. Conversely, the particular importance of generative accomplishment in older adulthood is reflected by the hypothetical prominence of generative accomplishment in that age group, both relative to other aspects of generativity, and in comparison with younger and older age groups.

Applying similar logic to the current study, therefore, it could be expected that age-cohort differences in the importance to well-being of current and whole-of-life self-evaluations of generativity will also reflect the patterns of age-cohort differences observed in the components themselves (see Chapter 3). Thus, because the midlife adults in this study reported higher self-evaluations of current generativity than did younger and older adults, it could be anticipated that current self-evaluations would be of greater importance to their well-being than to that of younger or older adults. Similarly, because midlife and older adults showed higher self-evaluations of whole-of-life generativity than did younger adults, the contribution to well-being of whole-of-life self-evaluations could be expected to be higher in the two older groups than in the younger group.

Stated formally, the resulting hypotheses are as follows:

H5.1. The relationship between current self-evaluations and psychological well-being will be stronger (more positive) for midlife adults than for (a) younger and (b) older adults.

H5.2. The relationship between whole-of-life self-evaluations and psychological well-being will be stronger (more positive) for (a) midlife and (b) older adults than for younger adults.

Regarding the relationship between generative concern and psychological well-being, Stewart and Vandewater (1998) speculate that the importance of the related construct, generative desire, changes with age, such that it is unrelated to psychological well-being in younger adulthood, and negatively related to it in middle (and presumably older) adulthood. As discussed in Chapter 1, their own results give some support for this notion: they found that a generative desire for productivity was unrelated to psychological well-being in early adulthood, but negatively related to it at midlife. However, as described in Chapter 4, the present thesis proposes that, in an overall sense, the relationship between generative concern and well-being may depend on prior (or existing) levels of generative realisation or accomplishment. It is therefore proposed that it is the strength of the *interaction* between concern and self-evaluations that may differ by age, rather than the strength of the direct relationship between concern and well-being.

Hypotheses concerning these interaction effects were again guided by the differing patterns of age group differences that were observed in Chapter 3 between current and whole-of-life self-evaluations. Accordingly, the effect of current self-

evaluations on the relationship between concern and well-being was expected to be stronger in midlife adults than in either younger or older adults. Secondly, the effect of whole-of-life self-evaluations on the relationship between concern and well-being was expected to be stronger in older and midlife adults than in younger ones.

Formally stated, these hypotheses are as follows:

H 5.3: The moderating effect of current self-evaluations on the relationship between concern and psychological well-being will be stronger in midlife adults than in (a) younger and (b) older adults.

H5.4: The moderating effect of whole-of-life self-evaluations on the relationship between concern and psychological well-being will be stronger in (a) midlife and (b) older adults than in younger adults.

5.3. Method

Participants and measures are the same as for Chapter 4. Details are contained in Tables 4.1-4.4.

5.4. Results

As in Chapter 4, hypotheses were tested using moderated multiple regression analysis. Hypotheses relating to group differences in the effect of self-evaluations of current generativity, and the current self-evaluations by generative concern interaction were tested first, followed by tests of the group differences in the effects

of self-evaluations of whole-of-life generativity, and the interaction between whole-of-life self-evaluations and generative concern.

To test the proposed interaction effects, it was necessary to create age-coded dummy variables which could be used to create age group by generativity interaction terms. The creation of dummy variables and their interaction terms not only allowed for the testing of effect significance, but also enabled comparison of effects between age groups (Aiken & West, 1991). Because there were three age groups (young, middle, old), two dummy variables were created for each analysis (the number of groups minus one; see Aiken & West, 1991), with the third (uncoded) age group forming the reference or comparison group. For each of the two dummy variables in any given analysis, the age group to be contrasted with the comparison group was coded as 1, while the comparison group and the age group not involved in the comparison were coded as 0.

Age group by self-evaluation interaction terms were created by multiplying the age-coded dummy variables by current and whole-of-life self-evaluations, respectively (both of which had been previously centred, according to the recommendations of Aiken & West, 1991; see Chapter 4). Although no specific hypotheses concerning age by concern interactions were formulated, interaction terms were created for these also. This was because Aiken and West (1991) recommend entering all two-way interaction terms into the model before testing a three-way interaction. Finally, age by self-evaluations by concern interaction terms were created. Thus, each regression equation ultimately contained 11 predictors (plus the control variable, sex,), which were entered in two steps as follows: (1) sex, age group 1, age group 2, self-evaluations (current or whole-of-life) age group 1 x self-

evaluations, age group 2 x self-evaluations (Hypothesis 5.1/5.2); and (2) concern, age group 1 x concern, age group 2 x concern, concern by self-evaluations, age group 1 x concern x self-evaluations, age group 2 x concern x self-evaluations (Hypothesis 5.3/5.4).

5.4.1. Analyses Involving Age Group, Current Self-Evaluations of Generativity and Generative Concern

Section 5.4.1 describes the results of regression analyses testing the interactions between age group and current generative self-evaluations (H5.1), and between age group, current generative self-evaluations, and generative concern (H5.3). For these regression analyses, midlife participants formed the comparison group. In each table, the results in the top section pertain to H5.1, those in the bottom section to H5.3.

Table 5.1(a) shows the results of the regression analyses for integrity. As shown in the top section of the table, the effect of current generative self-evaluations was strong and positive, $\beta = .49$, $p < .001$, but neither of the two age group by self-evaluations interaction effects were significant. Thus, in the case of integrity, the hypothesis that the effect of current self-evaluations of generativity would be stronger in midlife adults than in either younger or older adults was not supported.

Turning to the bottom section of the table, the interaction between generative concern and generative self-evaluations, net of the effects of both age group, and the three-way interactions involving age group, concern and self-evaluations, was significant, $\beta = .30$, $p < .001$. The coefficient was also somewhat larger than had been the case for the whole sample ($\beta = .11$, $p < .05$; see Chapter 4), suggesting that the effect of the concern by current self-evaluations interaction was stronger for midlife

adults than for the group as a whole. Consistent with this interpretation, the three-way interaction between young adulthood, generative concern and current generative self-evaluations was significant and negative, $\beta = -.19, p < .05$, while the corresponding effect for older adulthood approached significance, $\beta = -.13, p = .08$. In both cases, the results indicated that the interaction between concern and current self-evaluations was weaker than for midlife adults. Thus, H5.3a (involving younger adults) was supported, while H5.3b (involving older adults) received qualified support.

Table 5.1(b) shows the results of the regression analyses when depressed affect was the criterion. In this case, neither H5.1 nor H5.3 was supported. As the top section of the table shows, in midlife adults, the effect of current self-evaluations on depressed affect was moderately strong and negative, $\beta = -.36, p < .001$. However, neither of the two age group by self-evaluation interaction effects was significant, indicating that the effect of self-evaluations on depressed affect was not stronger for midlife adults than for younger or older adults.

The bottom section of the table shows that although the interaction between generative concern and current self-evaluations was significant (and slightly stronger for midlife adults [$\beta = -.19$] than for the sample as a whole [$\beta = -.11$]; see Chapter 4), the age group by concern by self-evaluations interaction effects were not significant. Thus, the hypothesis that the effect of the concern by current self-evaluations interaction would be stronger in midlife adults than in either younger or older adults was not supported.

Table 5.1(c) shows the results for self-esteem. The effect of current self-evaluations in midlife adults was strong and positive, $\beta = .53, p < .001$, but neither of

the two age group by self-evaluations terms was significant, failing to support H5.1. Concerning H.5.3, none of the interaction effects involving current self-evaluations by generative concern were significant. Thus, current generative self-evaluations did not moderate the effect of generative concern on self-esteem in any of the age groups, and H5.3 was not supported.

Table 5.1(a). Regression of Integrity on Age, Generative Concern, Self-Evaluations of Current Generativity and Interaction Terms: Midlife as Comparison Group.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	42.98	1.04		41.45***	.48	.23	.21	.23	13.52**	6	276
	Sex	-1.53	1.01	-.08	-1.52					*		
	Age = young	1.08	1.26	.06	.85							
	Age = old	1.14	1.26	.06	.91							
	CSE	.43	.08	.49	5.14***							
	Young x CSE	-.08	.12	-.05	-.70							
	Old x CSE	.05	.12	.03	.40							
2	(Constant)	40.58	1.15		35.16***	.53	.28	.25	.05	3.43**	6	270
	Sex	-1.22	1.00	-.06	-1.23							
	Age = young	3.32	1.43	.17	2.32*							
	Age = old	3.11	1.42	.16	2.19*							
	CSE	.60	.10	.68	5.76***							
	Young x CSE	-.23	.14	-.15	-1.64							
	Old x CSE	-.02	.14	-.01	-.11							
	Concern	-.45	.19	-.27	-2.45**							
	CSE x concern	.04	.01	.30	3.37***							
	Young x concern	.39	.26	.14	1.50							
	Old x concern	.08	.28	.02	.28							
	Young x CSE x concern	-.04	.02	-.19	-2.28*							
	Old x CSE x Concern	-.04	.02	-.13	-1.77 [†]							

[†] $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note CSE = Self-Evaluations of Current Generativity.

Table 5.1(b). Regression of Depressed Affect on Age, Generative Concern, Current Self-Evaluations and Interaction Terms: Midlife as Comparison Group.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	1.89	.11		17.86	.48	.23	.21	.23	13.70**	6	276
	Sex	.13	.10	.07	1.29					*		
	Age = young	.32	.13	.16	2.50**							
	Age = old	-.36	.13	-.18	-2.80**							
	CSE	-.03	.01	-.36	-3.78***							
	Young x CSE	.01	.01	.09	1.20							
	Old x CSE	-.01	.01	-.07	-.89							
2	(Constant)	2.01	.12		16.72	.51	.26	.22	.03	1.66	6	270
	Sex	.12	.10	.06	1.18							
	Age = young	.18	.15	.09	1.19							
	Age = old	-.42	.15	-.21	-2.84**							
	CSE	-.03	.01	-.38	-3.18***							
	Young x CSE	.01	.01	.04	.39							
	Old x CSE	-.01	.01	-.03	-.38							
	Concern	.00	.02	.02	.20							
	CSE x concern	.00	.00	-.19	-2.09*							
	Young x concern	.03	.03	.11	1.18							
	Old x concern	-.02	.03	-.05	-.55							
	Young x CSE x concern	.00	.00	.12	1.43							
	Old x CSE x Concern	.00	.00	.04	.56							

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note CSE = Self-Evaluations of Current Generativity.

Table 5.1(c). Regression of Self-Esteem on Age, Generative Concern, Current Self-Evaluations and Interaction Terms: Midlife as Comparison Group.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	42.65	.51		84.35	.62	.38	.37	.38	28.22***	6	276
	Sex	-.95	.49	-.09	-1.93							
	Age = young	-.91	.61	-.09	-1.49							
	Age = old	-.15	.61	-.01	-.24							
	CSE	.25	.04	.52	6.12***							
	Young x CSE	.09	.06	.11	1.58							
	Old x CSE	-.02	.06	-.02	-.35							
2	(Constant)	42.18	.58		72.82	.62	.39	.36	.01	.73	6	270
	Sex	-.84	.50	-.08	-1.68							
	Age = young	-.37	.72	-.03	-.52							
	Age = old	.13	.71	.01	.18							
	CSE	.28	.05	.59	5.39							
	Young x CSE	.08	.07	.10	1.17							
	Old x CSE	-.03	.07	-.03	-.35							
	Concern	-.08	.09	-.09	-.91							
	CSE x concern	.01	.01	.10	1.26							
	Young x concern	.00	.13	.00	.00							
	Old x concern	-.01	.14	.00	-.06							
	Young x CSE x concern	-.01	.01	-.08	-1.06							
	Old x CSE x Concern	.00	.01	-.03	-.37							

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note CSE = Self-Evaluations of Current Generativity.

Analysis of Significant Interaction between Age Group, Current Self-Evaluations of Generativity and Generative Concern in Prediction of Integrity

To understand the three-way interaction between age group, current self-evaluations of generativity and generative concern, additional regression analyses were undertaken. These were designed to calculate within each age group the simple slopes characterising the concern-integrity relationship at high and low values of current self-evaluations, respectively. The analyses also provided a test of significance for each slope (Aiken & West, 1991). As was the case in Chapter 4, in each analysis a variable corresponding to either one standard deviation above or one standard deviation below the mean of current self-evaluations was entered into the equation, along with the corresponding self-evaluations by concern interaction term (i.e., concern by low self-evaluations, concern by high self-evaluations). New interaction terms were created from the product of these variables and the dummy-coded age variables (age group by low self-evaluations, age group by high self-evaluations, age group by low self-evaluations by concern, age group by high self-evaluations by concern). In these regression analyses, the coefficient of interest was the simple slope (i.e., main effect) for generative concern in the comparison group, after controlling for all two- and three-way interactions. Thus, it was necessary to carry out three pairs of analyses, one pair (high versus low self-evaluations) for each comparison group (young, midlife or older adults). Tables 5.2(a) through 5.2(c) present the results of the analyses.

Table 5.2. Regression of Integrity: Analysis of Significant Interaction between Age, Generative Concern and Current Self-Evaluations

(a) Midlife Adults as Comparison Group

Predictors	High self-evaluations				Low self-evaluations			
	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>
(Constant)	46.36	1.21		38.39***	33.59	1.77		18.94***
Age – young	.78	2.01	.04	.39	5.56	2.11	.28	2.63
Age – old	2.80	1.88	.14	1.49	3.04	2.27	.15	1.34
Concern	.00	.23	.00	-.02	-.93	.24	-.55	-3.96***
CSE	.60	.10	.68	5.80***	.60	.10	.68	5.80***
Young x concern	-.05	.36	-.02	-.14	.84	.30	.30	2.83**
Old x concern	-.29	.35	-.09	-.84	.42	.35	.13	1.20
Young x CSE	-.23	.14	-.21	-1.60	-.23	.14	-.17	-1.60
Old x CSE	-.01	.14	-.01	-.08	-.01	.14	-.01	-.08
Concern x CSE	.04	.01	.43	3.33***	.04	.01	.36	3.33**
Young x concern CSE	-.04	.02	-.29	-2.21*	-.04	.02	-.19	-2.21*
Old x concern x self-evaluations	-.03	.02	-.17	-1.67	-.03	.02	-.16	-1.67

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note CSE = Self-Evaluations of Current Generativity.

Table 5.2 (cont.). Regression of Integrity: Analysis of Interaction between Age, Generative Concern and Self-Evaluations of Current Generativity

(b) Young Adults as Comparison Group

	High self-evaluations				Low self-evaluations			
	<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>
(Constant)	47.14	1.61		29.37***	39.16	1.15		34.02***
Age – midlife	-.78	2.01	-.04	-.39	-5.56	2.11	-.28	-2.63*
Age – old	2.01	2.15	.10	.93	-2.53	1.82	-.13	-1.39
Concern	-.05	.28	-.03	-.20	-.09	.18	-.05	-.49
CSE	.38	.09	.43	3.98***	.38	.09	.43	3.98***
Midlife x concern	.05	.36	.02	.14	-.84	.30	-.30	-2.83*
Old x concern	-.24	.38	-.07	-.63	-.42	.32	-.13	-1.33
Midlife x CSE	.23	.14	.16	1.60	.23	.14	.21	1.60
Old x CSE	.21	.14	.18	1.56	.21	.14	.17	1.56
Concern x CSE	.00	.01	.02	.12	.00	.01	.01	.12
Midlife x concern x CSE	.04	.02	.24	2.21*	.04	.02	.24	2.21*
Old x concern x CSE	.01	.02	.04	.41	.01	.02	.04	.41

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note CSE = Self-Evaluations of Current Generativity.

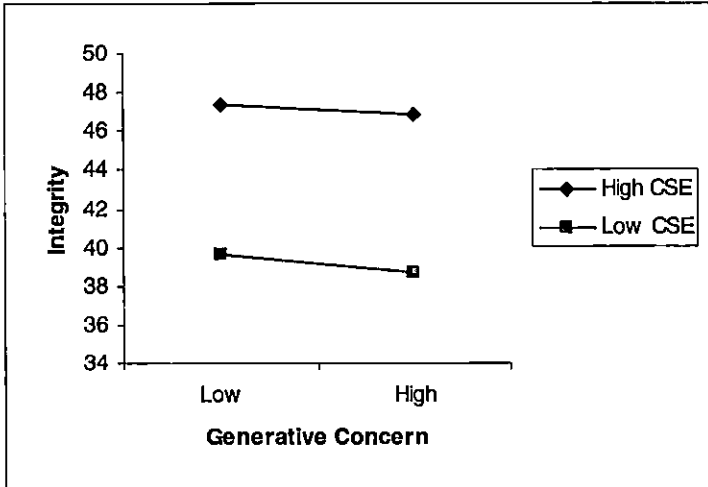
Table 5.2 (cont.). Regression of Integrity: Analysis of Interaction between Age, Generative Concern and Current Self-Evaluations

(c) Older Adults as Comparison Group

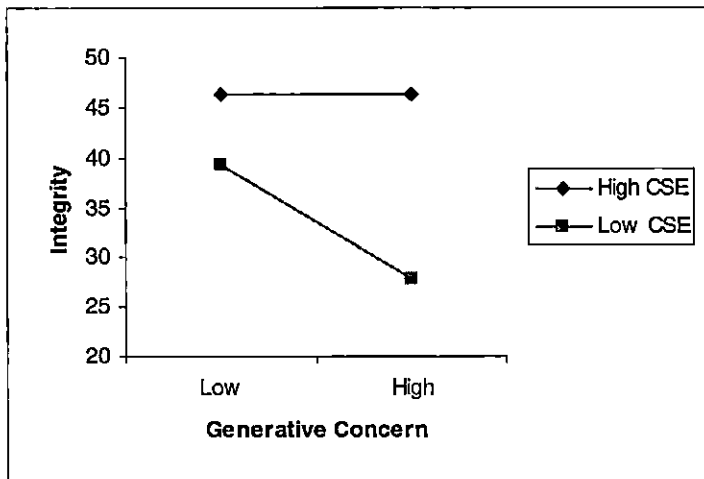
	High self-evaluations				Low self-evaluations			
	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>
(Constant)	49.16	1.44		34.22***	36.63	1.41		25.90***
Age – young	-2.80	1.88	-.14	-1.49	2.53	1.82	.13	1.39
Age – midlife	-2.01	2.15	-.10	-.93	-3.04	2.27	-.15	-1.34
Concern	-.30	.26	-.18	-1.13	-.51	.26	-.30	-1.97*
CSE	.59	.10	.67	5.92***	.59	.10	.67	5.92***
Young x concern	.29	.35	.10	.84	.42	.32	.15	1.33
Midlife x concern	.24	.38	.09	.63	-.42	.35	-.15	-1.20
Young x CSE	-.21	.14	-.20	-1.56	-.21	.14	-.16	-1.56
Midlife x CSE	.01	.14	.01	.08	.01	.14	.01	.08
Concern x CSE	.01	.02	.10	.67	.01	.02	.08	.67
Young x concern x CSE	-.01	.02	-.06	-.41	-.01	.02	-.04	-.41
Midlife x concern x CSE	.03	.02	.19	1.67	.03	.02	.19	1.67

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note CSE = Self-Evaluations of Current Generativity.

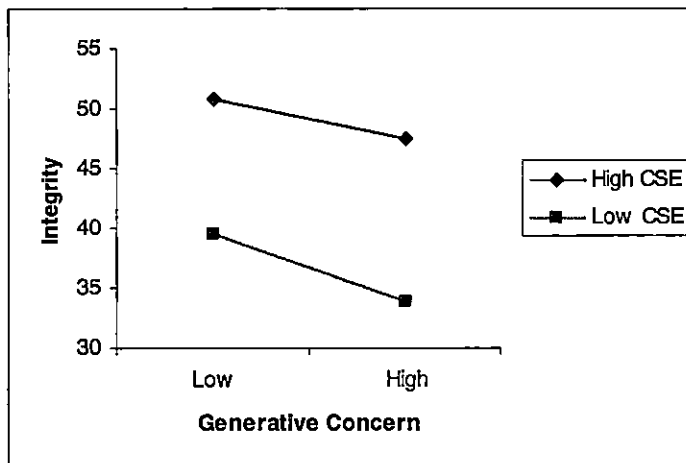
As can be seen, when midlife adults formed the comparison group, there was a clear interaction effect: at high levels of self-evaluation, the effect of concern on integrity was practically non-existent, $\beta = .00$, *ns*, but at low levels, there was a substantial negative relationship, $\beta = -.55$, $p < .001$. When younger adults were the comparison group, on the other hand, there was almost no difference between the coefficients for high and low self-evaluations, $\beta = -.03$ and $-.05$, respectively. Finally, for older adults, the size of the coefficient ranged from $\beta = -.18$, *ns*, for individuals with high self-evaluations to $\beta = -.30$, *ns*, for individuals with low self-evaluations. Thus, there was a significant negative effect of concern on integrity for older adults with low self-evaluations. The simple slopes for each of the three age groups are depicted in Figure 5.1.



(a) Young Adults



(b) Midlife Adults



(c) Older Adults

Figure 5.1. Graph of simple slopes characterising relationship between generative concern and integrity at high and low levels of self-evaluations of current generativity (CSE) in young, midlife and older adults.

Summary

The analyses in this section were designed to determine whether the positive effect of current self-evaluations on psychological well-being would be stronger for midlife adults than for younger or older adults (H5.1); and whether the observed interactions between generative concern and generative self-evaluations in the prediction of integrity and depressed affect would be stronger for midlife adults than for younger or older adults (H5.3). Concerning the former, none of the results provided support for the hypothesis; instead, for all three well-being criteria, the effects were statistically equivalent across the three age groups. Regarding the proposed three-way interaction between age, generative concern and current self-evaluations, the results showed only one instance (young versus midlife adults in the case of integrity) in which the group difference in the size of the concern by self-evaluation regression coefficients was clearly statistically significant. From this standpoint, the hypothesis that the effect on integrity of the interaction between concern and self-evaluations would be stronger for midlife adults than for younger adults (H5.3a) was supported. For older adults, the corresponding effect only approached significance. Nevertheless, in the case of both integrity and depressed affect the effect of self-evaluations on the concern-well-being relationship was significant for midlife adults, but was nonsignificant for the other two groups; thus, the moderating effect of current self-evaluations was unique to midlife adults.

Concerning the nature of the significant three-way interaction (age by concern by self-evaluations), the results showed that concern was unrelated to well-being for midlife participants with high self-evaluations, and negatively related to it for those

with low self-evaluations. The contrast between the slopes for high and low self-evaluations was pronounced, with a strong negative effect being observed in participants with low self-evaluations. Overall, the results are consistent with the notion that for midlife adults, the existence of a discrepancy between a strong desire for generativity and a low estimation of one's current generative impact may have a particularly detrimental effect on self-acceptance and life satisfaction.

In younger and older adults the concern by current self-evaluation interaction effects were not significant. Nevertheless, in older adults, the results for integrity showed that, net of self-evaluations, there was a tendency for the effect of concern to be negative, particularly at low levels of self-evaluation (see Figure 5.1c). For younger adults, on the other hand the effect of concern on integrity was negligible.

5.4.2. Analyses Involving Age Group, Whole-of-Life Self-Evaluations of Generativity and Generative Concern

Section 5.4.2 describes the results of regression analyses to examine the interactions between age group and whole-of-life self-evaluations (of generativity), and between age group, whole-of-life self-evaluations and (generative) concern. These analyses were designed to test H5.2 and 5.4. In this case two sets of analyses were conducted, one with midlife adults as the comparison group, and one with older adults.

5.4.2.1. Integrity

Table 5.3(a) shows the results for integrity when midlife adults formed the comparison group. As shown in the top section of the table, the effect of whole-of-

life self-evaluations was strong and positive, $\beta = .60, p < .001$. The effect in younger adults was significantly weaker, $\beta = -.15, p = .05$, giving support for H5.2a, that the effect of whole-of-life self-evaluations would be stronger in midlife adults than in younger adults (see Figure 5.2). However, while the effect of the whole-of-life self-evaluations by concern interaction term approached significance in midlife adults, $\beta = .17, p = .06$, the three-way interaction with age group (young adulthood) was not significant. Thus, H5.4a, that the interaction between whole-of-life self-evaluations and generative concern would be stronger in midlife adults than in younger adults, was not supported.

Table 5.3(b) shows the results when older adults formed the comparison group. In this case, neither of the proposed interaction effects (young by self-evaluations, young by self-evaluations by concern) was significant. Thus, in the case of integrity, H5.2b and 5.4b, that the effect of whole-of-life self-evaluations, and the whole-of-life self-evaluations by generative concern interaction would be stronger in older adults than in younger adults were not supported.

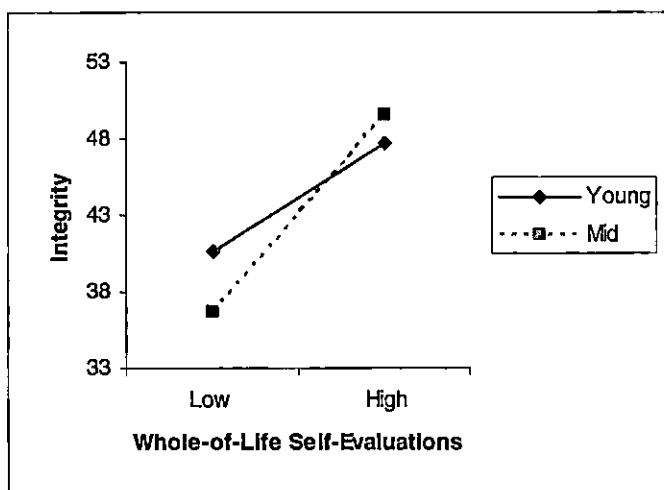


Figure 5.2. Graph of interaction between age group (young versus midlife) and self-evaluations of whole-of-life generativity: Criterion = integrity.

Table 5.3(a). Regression of Integrity on Age Group, Generative Concern, Self-Evaluations of Whole-of-Life Generativity and Interaction Terms: Midlife as Comparison Group.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	43.11	1.03		41.91	.46	.21	.20	.21	12.46***	6	276
	Sex	-1.55	1.02	-.08	-1.53							
	Young	1.03	1.27	.05	.81							
	Old	.43	1.26	.02	.34							
	WSE	.72	.11	.60	6.45***							
	Young x WSE	-.31	.16	-.15	-1.94*							
	Old x WSE	-.25	.16	-.12	-1.55							
2	(Constant)	42.06	1.10		38.27	.49	.24	.20	.03	1.50	6	270
	Sex	-1.44	1.03	-.08	-1.40							
	Young	1.93	1.42	.10	1.36							
	Old	1.03	1.37	.05	.75							
	WSE	.82	.13	.69	6.38***							
	Young x WSE	-.44	.19	-.21	-2.34*							
	Old x WSE	-.34	.18	-.16	-1.85							
	Concern	-.34	.17	-.20	-1.96*							
	Young x concern	.39	.25	.14	1.53							
	Old x concern	.32	.26	.10	1.22							
	WSE x concern	.03	.02	.17	1.86							
	Young x WSE x concern	-.03	.03	-.10	-1.22							
	Old x WSE x concern	-.01	.03	-.04	-.47							

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note WSE = Self-Evaluations of Whole-of-Life Generativity.

Table 5.3(b). Regression of Integrity on Age Group, Generative Concern, Self-Evaluations of Whole-of-Life Generativity and Interaction Terms: Older as Comparison Group.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	ΔF	<i>df</i> ₁	<i>df</i> ²
1	(Constant)	43.54	1.09		40.08***	.46	.21	.20	.21	12.46***	6	276
	Sex	-1.55	1.02	-.08	-1.53							
	Young	.60	1.25	.03	.47							
	Mid	-.43	1.26	-.02	-.34							
	WSE	.47	.12	.39	4.08***							
	Young x WSE	-.06	.16	-.03	-.39							
	Mid x WSE	.25	.16	.12	1.55							
2	(Constant)	43.09	1.17		36.98***	.49	.24	.20	.03	1.50	6	270
	Sex	-1.44	1.03	-.08	-1.40							
	Young	.90	1.39	.05	.64							
	Mid	-1.03	1.37	-.05	-.75							
	WSE	.48	.13	.40	3.72***							
	Young x WSE	-.10	.19	-.05	-.52							
	Mid x WSE	.34	.18	.16	1.85 [†]							
	Concern	-.02	.20	-.01	-.10							
	Young x concern	.07	.27	.03	.26							
	Mid x concern	-.32	.26	-.11	-1.22							
	WSE x concern	.02	.02	.10	1.04							
	Young x WSE x concern	-.02	.03	-.06	-.71							
	Mid x WSE x concern	.01	.03	.04	.47							

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note WSE = Self-Evaluations of Whole-of-Life Generativity.

Depressed Affect

Turning to depressed affect, Table 5.4(a) shows that neither of the proposed interaction effects contrasting younger and midlife adults was significant. Thus, the effect of whole-of-life self-evaluations was not stronger in midlife adults than in younger adults, and neither was the effect of the whole-of-life by concern interaction. Further, in midlife adults themselves, the interaction between whole-of-life self-evaluations and concern was not significant, $\beta = -.13$, *ns*. Hypotheses 5.2a and 5.4a were not supported.

When older adults formed the comparison group (Table 5.4b), the effect of whole-of-life self-evaluations on depressed affect was not stronger than in younger adults, failing to support H5.2b. However, the interaction between whole-of-life self-evaluations and concern was significant, $\beta = -.22$, $p < .05$. In addition, the three-way interaction involving younger adults approached significance, $\beta = .15$, $p = .10$, suggesting a trend for the effect of the whole-of-life self-evaluations by concern interaction to be weaker in younger adults. Thus, in the case of depressed affect, the results tended to support H5.4b, that the effect of the interaction between whole-of-life self-evaluations and concern would be stronger in older adults than in younger adults.

Table 5.4(a). Regression of Depressed Affect on Age Group, Generative Concern, Self-Evaluations of Whole-of-Life Generativity and Interaction Terms: Midlife as Comparison Group.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	1.87	.11		17.74***	.46	.21	.19	.21	12.03***	6	276
	Sex	.13	.10	.07	1.20							
	Young	.32	.13	.16	2.43							
	Old	-.29	.13	-.14	-2.21*							
	WSE	-.05	.01	-.39	-4.14***							
	Young x WSE	.02	.02	.08	1.06							
	Old x WSE	.01	.02	.03	.43							
2	(Constant)	1.92	.11		17.20***	.50	.25	.22	.04	2.55*	6	270
	Sex	.14	.10	.07	1.34							
	Young	.22	.14	.11	1.52							
	Old	-.27	.14	-.13	-1.95							
	WSE	-.04	.01	-.36	-3.36***							
	Young x WSE	.00	.02	.00	.02							
	Old x WSE	.01	.02	.06	.75							
	Concern	-.01	.02	-.03	-.29							
	Young x concern	.04	.03	.14	1.58							
	Old x concern	-.03	.03	-.10	-1.25							
	WSE x concern	.00	.00	-.13	-1.43							
	Young x WSE x concern	.00	.00	.09	1.04							
	Old x WSE x concern	.00	.00	-.05	-.71							

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note WSE = Self-Evaluations of Whole-of-Life Generativity.

Table 5.4(b). Regression of Depressed Affect on Age Group, Generative Concern, Self-Evaluations of Whole-of-Life Generativity and Interaction Terms: Older as Comparison Group.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	1.58	.11		14.23***	.46	.21	.19	.21	12.03**	6	276
	Sex	.13	.10	.07	1.20					*		
	Young	.60	.13	.30	4.69***							
	Mid	.29	.13	.14	2.21*							
	WSE	-.04	.01	-.33	-3.40***							
	Young x WSE	.01	.02	.05	.61							
	Mid x WSE	-.01	.02	-.03	-.43							
2	(Constant)	1.65	.12		13.93***	.50	.25	.22	.04	2.55*	6	270
	Sex	.14	.10	.07	1.34							
	Young	.49	.14	.25	3.47***							
	Mid	.27	.14	.13	1.95							
	WSE	-.03	.01	-.25	-2.28*							
	Young x WSE	-.01	.02	-.06	-.71							
	Mid x WSE	-.01	.02	-.07	-.75							
	Concern	-.04	.02	-.22	-1.90							
	Young x concern	.07	.03	.26	2.68*							
	Mid x concern	.03	.03	.11	1.25							
	WSE x concern	.00	.00	-.22	-2.25*							
	Young x WSE x concern	.00	.00	.15	1.67 [†]							
	Mid x WSE x concern	.00	.00	.06	.71							

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note WSE = Self-Evaluations of Whole-of-Life Generativity.

Table 5.5. Regression of Depressed Affect: Analysis of Interaction between Generative Concern and Self-Evaluations of Whole-of-Life Generativity in Older Adults.

<i>Model</i>	<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>
(Constant)	1.49	.13		11.53***	1.99	.15		13.17***
Young	.40	.22	.20	1.82	.57	.19	.29	3.04***
Mid	.15	.18	.07	.84	.34	.22	.17	1.58
Concern	-.07	.03	-.42	-2.86**	.00	.03	.02	.14
WSE	-.03	.01	-.26	-2.45*	-.03	.01	-.26	-2.45*
WSE x concern	.00	.00	-.35	-2.34*	.00	.00	-.29	-2.34*
Young x concern	.11	.04	.39	2.80**	.03	.03	.11	.98
Mid x concern	.05	.03	.17	1.41	.01	.03	.04	.37
Young x WSE	-.01	.02	-.08	-.60	-.01	.02	-.06	-.60
Mid x WSE	-.01	.02	-.07	-.66	-.01	.02	-.08	-.66
Young x WSE x concern	.01	.00	.24	1.72	.01	.00	.16	1.72
Mid x WSE x concern	.00	.00	.09	.82	.00	.00	.09	.82

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note WSE = Self-Evaluations of Whole-of-Life Generativity.

Table 5.5 shows the analysis of the significant interaction between whole-of-life self-evaluations of generativity and generative concern in the prediction of depressed affect in older adults. At high levels of self-evaluation, the effect of concern on depressed affect was significant and negative, $\beta = -.42, p < .01$, while at low levels the effect was negligible. While to some extent, this was consistent with hypotheses, the strength of the effect meant that older individuals with low levels of concern and high self-evaluations were actually *more* depressed than those with low levels of concern and low self-evaluations. This result had not been anticipated. The effect is depicted in Figure 5.3.

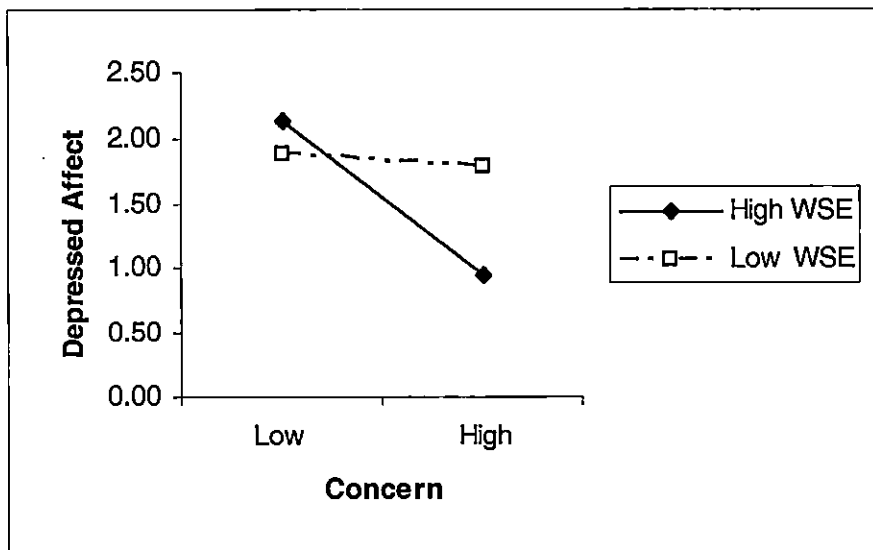


Figure 5.3. Analysis of significant interaction between whole-of-Life self-evaluations of generativity (WSE) and generative concern in older adults. Criterion = depressed affect.

Self-Esteem

Finally, Tables 5.6a and 5.6b show the results for self-esteem. When midlife adults formed the comparison group (Table 5.6a), the main effect for whole-of-life self-evaluations was strong and positive, $\beta = .45, p < .001$. The young adulthood by

self-evaluations interaction effect was also significant, but in the opposite direction to that predicted, $\beta = .14, p < .05$. Thus, contrary to H5.2a, the effect of self-evaluations on self-esteem was *stronger* in young than in midlife adults.

Neither the interaction between whole-of-life self-evaluations and concern, nor the three-way interaction between young adulthood, self-evaluations and concern was significant. Thus, H5.4a, that the interaction between whole-of-life self-evaluations and concern would be stronger in midlife adults than in younger adults, was not supported.

When older adults formed the comparison group, the main effect of whole-of-life self-evaluations on self-esteem was positive, $\beta = .38, p < .001$. Again, however, the young adult by whole-of-life self-evaluations interaction was also significant, $\beta = .19, p = .01$. Contrary to H5.4b, therefore, the effect of whole-of-life self-evaluations on self-esteem was stronger in younger adults than in older adults (see Figure 5.3).

Finally, the self-evaluations by concern interaction approached, but did not reach, significance in older adults, $\beta = .16, p = .09$. The age group (young adult) by self-evaluations by concern interaction was significant, $\beta = -.19, p < .05$. In this case, consistent with H5.4b, the effect of the self-evaluations by concern interaction term was weaker in younger adults than in older adults. However, none of the simple slopes for either younger or older adults approached significance. Thus, generative concern was unrelated to self-esteem at either high or low levels of whole-of-life self-evaluations.

Table 5.6 (a). Regression of Self-Esteem on Age Group, Generative Concern, Self-Evaluations of Whole-of-Life Generativity and Interaction Terms: Midlife as Comparison Group.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	43.01	.52		82.99***	.57	.33	.31	.33	22.29***	6	276
	Sex	-1.07	.51	-.10	-2.10*							
	Young	-.96	.64	-.09	-1.49							
	Old	-.73	.64	-.07	-1.14							
	WSE	.30	.06	.45	5.26***							
	Young x WSE	.16	.08	.14	2.02*							
	Old x WSE	-.05	.08	-.04	-.59							
2	(Constant)	42.91	.56		77.08***	.58	.34	.31	.01	1.00	6	270
	Sex	-1.09	.52	-.11	-2.11*							
	Young	-.50	.72	-.05	-.69							
	Old	-.92	.70	-.08	-1.32							
	WSE	.28	.07	.42	4.23***							
	Young x WSE	.21	.09	.18	2.19*							
	Old x WSE	-.04	.09	-.03	-.40							
	Concern	.04	.09	.05	.49							
	Young x concern	-.12	.13	-.08	-.91							
	Old x concern	.00	.13	.00	.03							
	WSE x concern	.01	.01	.06	.69							
	Young x WSE x concern	-.02	.01	-.12	-1.52							
	Old x WSE x concern	.01	.01	.06	.82							

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note WSE = Self-Evaluations of Whole-of-Life Generativity.

Table 5.6 (b). Regression of Self-Esteem on Age Group, Generative Concern, Self-Evaluations of Whole-of-Life Generativity and Interaction Terms: Older as Comparison Group.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1.00	(Constant)	42.28	.55		77.25***	.57	.33	.31	.33	22.29***	6	276
	Sex	-1.07	.51	-.10	-2.10*							
	Young	-.23	.63	-.02	-.36							
	Mid	.73	.64	.07	1.14							
	WSE	.25	.06	.38	4.26***							
	Young x WSE	.21	.08	.19	2.57**							
	Mid x WSE	.05	.08	.04	.59							
2.00	(Constant)	41.99	.59		71.15***	.58	.34	.31	.01	1.00	6	270
	Sex	-1.09	.52	-.11	-2.11*							
	Young	.42	.71	.04	.60							
	Mid	.92	.70	.08	1.32							
	WSE	.24	.07	.37	3.63***							
	Young x WSE	.24	.09	.21	2.57**							
	Mid x WSE	.04	.09	.03	.40							
	Concern	.05	.10	.05	.47							
	Young x concern	-.12	.14	-.08	-.88							
	Mid x concern	.00	.13	.00	-.03							
	WSE x concern	.02	.01	.16	1.72 [†]							
	Young x WSE x concern	-.03	.01	-.19	-2.24*							
	Mid x WSE x concern	-.01	.01	-.07	-.82							

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Note WSE = Self-Evaluations of Whole-of-Life Generativity.

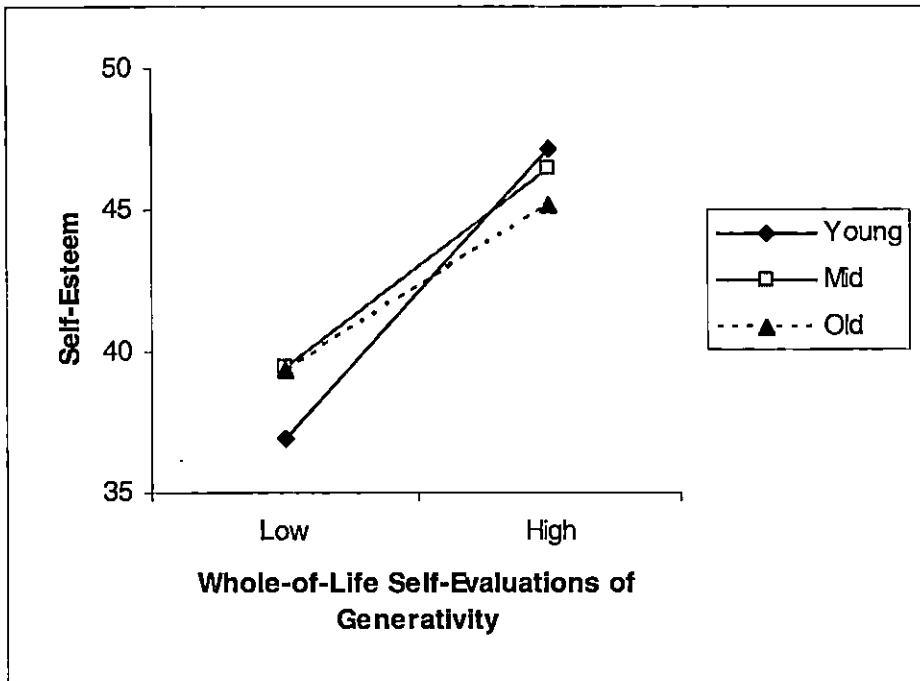


Figure 5.4. Graph of interaction between age group and self-evaluations of whole-of-life generativity. Criterion = self-esteem.

Summary

The analyses in this section were designed to test the hypotheses that whole-of-life self-evaluations would be more strongly related to psychological well-being in midlife and older adults than in younger adults (H5.2), and that the interaction between concern and whole-of-life self-evaluations would be stronger for midlife and older adults than for younger adults (H5.4). Concerning the former, the only supportive finding was that the strength of the relationship between whole-of-life self-evaluations and integrity was stronger in midlife adults than in younger adults (H5.2a). However, none of the other results relating to H5.2 were as predicted. Indeed the results for self-esteem indicated that there was a stronger relationship with whole-of-life self-evaluations in younger adults than in the other two groups. The most likely explanation for the latter finding is that in younger adults, whole-of-life self-evaluations may be a function of self-esteem, rather than the other way round.

There was equivocal support for the proposed three-way interaction between age, generative concern and self-evaluations of whole-of-life generativity: in the case of depressed affect, the interaction between concern and self-evaluations was significant for older adults but not for younger or midlife adults. The interaction was such that at low levels of self-evaluation there was no relationship between concern and self-evaluations, while at high levels, the relationship was substantial and negative. Thus, it appears, at least in the case of depression, that a high level of generative concern in older adults was *positively* associated with well-being (i.e., negatively associated with depression) provided that it was accompanied by high self-evaluations. This was in contrast to the pattern observed for the significant interactions involving current self-evaluations: in the latter case, the effect was such that, in the *absence* of high levels of self-evaluations, high levels of concern were *negatively* associated with well-being.

5.5. Discussion

The aim of Study 4 was to compare the effects of current and whole-of-life self-evaluations of generativity in young, midlife and older adults, both as predictors of well-being, and as moderators of the effect of generative concern. Using moderated multiple regression analyses, the study found limited evidence to suggest that age influences the relationships linking generative self-evaluations and generative concern to psychological well-being. The implications of the main findings are summarised below.

5.5.1. The Effects of Current and Whole-of-Life Self-Evaluations of Generativity on Well-being by Age Group

The first set of analyses in Chapter 5 was designed to test the hypothesis that the effect of current generative self-evaluations (i.e., self-evaluations of current generativity), and its interaction with generative concern, would be stronger in midlife adults than in either younger or older adults. In only one case was either of these hypotheses clearly supported: the moderating effect of current self-evaluations on generative concern was stronger in midlife adults than in younger adults. Although there was a trend for the effect to be stronger in midlife than in older adults, the effect was only significant at the .10 level. Overall, the results indicated that in midlife adults with low self-evaluations of generativity, the effect of concern on integrity was strong and negative, while in those with high self-evaluations, the effect was minimal. In contrast, for younger adults, the effect of generative concern on integrity, net of self-evaluations, was small, while for older adults, the effects were similar to, but weaker than those found for midlife adults.

Taken in isolation, the finding that current self-evaluations of generativity was not more strongly related to psychological well-being in midlife adults than in younger or older adults appears to contradict the notion that the sense of making a generative contribution, or forging a generative legacy, is of particular importance to midlife adults. However, this interpretation is belied by the strength of the interaction between current generative self-evaluations and generative concern. This showed that midlife adults with low levels of self-evaluation were particularly disadvantaged by having high levels of generative concern. As suggested in Chapter 4, this combination may signal the presence of generative frustration, or the absence of

either generative opportunity or generative capacity. Because of normative societal expectations, the effects of such frustrations could be particularly powerful for midlife adults.

As was the case for the results obtained in Chapter 4, an additional reading of the interaction effect is possible: that is, generative concern may also act as a moderator of the impact of generative self-evaluations on integrity. This interpretation is plausible because at *low* levels of generative concern, the difference in integrity scores between high and low scorers on generative self-evaluations was smaller than at high levels of generative concern (see Figure 5.1b). This suggests that for individuals with low levels of generative concern, the effect of self-evaluations was more muted.

The results obtained in this study are somewhat at odds with those reported by Peterson (1998) in his qualitative case studies of generative motivation and realisation in midlife women. Similar to the present study, he found that high levels of generative realisation (observer-based evaluations of generative accomplishment) were beneficial to well-being. However, among women with *low* realisation, it was those whose levels of generative motivation were also low who experienced the lowest well-being. For these women, unresolved concerns about identity, intimacy and stagnation “appeared to interfere with active attempts to resolve [a sense of] dissatisfaction” (Peterson, 1998, p. 125). Women with low realisation and *high* motivation, on the other hand, “were actively concerned with resolving ... tensions” and frustrations associated with careers and family life. Thus, it appeared that low realisation, combined with high motivation may have acted as an impetus to resolve the generativity-stagnation conflict.

Clearly, methodological differences might account to some extent for the apparent differences in results between the present study and Peterson's (1998). Peterson's measures of generative motivation were obtained by coding detailed life narratives for generative themes, such as productivity, creativity, and parenting. Thus, the information obtained could capture fine nuances concerning the capacity and willingness of participants to resolve generative frustrations and difficulties. It could also capture the level of participants' generative concerns relative to their other preoccupations, such as with intimacy or identity. The measure obtained in the present study was more general, and no measures of participants' other psychological preoccupations (e.g., with identity or intimacy) were gathered.

While the results of the present study indicated that current self-evaluations of generativity were not of unique importance to psychological well-being in the midlife participants, there was some evidence that whole-of-life self-evaluations of generativity were. Firstly, the relationship between whole-of-life self-evaluations and integrity was significantly stronger in midlife adults than in younger adults. Secondly, the partial regression coefficient linking whole-of-life self-evaluations to integrity was somewhat larger than the equivalent coefficient for current self-evaluations (and the difference was significant). It may be that involvement in current generative projects in middle adulthood is associated, not only with positive feelings of anticipated accomplishment and challenge, but also with feelings of responsibility and anxiety. That is, unfinished generative projects may have an uncertain future, so that generative tasks that have been completed (e.g., seeing a child arrive safely into adulthood) may be associated with greater satisfaction, as well as relief, than those that are still underway (e.g., shepherding a child through adolescence). In addition, as discussed in earlier paragraphs, there is some suggestion that in these midlife adults,

the relationship between current self-evaluations of generativity and integrity may have depended on prior levels of generative concern.

The interaction showing a stronger relationship between whole-of-life self-evaluations and integrity in midlife adults than in younger adults did not extend to the other well-being outcomes, depressed affect and self-esteem. This supports the notion that integrity may occupy a special status as the positive developmental successor to generativity (Erikson, 1982; Erikson, Erikson, & Kivnick, 1986; James & Zarrett, 2005b). Indeed, contrary to expectations, in the case of self-esteem, the effect of whole-of-life self-evaluations was stronger in younger adults than in either midlife or older adults. Possible reasons for this apparently anomalous finding will be addressed in a later paragraph.

For older adults, there was no evidence that whole-of-life self-evaluations of their own generativity were of greater importance to psychological well-being than was the case for younger adults. Instead, there was some suggestion that for the older adults in this sample, ratings of current generativity were somewhat more strongly related to well-being than were ratings of whole-of-life generativity. That is, showing a pattern that was the reverse of that for midlife adults, the partial regression coefficient linking current self-evaluations to integrity was somewhat larger than that for whole-of-life self-evaluations, suggesting that for these older adults, current involvement in generative projects was particularly important for feelings of contentment and self-acceptance. It should be borne in mind, however, that the older adults in this sample were particularly active in the community and therefore may have represented a group for whom generativity was especially important. In this sense, they supported Erikson's notion that grand-generativity is associated with "vital involvement" in old age (Erikson, Erikson, & Kivnick, 1986). It is possible that

a population-based sample of older Australians might not have shown evidence of these same strong relationships between current self-evaluations of generativity and psychological well-being. In addition, had other domains of psychosocial functioning (e.g., close relationships with others) been assessed, the relative importance of generativity vis-à-vis these other domains might have receded. Finally, it is possible that the direction of the relationship between psychological well-being and current generativity might be the opposite from what was predicted here: for example, high levels of integrity and satisfaction might promote high levels of generative involvement, rather than the other way around. Only a longitudinal study with repeated measures of generativity and integrity could rule out this possibility.

The finding that particularly high levels of depressed affect were to be found among older adults with high levels of whole-of-life self-evaluations and low levels of generative concern was particularly puzzling, and is difficult to explain. Using median splits to form categories of high and low scorers, further exploration of the data identified 15 older adults who fell into this category. They were unremarkable in terms of gender (8 men and 7 women), or marital status, although five of the seven women were without partners, while all but one of the men were married. It is hard to explain why these individuals in particular reported comparatively high levels of depressed affect.

As mentioned earlier, another unexpected finding was that the net effect of whole-of-life self-evaluations on self-esteem was greater in younger adults than in midlife or older adults. The most likely explanation of this finding is that in these younger people, high self-evaluations of generativity were a consequence, rather than a predictor, of self-esteem. In midlife and older participants, on the other hand, the

relationship between self-esteem and self-evaluations of generativity may have been attenuated by a more realistic appraisal of generative accomplishments.

5.5.2. Conclusion

The results of this chapter gave some support for the hypothesis that age may moderate the relationship between certain aspects of generativity (generative self-evaluations and their interaction with concern) and well-being. While the results were not entirely as predicted (e.g., self-evaluations of whole-of-life generativity rather than of current generativity were of particular importance to the integrity of midlife adults), they highlighted the potential importance of the interaction between age, generative self-evaluations and generative concern in the prediction of well-being. However, it is acknowledged that replication, preferably with a longitudinal sample, is needed to clarify the nature of possible interaction effects.

Chapter 6 extends the investigation of age differences by examining whether generativity within a particular role (that of parenthood), and its well-being consequences, differs between midlife and older adults.

Chapter 6 Parental Generativity, Global Generativity and Well-being in Midlife and Older Adults

6.1. Overview

The studies described in Chapters 2 to 5 examined relationships linking generative concern, generative behaviour and generative self-evaluations with age and well-being in a sample of young, midlife and older adults. In these studies the focus was on global or general generativity. The present chapter describes a study that was designed to shed further light on the characteristics of generativity in midlife and older adults by examining the relationships between generative behaviour within a selected life domain (parenthood), self-evaluations of generativity within that domain, and global self-evaluations of generativity. The study was based on the premise that global generativity self-evaluations are drawn from across a range of domain-specific assessments of generativity, particularly in core social roles such as those of parent, worker, spouse or grandparent. Parenthood was chosen as the avenue for the present investigation because it was judged to represent an important social role in both middle and older adulthood, and therefore to be capable of permitting age-group comparisons.

A second aim of the study was to explore the relationships linking parental generative behaviour and evaluations of parental generative accomplishment to psychological well-being. Following the model developed in the previous studies, it was conjectured that, just as global *self-evaluations* account for more variance in well-being than does global generative *behaviour* (see Chapters 4 and 5), so parental

self-evaluation of generative *accomplishment* may be more predictive of psychological well-being than parental generative behaviour.

The final aim of the study was to determine whether the relationship between parental domain-specific generativity and psychological well-being would be mediated by global self-evaluations of generativity.

6.2. Introduction

Given Erikson's emphasis on care for future generations as a core theme of generativity, it is not surprising that the parental role has for some time been the subject of generativity research. Among the key themes investigated have been: (1) the relationship between the disposition to be generative on the one hand and parental attitudes and behaviour on the other (McKeering & Pakenham, 2000; Peterson, Smirles, & Wentworth, 1997; Pratt, Danso, Arnold, Norris, & Filyer, 2001; Pratt, Norris, Arnold, & Filyer, 1999); and (2) the association among self-perceptions of parental generativity and psychological well-being (MacDermid, De Haan, & Heilbrun, 1996; MacDermid, Franz, & De Reus, 1998; MacDermid, Heilbrun, & DeHaan, 1997). The relationship between generativity and parental status has also been investigated (McAdams & de St. Aubin, 1992). Underlying these investigations is the assumption that parenting represents an important arena of generative expression (e.g., Erikson, 1959; Ryff, Lee, Essex, & Schmutte, 1994) which attracts strong normative and cultural expectations and has strong links to adult development and psychological health.

Prior research on parenthood and generativity has tended to focus on parents in young adulthood or early midlife (e.g., MacDermid, De Haan, & Heilbrun, 1996;

MacDermid, Franz, & De Reus, 1998; MacDermid, Heilbrun, & DeHaan, 1997) rather than on middle-aged or older parents. This choice of younger age groups may reflect the notion that younger/early midlife parents are more actively involved in parenting than are more mature parents (e.g., Ryff et al., 1994), as well as the greater theoretical importance attached to parental generativity in early and middle adulthood (e.g., Kotre, 1984). In addition, because parenthood is one of an array of demanding roles in younger or middle adulthood, the extent to which it competes with other roles in terms of its effect on well-being has also attracted attention (MacDermid, De Haan, & Heilbrun, 1996; MacDermid, Heilbrun, & DeHaan, 1997).

There is an abundant literature on relationships between mature parents and adult children, yet there is little published literature on parental *generativity* in middle-aged and older parents. Further, given that parenthood is a life-long role, it could be expected that its developmental importance may extend well beyond younger or early middle adulthood, into mature and older adulthood. The present study sought to explore this possibility by examining the links among parental generativity, global generativity and well-being in a sample of midlife and older parents. The aims were to determine the extent to which each of two aspects of parental generativity – parental generative behaviour, and parents' assessments of their children and the quality of the parent-child relationship – would predict self-assessments of global generativity and psychological well-being; and whether the relationship between parental generativity and psychological well-being would be mediated by self-assessments of global generativity. Global generativity in this context was taken to mean individuals' evaluations of the worth of their generative

contributions over the life course, corresponding to the whole-of-life self-evaluations of generativity examined in previous chapters.

Because of the unprecedented nature of the research, as well as possible age-cohort differences in these relationships, midlife and older parents were analysed separately. That is, as well as differing by age, midlife and older adults may be characterised by an array of contextual and psychological differences that impact on the relative importance of generativity to psychological well-being. These include the intensity and breadth of their social role involvements (Musick, Herzog, & House, 1999; Musick & Wilson, 2003); perceptions of time left to live (Lang & Carstensen, 2002); and differences in the requirements and expectations of the parenting role. Concerning the latter, for example, while midlife adults are likely to be involved in active parenting of adolescent children or the launching of young adult children, older parents may be the recipients, as well as the providers, in exchanges of intergenerational support between parents and adult children (Blieszner, 2006; Ingersoll-Dayton, Neal, & Hammer, 2001). This means that there may be age-related differences in the significance of the parental role for well-being.

The following sections outline the proposed relationships among parental generativity, global generativity and psychological well-being.

6.2.1. Parental Generativity and Global Generativity

The first part of the study examined the relationship between parental generativity and global generativity. Two aspects of parental generativity were under investigation, self-evaluations of parental generative accomplishment and parental generative behaviour. Concerning the former, the aim was to capture parents'

perceptions of how their children are turning (or have turned) out (MacDermid, Franz, & De Reus, 1998; MacDermid, Heilbrun, & DeHaan, 1997; Ryff, Lee, Essex, & Schmutte, 1994; Ryff, Schmutte, & Lee, 1996) and parental assessments of the quality of the parent-child relationship. While evidence of a possible link between self-assessments of parental generativity and self-assessments of global generativity is not abundant, there are theoretical reasons for expecting that such a relationship should exist. According to Ryff and her colleagues (Ryff, Lee, Essex, & Schmutte, 1994; Ryff, Schmutte, & Lee, 1996), strong societal expectations surround the parenting role, including normative beliefs that parents exert a strong influence on children's development and are ultimately responsible for the kind of adults they become. How one's children turn out may therefore be perceived as a reflection of the adequacy of one's efforts at and investment in the parenting role (Erikson, Erikson, & Kivnick, 1986; Ryff, Lee, Essex, & Schmutte, 1994; Ryff, Schmutte, & Lee, 1996). Put more simply, parenthood may be seen as a life-long project, of which children provide the ultimate evidence of success or failure. To adapt Stewart and Vandewater's (1998) terminology (see Chapter 1), one's children may be seen as evidence of generative accomplishment. Ryff and her colleagues' (Ryff, Lee, Essex, & Schmutte, 1994; Ryff, Schmutte, & Lee, 1996) findings of strong links between midlife parental assessments of the emotional and social adjustment of young adult children and midlife parental well-being support their view that there is a strong connection between parents' evaluations of their children and their evaluations of themselves. Assessments of how children have turned out – and are continuing to turn out – may therefore have a substantial bearing on parents' evaluations of their global generative accomplishment, that is, on the overall significance and worth of

their contribution to the next generation. Children's continued developmental progress through young and middle adulthood may therefore provide an ongoing basis for parental satisfaction and psychological well-being.

The quality of the parent-child relationship may also be seen as a product (or by-product) of investment in the parenting role, and hence as another dimension of parental generative accomplishment. That is, many parents may feel responsible for the overall nature of the parent-child relationship (Bornstein et al., 1998), even though child-related factors, such as temperament and age may also be judged to play a part (Flouri, 2004; Silverberg, 1996). Again, these perceptions may be postulated to impact upon parental assessments of the value of their contributions to the next generation.

As previously stated, despite these theoretical arguments, evidence related to this topic is somewhat sparse. In a series of investigations into role-specific generativity in early midlife women, MacDermid and her colleagues (MacDermid, De Haan, & Heilbrun, 1996; MacDermid, Franz, & De Reus, 1998; MacDermid, Heilbrun, & DeHaan, 1997) developed measures of role-specific generativity for the roles of parent, worker and spouse. The role-specific measures were selected from prior measures of role quality (Barnett & Baruch, 1985; Baruch & Barnett, 1986; Baruch, Barnett, & Rivers, 1983), and were intended to capture Eriksonian themes of productivity, procreativity, nurturing, creativity, and mastery. Among other things, the items for the parental role made reference to how children were turning out, the quality of the parent-child relationship, and pride in the parental role (MacDermid, De Haan, & Heilbrun, 1996; MacDermid, Franz, & De Reus, 1998). MacDermid and her colleagues found relatively modest correlations (average $r =$ below .35) between

the role-specific measures and a trait-based measure of generativity (Darling-Fisher & Leidy, 1988), leading them to conclude that role-specific and global generativity are related, but distinct, constructs.

As pointed out earlier, MacDermid and her colleagues' investigation was confined to women in early midlife. The present study was designed to examine the relationship between self-assessments of parental and global generativity in a broader range of age groups. MacDermid and her colleagues' evidence, when coupled with the theoretical arguments advanced earlier, is sufficient to warrant testing of the hypothesis that there would be a positive relationship between parental generative accomplishment, and self-evaluations of global generativity in midlife and older parents.

H6.1. Parents' evaluations of their parental generative accomplishment will be positively related to their self-evaluations of global generativity.

The focus for parental generative behaviour was on a parental version of the guiding and influencing behaviour that emerged as a key behavioural component of generativity in earlier chapters. This kind of behaviour is paralleled in the social support literature, being termed emotional or affective support (Antonucci & Akiyama, 1997; Depner & Ingersoll-Dayton, 1988). It was assumed that provision of guidance and emotional support would remain an important ingredient of the parental role throughout the course of parenthood, even though its frequency and significance might change as children attain maturity and independence. Further, it was believed that it would be possible to obtain comparable measures for children in three older age categories, adolescent, young adult and midlife adult.

Currently, there exists only a limited amount of direct evidence concerning the relationship between parental generative behaviours and self-evaluations of global generativity, and, as previously suggested, this pertains to younger or early midlife, rather than older, parents. In his longitudinal study, Snarey (1993) found that provision of social and emotional development support to both pre-adolescent and adolescent children during early adulthood predicted fathers' "societal generativity" at midlife. Societal generativity was assessed using Vaillant and Milofsky's (1980) Societal Generativity Index, an observer-based instrument designed to rate the individual's "capacity for establishing, guiding, or caring for the next generation through sustained responsibility for the growth, well-being, or leadership of younger adults or of the larger society" (Snarey, 1993, p. 98). While Vaillant and Milofsky's (1980) measure is observer-based, it should be noted that Snarey reported high correlations between it and several self-report measures, including those used by Ryff and Heincke (1983) and Ryff and Migdal (1984).

Using Snarey's (1993) taxonomy of parental generative behaviours, McKeering and Pakenham (McKeering & Pakenham, 2000) also found that fathers of adolescent and pre-adolescent children who engaged more often in social-emotional parental generative behaviours reported higher societal generativity, as indicated by higher scores on the Loyola Generativity Scale (LGS; McAdams & de St. Aubin 1992) than fathers who engaged less often in these activities. The same was not found for mothers in McKeering and Pakenham's (2000) study, even though mothers apparently engaged in more childcare activities and reported higher levels of psychological investment in the parenting role (mothers' mean scores on these variables were higher than fathers', but the differences were not tested). This led the

authors to conjecture that there may be gender differences in the relationship between parental and global generativity, possibly arising from differences in societal expectations concerning the role of mothers and fathers in their children's development (McKeering & Pakenham).

Contrary to the above findings relating fatherly involvement to generativity, however, the evidence of Christiansen and Palkovitz (1998) indicated that young fathers' involvement in the care of their pre-school children was only weakly related to their self-ratings of generativity. This implies that it is not necessarily parental (or fatherly) involvement *per se* that promotes generativity, but that the relationship may to some extent depend on the type of involvement and support given to the child.

Indirect evidence in support of a relationship between parental generative behaviour and global generativity comes from studies of other aspects of parental behaviour. Pursuing separate research programmes, Peterson and Pratt and their respective colleagues (Peterson, Smirles, & Wentworth, 1997; Pratt, Danso, Arnold, Norris, & Filyer, 2001) showed positive links between parental LGS scores and the practice of an authoritative parenting style towards adolescent children. In addition, in Pratt et al.'s study, and in contrast to the results of McKeering and Pakenham (2000), the relationship was more pronounced for mothers than for fathers. Pratt et al. also found that mothers', but not fathers', LGS scores were linked to views of adolescent socialisation as a positive and growth-oriented task.

Overall then, several lines of evidence suggest that behavioural, attitudinal and structural aspects of parental generativity may be linked to self-assessments of global generativity in parents of pre-adolescent and adolescent children, with some studies showing a stronger relationship in fathers, and others favouring mothers. Because

these studies have used the LGS (McAdams & de St. Aubin, 1992) as a measure of global generativity, it is not clear whether the disposition to be generative predicts parental generative behaviour, or whether parental generative behaviour fosters a positive sense of generative accomplishment (see Chapters 1 and 2 for discussions of the measurement properties of the LGS).

In the present study, the focus was on the extent to which engagement in parental generative behaviour (provision of emotional support and guidance) would predict positive self-evaluations of global generativity in midlife and older parents. However, consistent with the earlier studies in this thesis of global generative behaviour and global generativity self-evaluations (see Chapters 4 and 5), it was considered that the relationship between parental generative behaviour and global generativity self-evaluations would be weaker than the relationship between parental generative accomplishment and global generativity self-evaluations.

The following hypothesis was tested:

Hypothesis 6.2: Parental generative behaviour will be positively related to self-evaluations of global generativity.

In what might seem a contradiction, although parental generative behaviour was expected to be associated with self-evaluations of global generativity, no specific predictions were made concerning its relationship with parental generative accomplishment. This was because, for parents of adolescent and adult children, it was considered possible that parental generative accomplishment would be predicted by child-related behaviours (e.g., their responsiveness to their parents, their functioning in important life domains) rather than by parental generative behaviour

itself. This is in contrast to other possible self-evaluative aspects of parental generativity, such as self-ratings of parental engagement or investment in the parental role. This leads to the paradox that even though parents might see themselves as responsible for their children's successful functioning and the quality of the parent-child relationship, their own levels of parental generative behaviour might be only weakly related to their appraisals of success in these domains.

Parental Generativity and Psychological Well-being

The second aim of the study was to examine the connections between parental generativity and psychological well-being. Concerning self-evaluations of generativity, prior theorising (e.g., Erikson et al., 1986) suggests that positive self assessments of parental generativity may promote self-acceptance and contentment (i.e., integrity) while negative ones may promote dissatisfaction and self-doubt (i.e., stagnation, despair). As suggested earlier, Ryff and her colleagues' (Ryff, Lee, Essex, & Schmutte, 1994; Ryff, Schmutte, & Lee, 1996) findings of strong links between midlife parents' ratings of young adult children's adjustment and multiple dimensions of psychological well-being (particularly self-acceptance, purpose in life and environmental mastery) support this view.

Less resounding support, however, is offered by MacDermid and her colleagues (MacDermid, De Haan, & Heilbrun, 1996; MacDermid, Franz, & De Reus, 1998; MacDermid, Heilbrun, & DeHaan, 1997). These researchers found a positive association between self-perceived parental generativity (defined by ratings of parental role quality which incorporated Eriksonian themes of creativity, productivity, procreativity, mastery and care) and psychological well-being in only

one of three cohorts of early midlife women (mean age = 43). That is, regression analyses showed that after controlling for self-ratings of spousal and worker generativity (also indicated by measures of role quality incorporating Eriksonian themes), parental generativity predicted well-being in an earlier cohort of women (sampled in 1978-79), but not in two later cohorts (sampled in 1991 and 1992). In the latter two groups, life satisfaction and depression were predicted by perceived generativity in the spousal role, and, to a lesser extent, in the worker role.

MacDermid, Heilbrun and De Haan (1997) suggest that the difference between the 1970s and 1990s samples might be accounted for by cohort differences in expectations of the motherhood role and in perceptions concerning the normative status of the worker role for women for earlier versus more recent cohorts. It might also be speculated that the emergence of the second wave feminist movement might have impacted on the extent to which women were generatively committed to any of these roles, compared with commitment to the self.

MacDermid et al. (1996) concluded that their results concurred with prior findings that children may have little effect on their parents' well-being. The discrepancy between these findings and those of Ryff and her colleagues (Ryff et al., 1994; Ryff et al., 1996) therefore warrants re-examination of the relationship between evaluations of parental generativity and psychological well-being, particularly focusing on cohorts that differ by age (midlife versus older), rather than by time of measurement. Overall, taking into account the findings of Ryff and her colleagues, it was expected that self-assessments of parental generativity would predict psychological well-being. This hypothesis was stated formally as follows:

Hypothesis 6.3: Parental generative accomplishment will be positively related to psychological well-being.

Unlike parental generative accomplishment, it was considered that the relationship between parental generative behaviour and psychological well-being might be somewhat equivocal. On the one hand, the provision of high levels of parental emotional support and guidance might imply the existence of a close trusting relationship between parent and child, particularly in the case of older adults, for whom it might represent one side of a reciprocal exchange of intergenerational support (Blieszner, 2006; Ikkink, Tilburg, & Knipscheer, 1999; Ingersoll-Dayton, Neal, & Hammer, 2001). On the other, it might imply continued dependence of the child on the parent, which, in the case of adult children, might violate normative expectations concerning children's independence and self-reliance (see Greenfield & Marks, 2006; Pillemer & Suitor, 2002). Therefore, no firm predictions were made concerning the prediction of psychological well-being by parental generative behaviour.

6.2.2. Self-Evaluations of Global Generativity as a Possible Mediator of the Relationship between Parental Generativity and Psychological Well-being

The final aim of the study was to determine whether global self-evaluations of generativity would mediate the relationship between parental generative accomplishment and psychological well-being. As reported in Chapters 4 and 5, the earlier studies in this thesis found that global generative self-evaluations were strongly associated with well-being in young, midlife and older adults. It was therefore anticipated that a similar relationship would be found in the current study.

Thus, if, as expected, parental generativity were to predict both global self-evaluations of generativity and psychological well-being, it could be speculated that global self-evaluations of generativity might act as a mediator or partial mediator of the relationship between parental generativity and psychological well-being. That is, parental generativity might promote psychological well-being because it also promotes positive self-assessments of global generativity.

H6.4. Self-evaluations of global generativity will mediate the relationship between parental generative accomplishment and psychological well-being.

6.2.3. Age-Cohort Differences in Relationship Patterns

As previously implied, several age-related differences between midlife and older adults may impact on the relative strength of the relationship between parental generativity and self-evaluations of global generativity and/or well-being. One of these differences is related to perception of time left to live. Evidence related to socioemotional selectivity theory (Carstensen, 1991; Lang & Carstensen, 2002) indicates that when time left to live is perceived as limited (as in older adults), individuals prioritise short-term, immediate goals, rather than longer-term, future goals. As a result, they also prioritise close relationships and goals that involve generativity and emotional regulation, because these are seen as more relevant to present needs than are more peripheral relationships or goals related to autonomy (Lang & Carstensen, 2002). This leads to the conjecture that older parents may be more dependent on the parent-child relationship than are midlife parents. They may

also selectively channel their generative efforts towards benefiting their children in preparation for their final legacy (Erikson, Erikson, & Kivnick, 1986). In a recent review of the literature, Blieszner (2006) reported that older adults continue to provide parental support well into their children's middle age, even when they themselves are frail and in receipt of assistance from their adult children (see also Ingersoll-Dayton, Neal, & Hammer, 2001). This leads to the possible paradox that even though midlife adults may be more actively involved in parenting than are older adults, engagement in, and perceptions of, parental generativity may "count" more towards self-evaluations of global generativity in older adults than in midlife adults.

It was reasoned, therefore, that the relationships linking parental generative behaviour and self-evaluations of the parental role to global generativity might be somewhat stronger in older than in midlife adults. Stated formally, hypotheses were as follows:

H6.5. (a) Parental generative behaviour and (b) parental generative accomplishment will be more strongly correlated with evaluations of global generativity in older than in midlife adults.

Arguing along similar lines, it was considered that the relationship between parental generative accomplishment and psychological well-being might be stronger in older adults than in midlife adults, as follows:

H6.6. Parental generative accomplishment will be more strongly related to psychological well-being in older than in midlife adults.

To test these hypotheses, the two groups were combined, and interaction terms were created between age group and both parental generative behaviour, and parental generative accomplishment.

6.3. Method

6.3.1. Participants and Procedure

Data were collected from a convenience sample, comprising 70 midlife adults (mean age = 49.43 years, $SD = 5.95$) and 65 older adults (mean age = 73.58, $SD = 5.17$). As with the previous studies, midlife was defined as 40 to 64 years, while older adulthood was defined as 65 years and over. Midlife participants were recruited from among acquaintances of the author or her friends, and via a local podiatry clinic. Because newspaper advertisements were unsuccessful in attracting older participants, the majority of these were recruited from a list of surplus applicants for a memory study, also being undertaken at Flinders University at the time. The sample consisted of 92 (68%) females and 43 (32%) males. All participants lived in metropolitan Adelaide or the surrounding semi-rural regions of South Australia.

From the initial pool of 135, a subsample of participants was selected on the basis of whether or not they had at least one child of adolescent age (i.e., 13 years or over; $n = 117$). This selection criterion was chosen because, from the data yielded by the instruments used, it was possible to obtain comparable measures of parental guiding and influencing for adolescent, young adult and midlife adult children, but not for pre-adolescent children (see Measures section), since the items used to assess parental generative behaviour were somewhat different for this youngest age group.

For this reason, although measures of parental generative behaviour towards pre-adolescent children were obtained, parents with pre-adolescent children only ($n = 7$) were excluded from this study. Participants who were the parents of both pre-adolescent and adolescent children were assessed only on their adolescent children.

The final sample consisted of 47 midlife adults (mean age = 51.13, $SD = 5.19$) and 60 older adults (mean age = 73.62, $SD = 5.30$). Hence, the midlife subsample was older by two years than the midlife sample as a whole.

A more comprehensive list of sample characteristics is presented at the beginning of the results section.

6.3.2. Measures

The measures on which the present analyses were based form a subset of a much larger range that was intended to cover generative involvement in a wide variety of roles and relationships, including those of worker, volunteer, grandparent, friend and spouse. Only those measures pertaining to the parental role (parental role structure, parental generative behaviour, parental generative accomplishment), global generativity (current and whole-of-life self-evaluations), integrity, and background characteristics are described here. The items forming the scales for parental and global generativity and psychological well-being are listed in Table 6.1, following the descriptions of each scale below.

Parental Generative Accomplishment

Participants were asked to indicate their agreement or disagreement (1 = strongly disagree, 7 = strongly agree, with reverse scoring for negatively worded

items) with each of seven statements designed to tap into their assessments of the parent-child relationship and of how well their children were doing. Sample items are “When my children and I disagree, I can usually help us find a solution that suits us both”, and “I feel confident that I am helping (or have helped) my children to develop the skills they need to do well in life”. Responses were averaged across the number of children. Reliability for the 7 items was satisfactory, $\alpha = .64$.

Parental Generative Behaviour

The items intended to capture parental generative behaviour were originally targeted towards each of the four age groups listed above. The full list of behaviours for each age group encompassed, not only provision of emotional support and guidance, but also age-specific indicators of physical and/or instrumental support. However, as these were not equivalent between adolescent and adult children, they were not included in the main analyses. The full set of behaviours is included in Appendix G.

Five items that were common to all targeted age groups formed the basis of the measure of parental generative behaviour used in this study. They included: helping the child to learn a skill; listening to the child talk about something important to him or her; providing emotional support and guidance to the child; and talking to the child about something important to the parent (see Table 6.1). Participants were asked to indicate for each of their children how often they typically performed each of the target behaviours (1 = “never or hardly ever” through 4 = “about once a fortnight” to 7 = “almost every day”). Reliability for each set of five items was high:

.79 for the adolescent children items, .72 for the young adult children items, and .77 for the midlife children items.

Responses were averaged across the number of children within each age group, and then averaged across the number of age groups represented among the children in the family.

Self-Evaluations of Global Generativity

In the previous studies of this thesis, global generativity was assessed using measures of both whole-of-life and current self evaluations. Because parenthood may be seen as a long-term project, with effects extending across the life course, in this study the focus was on whole-of-life self-evaluations only. Nine items were used.

Reliability was .85

Psychological Well-being

Two of the three indicators of psychological well-being that were investigated in the previous studies of the thesis were retained for the current study.

Integrity. Consistent with our earlier rationale, integrity was chosen as an indicator of self-acceptance and contentment with one's life, as well as the logical developmental successor to generativity. The seven items were adapted from Ryff's (1989a) self-acceptance scale and included "When I look at the story of my life, I am pleased with how things have turned out so far" and "Many days I wake up feeling discouraged about my life". Scoring ranged from 0 = strongly disagree to 7 = strongly agree, with reverse scoring for negatively couched items. Reliability for the seven items was .84.

Depressed affect. As for the previous studies, depressed affect was chosen as an indicator of current affective well-being, and again, seven items were taken from the Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977; see also Chapter 2 of this thesis). Participants were asked to indicate how often in the past two weeks they had felt a range of affective states, e.g., sad, happy, afraid (0 = never, 3 = almost all of the time, with reverse scoring for positively worded items). Reliability for the seven items was .73.

As foreshadowed, the items forming each of the generativity and well-being scales are presented in Table 6.1 below.

Table 6.1. List of Measures and Items used to Assess Parental Generativity, Global Generativity and Psychological Well-being

<i>Parental generative accomplishment</i>	
1	I feel very proud of my children's achievements.
2	I feel as though my children and I enjoy the time we spend together.
3	When my children and I disagree, I'm usually able to help us find a solution that suits us both.
4	I find that my relationship with my children is often difficult and frustrating.
5	When my children are upset, I feel that they can usually confide in me.
6	I've often felt uncertain about what's best for my children.
7	I feel confident that my children are developing (or have developed) the skills they need to do well in life.
<i>Parental generative behaviour</i>	
1	Help them [children] to learn a skill.
2	Listen while they tell you about something important to them.
3	Give them praise or encouragement.
4	Give them advice or guidance.
5	Talk to them about something important to you.
<i>Self-evaluations of global generativity</i>	
1	During my life people have often come to me for advice.
2	During my life I have been able to pass on my skills to others.
3	I feel as though I have achieved things that will benefit the next generation.
4	I have been able to pass on the knowledge that I have gained through my experience.
5	I have made and created things that have had an impact on other people.
6	During my life I have accomplished things that will have lasting value.
7	Others would say that I have made valuable contributions to society.
8	Others would say that I have been a very productive person.
9	During my life I've made a difference to many people.
<i>Integrity</i>	
1	When I look at the story of my life, I am pleased with how things have turned out so far.
2	I may have made some mistakes in the past, but all in all I am content with the way I have lived my life.
3	Even though I have not experienced everything I hoped for, I am happy with the way my life is now.
4	In many ways I feel disappointed about my achievements in life.
5	Many days I wake up feeling discouraged about how I have lived my life.
6	The past had its ups and downs, but in general I wouldn't want to change it.
7	I feel like many of the people I know have got more out of life than I have.
<i>Depressed affect</i>	
1	I was happy
2	I felt that everything I did was an effort.
3	I felt hopeful about the future.
4	I felt afraid.
5	I felt depressed.
6	I enjoyed life.
7	I felt sad.

Control Variables

A selection of additional measures was entered as control variables in the analysis. Children's age and number of children in the family were included as controls, because they had the potential to be confounded with parents' age and generative behaviour, respectively. Self-rated health was also included because of its well-documented association with psychological well-being. Participants' age and gender were also included.

Parental role structural variables. After initially affirming their parental status, participants were subsequently asked to indicate how many children they had, and the age of each one. An index of children's average age was computed (i.e., by summing the children's ages and dividing them by the number of children. The total number of children in the family and the average age of children were subsequently entered as control variables in regression analyses (see Results section for further information).

Self-rated health. An index of self-rated health was formed by combining responses to two items. Firstly, participants were asked to rate their overall health from 1 = excellent, to 5 = poor. Secondly, they were asked to indicate how often their health got in the way of them doing the things they wanted to do, 0 = hardly ever to 2 = almost all the time (e.g., Thomas, 1997). Scores were summed and reversed so that higher scores indicated better health.

Demographic characteristics. Participants were asked to indicate their age (in years) and sex (1 = male, 2 = female).

6.3.3. Procedure

All potential recruits were telephoned by the author and given summary information about the study, including that it involved an extensive survey of activities and relationships, would involve a 1-2 hour interview in their own home, and would attract a \$10 honorarium. On this basis, 75% of those contacted agreed to participate.

Participants were subsequently interviewed in their own homes. At the commencement of the interview, each participant gave voluntary written consent after being provided with written information about the study and being informed that he or she could withdraw their participation at any time. At the conclusion of the interview each participant was offered \$10. On average, each interview took between 1.5 and 2.5 hours.

6.4. Results

6.4.1. Sample Characteristics

Participant characteristics are shown in Table 6.2, both for the sample as a whole and for the parental subsample. The midlife parental subsample was slightly older (mean age = 51.13 years) than the midlife sample as a whole (mean age = 49.43 years). A higher percentage of older (92%) than of midlife adults (77%) had at least one child, $\chi^2(1, N = 135) = 5.90, p < .05$: older parents had more children on average than midlife adults, $t(112) = 4.14, p < .001$ for all parents; $t(105) = 3.47, p < .001$ for the parental subsample.

Among midlife adults, the percentage of females in the subsample was somewhat higher than in the full sample (77% compared with 67%). However, the gender composition of the two age groups did not differ significantly: $\chi^2(1, N = 135) = .07, ns$, for the full sample, $\chi^2(1, N = 107) = .89, ns$, for the parental sample. The age groups differed on years of education, with midlife adults averaging between 2.0 and 2.5 more years of education than older adults: $t(133) = 5.57, p < .001$ in the full sample, and $t(105) = 4.73, p < .001$ in the parental subsample. The groups did not differ on self-rated health, with the average rating being between “good” and “very good” in both cases.

Table 6.2. Sample Characteristics

Variable	<i>All</i>		<i>Parent Subsample</i>	
	Midlife (<i>n</i> = 70)	Older (<i>n</i> = 65)	Midlife (<i>n</i> = 47)	Older (<i>n</i> = 60)
Age				
Mean	49.43	73.58	51.13	73.62
SD	5.95	5.17	5.19	5.30
Sex = female				
<i>N</i>	47	45	36	41
%	67.1	69.2	76.7	68.3
Years education	14.41 ^a	11.77 ^a	14.17 ^b	11.65 ^b
Self-rated health	2.39	2.29	2.39	2.30
Parental status = have children				
<i>N</i>	54	60	47	60
%	77.14	92.31	100	100
Parental Role Structure				
Average no. of children	1.93 ^c	2.72 ^c	2.02 ^d	2.72 ^d
Average age of children	22.97	43.81	23.02	43.81
% (<i>n</i>) with adolescent children	35.71 (25)	--	53.19 (25)	--
% (<i>n</i>) with young adult children	42.86 (30)	35.38 (23)	63.83 (30)	38.33 (23)
% (<i>n</i>) with midlife children	1.43 9(1)	80.00 (52)	2.13 (1)	86.67 (52)

^{a,b} ... Means sharing a superscript are significantly different at $p < .05$.

6.4.2. Data Preparation

6.4.2.1. Treatment of Missing Data

Overall, there were very few missing values. The largest number was for two of the parental generative behaviours (items 2 and 5 in the top section of Table 6.1), each of which had five missing cases (see Table 6.1 on page 268). All missing values were replaced using the EM method in SPSS (see Chapter 2). Appendix H shows the number of missing values associated with each item.

6.4.2.2. Construction of Measures

Parental Generative Behaviour

Totals were computed for each of the 5 behaviour items. This procedure gave a possible range of 5 to 35. Inspection of the distributions revealed one outlier of 29 for generative behaviour towards young adult children. This was recoded to 25, one value above the next highest value of 24. Subsequent inspection showed that skewness and kurtosis values for each scale were acceptable (range of z skew = -1.11 for adolescent children to 1.67 for midlife children; range for z kurtosis = -1.28 for young adult children to -.73 for adolescent children).

As described in the method section, for each parent, scores for each of the three age groups to which their children belonged were summed, and the total divided by the number of age groups. The skew of the resulting measure ($z = 2.70$) fell within the limits of ± 3.24 suggested by Tabachnick and Fidell (2001).

Parental Generative Accomplishment

Scores from the seven parental role quality items were summed to create a measure with a possible range of 7 to 49. One extremely low value of 24 was recoded to 25, and a reflected square root transformation undertaken to correct a substantial negative skew (z skew = -3.69 and .42, before and after transformation, respectively). Because the resulting variable was now positively skewed, it was reflected back to maintain consistency with the untransformed variable.

Self-Evaluations of Global Generativity

A measure of self-evaluations of global generativity was created by summing scores from the nine items, to give a possible total of 63. The resulting variable was highly negatively skewed (z skew = -4.76). Two outlying cases of less than 20 were recoded to 27, one below the next lowest value of 28, resulted in a substantial reduction in the skew (z skew = -2.50 after recoding). The resulting variable was retained for analysis.

Integrity

The seven integrity items were summed to give a total integrity score with a possible range of 7 to 49. The variable was negatively skewed (z skew = -4.10), and there were several extreme outliers. To improve the distribution, two cases with values of 22 and 23 were recoded to 25, while the remaining three, one with a score of 18, and the others with a score of 19 were recoded to 23. The resulting skew, though still somewhat high, was considered acceptable, z skew = -2.95.

Depressed Affect

A measure of depressed affect was created by summing the scores for the seven items, giving a possible range of 0-21. No outliers were detected, and the skew, although positive, was considered acceptable, $z = 2.09$ (Tabachnick & Fidell, 2001).

6.4.3. Descriptive Statistics and Bivariate Correlations

Means and standard deviations for parental generativity, global generativity integrity and depressed affect among the parental subsample are shown in Table 6.3. A series of two-way (age group by sex) ANOVAs was conducted on these variables. Despite considerable variability, the mean level of parental generative behaviour was considerably higher for midlife adults than for older adults, $F(1,103) = 20.81, p < .001$, while mothers engaged in more parental generative behaviour than fathers, $F(1,103) = 3.97, p < .05$). When average of children was included as a covariate, however, the effect of parents' age on parental generative behaviour was eliminated. Overall, parental generative accomplishment was high, and there were no age or gender differences. In addition, there were no group differences in self-evaluations of whole-of-life generativity, integrity or depressed affect, but midlife adults reported higher self-evaluations of current generativity than did older adults, $F(1,103) = 4.63, p < .05$. There were no significant age by gender interactions.

Table 6.3. Descriptive Statistics for Parental Subsample.

Variable	Age Group				Sex				All	
	Midlife		Old		Male		Female		Mean	SD
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Parental generative behaviour	22.18	7.53	13.60	5.11	14.08	5.58	17.43	7.38	16.49	7.06
Self-evaluations parental generativity	40.27	5.07	40.51	5.88	41.03	6.03	40.15	5.32	40.40	5.52
Self-evaluations global generativity	48.76	7.79	47.16	9.61	47.53	7.78	47.99	9.28	47.86	8.86
Integrity	37.90	7.34	40.84	6.85	40.53	6.16	39.16	7.55	39.55	7.18
Depressed affect	4.04	2.63	3.35	2.94	3.09	2.20	3.87	3.01	3.15	2.27
<i>N</i>	47		60		30		77		107	

Table 6.4. Bivariate correlations

	1	2	3	4	5	6	7	8	9
1 Age in years		-.10	-.06	.77**	-.58**	.10	.08	.13	-.21
2 Self-rated health	-.27*		.13	-.28	.13	.08	.21	.23	-.32*
3 No. children	-.18	.32*		-.06	-.08	-.24	-.01	.11	-.16
4 Mean age children	.71**	-.33**	-.13		-.67**	.00	.10	.08	-.12
5 Parental GB	.07	-.01	-.21	-.04		.06	-.17	-.06	.13
6 SE parental generativity	-.01	.26*	.08	-.16	.19		.07	.24	-.06
7 SE global generativity	-.17	.24	.05	-.20	.34**	.36**		.44**	-.04
8 Integrity	-.10	.35**	.19	-.20	-.03	.48**	.28*		-.52**
9 Depressed affect	.21	-.52**	-.27*	.19	.01	-.39**	-.29*	-.53**	

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

Note: Parental GB = parental generative behaviour; SE parental generativity = self-evaluations parental generativity. Results for midlife parents are above the diagonal, results for older parents are below the diagonal.

Table 6.4 shows the bivariate correlations among age, sex, the parental role variables (number of children, average age of children, parental generative behaviour, parental generative accomplishment), self-evaluations of global generativity, and integrity. The results for midlife adults are above the diagonal, those for older adults below. As can be seen, for midlife adults parental age was strongly correlated with average age of children, and both were negatively correlated with parental generative behaviour. Self-evaluations of global generativity was strongly correlated with integrity but was uncorrelated with depressed affect, while there was a strong negative correlation between integrity and depressed affect. None of the other bivariate relationships was significant. Overall, in midlife adults there was no clear evidence that parental generative behaviour and parental role quality were linked to each other, to generativity self-evaluations, or to integrity. However, as was the case in the earlier studies of this thesis, there was a substantial correlation between self-evaluations of global (whole-of-life) generativity and integrity.

Among older participants there was a somewhat different pattern. As with midlife adults, there was a strong, positive correlation between parental age and average age of children. Interestingly, sex was also positively correlated with children's age, indicating that the children of older mothers were older than the children of older fathers. In contrast to the finding for midlife parents, parental generative behaviour was uncorrelated with either parents' or children's age, but was moderately correlated with self-evaluations of global generativity. Parental generative accomplishment was substantially, positively correlated with integrity and moderately, negatively correlated with depressed affect. The correlation between self-evaluations of global generativity and integrity, although significant, was somewhat

weaker, $r = .28$, $p < .05$, while the correlation between current self-evaluations and integrity was not significant. As was the case for midlife adults, the correlation between parental generative behaviour and parental generative accomplishment was not significant.

6.4.4. Hypothesis Testing

6.4.4.1. The Relationship between Parental Generativity and Global Generativity

The first two hypotheses predicted that self-evaluations of parental accomplishment (H6.1) and parental generative behaviour (H6.2) would predict self-evaluations of global generativity. Hierarchical multiple regression analyses were conducted in which the demographic variables – age, sex, self-rated health – and the parental role structural variables – number of children, mean age of children – were entered first, followed by parental generative behaviour, and parental generative accomplishment. Parental generative behaviour was entered before parental generative accomplishment, because, as was the case for the analyses in previous chapters, generative behaviour was considered causally prior to generative self-evaluations. As foreshadowed, analyses were conducted separately for midlife and older parents.

Table 6.5 shows the results for midlife adults. As can be seen, none of the hypothesised predictors and none of the control variables exerted a significant effect on self-evaluations of global generativity. While the size of some of the coefficients hinted at possible relationships (e.g., $\beta = .22$ for self-rated health; $\beta = -.28$ – $-.32$ for parental generative behaviour), the relatively small sample, coupled with the

relatively large number of predictors, meant that there was insufficient power to determine whether these effects were statistically reliable. However, it is worth noting that the direction of the relationship between parental generative behaviour and self-evaluations of global generativity was opposite to what was expected (i.e., negative rather than positive), while the effect of parental generativity self-evaluations was small (.15-.16). Thus, for midlife adults, the hypotheses that parental generative behaviour and parental generative accomplishment would positively predict self-evaluations of global generativity were not supported.

For older adults, on the other hand (Table 6.6), parental generative behaviour significantly and positively predicted global generativity at step 2, $\beta = .39, p < .01$ (see Model 3). At step 3, the addition of self-evaluations of parental accomplishment somewhat reduced the effect of parental generative behaviour but it nevertheless remained significant, $\beta = .28, p < .05$, while the effect of parental generative accomplishment was also significant, $\beta = .32, p < .05$. Thus, both H6.1 and H6.2 were supported in the case of older adults.

Table 6.5. Regression of Self-Evaluations of Global Generativity on Parental Generative Behaviour, Parental Generative Accomplishment and Control Variables: Midlife Adults

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	35.57	15.52		2.29*	.28	.08	-.04	.01	.30	2	41
	Age in years	-.08	.34	-.06	-.24							
	Sex	1.04	2.74	.06	.38							
	Self-rated health	5.34	3.24	.27	1.65							
	No. of children	-.28	1.53	-.03	-.18							
	Mean age children	.21	.28	.20	.76							
2	(Constant)	4.62	15.98		2.54*	.33	.11	-.02	.03	1.46	1	4
	Age in years	-.12	.34	-.08	-.35							
	Sex	2.72	3.06	.16	.89							
	Self-rated health	5.00	3.23	.25	1.55							
	No. of children	-.50	1.53	-.05	-.32							
	Mean age children	.00	.33	.00	.00							
	Parental generative behaviour	-.27	.23	-.28	-1.21							
3	(Constant)	42.51	16.11		2.64*	.36	.13	-.03	.02	.94	1	39
	Age in years	-.17	.35	-.12	-.49							
	Sex	3.19	3.10	.18	1.03							
	Self-rated health	4.74	3.24	.24	1.46							
	No. of children	-.15	1.58	-.02	-.10							
	Mean age children	-.01	.33	-.01	-.03							
	Parental generative behaviour	-.31	.23	-.32	-1.35							
	Parental generative accomplishment	1.41	1.45	.15	.97							

* $p < .05$.

Table 6.6. Regression of Self-Evaluations of Global Generativity on Parental Generative Behaviour, Parental Generative Accomplishment and Control Variables: Older Adults.

<i>Model</i>	<i>Predictors</i>	<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R²</i>	<i>Adj. R²</i>	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	48.58	19.64		2.47*	.28	.08	-.01	.01	.24	2	54
	Age in years	-.04	.31	-.03	-.14							
	Sex	1.11	2.57	.06	.43							
	Self-rated health	4.17	3.05	.20	1.37							
	No. of children	-.09	1.07	-.01	-.09							
	Mean age children	-.18	.26	-.14	-.68							
2	(Constant)	52.20	18.41		2.84*	.46	.21	.12	.13	8.71***	1	53
	Age in years	-.18	.29	-.11	-.63							
	Sex	-1.00	2.51	-.05	-.40							
	Self-rated health	4.86	2.86	.23	1.70							
	No. of children	.34	1.01	.04	.33							
	Mean age children	-.01	.25	-.01	-.03							
	Parental generative behaviour	.65	.22	.39	2.95***							
3	(Constant)	57.58	17.93		3.21***	.53	.28	.18	.07	4.95*	1	52
	Age in years	-.25	.28	-.16	-.90							
	Sex	-.40	2.44	-.02	-.16							
	Self-rated health	3.37	2.84	.16	1.18							
	No. of children	.24	.98	.03	.24							
	Mean age children	.05	.24	.04	.20							
	Parental generative behaviour	.54	.22	.32	2.45*							
	Parental generative accomplishment	2.52	1.13	.28	2.23*							

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

6.4.4.2. The Relationship between Parental Generativity and Psychological Well-being

Hypothesis 6.3 predicted that parental generative accomplishment would predict psychological well-being, net of parental generative behaviour. No firm predictions were made concerning the effect of parental generative behaviour on psychological well-being. Tables 6.7 through 6.10 show the results of hierarchical regression analyses for integrity and depressed affect. As before, demographic and parental role structural variables were included as predictors.

Integrity as Criterion

Turning first to integrity in midlife adults (Table 6.7) the only predictor whose effect approached significance was parental generative accomplishment, $\beta = .25, p = .13$. The effect of parental generative behaviour was not significant at step 2 or step 3, and none of the control variables predicted integrity.

For older adults, health was a significant predictor of integrity in the initial model, $\beta = .29, p < .05$. In subsequent models, parental generative accomplishment emerged as the only other significant predictor, its effect being strong and positive, $\beta = .43, p < .001$. The effect of parental generative behaviour was not significant at any step. Interestingly, the effect of self-rated health became non-significant when perceived parental generative accomplishment was included in the model, suggesting some overlap in variance between the two. The results are presented in Table 6.8.

Table 6.7. Regression of Integrity on Parental Generative Behaviour, Parental Generative Accomplishment and Control Variables: Midlife Adults.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R2</i>	<i>Adj. R2</i>	$\Delta R2$	ΔF	<i>Ch</i>	<i>df1</i>	<i>df2</i>
1	(Constant)	23.84	13.84		1.72	.32	.10	-.01	.01	.28	2	41	
	Age in years	.07	.31	.06	.24								
	Sex	-2.42	2.44	-.16	-.99								
	Self-rated health	4.62	2.88	.25	1.60								
	No. of children	.60	1.37	.07	.44								
	Mean age children	.15	.25	.15	.59								
2	(Constant)	21.25	14.43		1.47	.33	.11	-.02	.01	.47	1	4	
	Age in years	.09	.31	.07	.30								
	Sex	-3.29	2.76	-.21	-1.19								
	Self-rated health	4.80	2.91	.26	1.65								
	No. of children	.71	1.38	.08	.51								
	Mean age children	.26	.30	.26	.87								
	Parental generative behaviour	.14	.20	.16	.69								
3	(Constant)	24.03	14.26		1.69	.41	.17	.02	.06	2.58	1	39	
	Age in years	.02	.31	.01	.06								
	Sex	-2.60	2.74	-.17	-.95								
	Self-rated health	4.41	2.87	.24	1.54								
	No. of children	1.22	1.39	.13	.87								
	Mean age children	.24	.29	.25	.83								
	Parental generative behaviour	.09	.20	.10	.43								
	Parental generative accomplishment	2.06	1.29	.25	1.61								

Table 6.8. Regression of Integrity on Parental Generative Behaviour, Parental Generative Accomplishment and Control Variables: Older Adults.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R 2</i>	<i>Adj. R 2</i>	$\Delta R 2$	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	24.87	14.33		1.74	.38	.15	.07	.03	.83	2	54
	Age in years	.16	.22	.13	.73							
	Sex	.82	1.88	.06	.44							
	Self-rated health	4.57	2.22	.29	2.05*							
	No. of children	.62	.78	.11	.79							
	Mean age children	-.21	.19	-.21	-1.08							
2	(Constant)	24.74	14.49		1.71	.39	.15	.05	.00	.02	1	53
	Age in years	.17	.23	.14	.73							
	Sex	.90	1.98	.07	.46							
	Self-rated health	4.54	2.25	.28	2.02*							
	No. of children	.60	.80	.10	.75							
	Mean age children	-.21	.20	-.22	-1.07							
	Parental generative behaviour	-.02	.17	-.02	-.14							
3	(Constant)	3.80	13.38		2.30*	.55	.30	.21	.15	11.29***	1	52
	Age in years	.09	.21	.07	.41							
	Sex	1.58	1.82	.11	.87							
	Self-rated health	2.86	2.12	.18	1.35							
	No. of children	.49	.73	.08	.67							
	Mean age children	-.15	.18	-.15	-.82							
	Parental generative behaviour	-.15	.16	-.12	-.94							
	Parental generative accomplishment	2.84	.84	.42	3.36**							

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

Depressed Affect as Criterion

Turning to depressed affect, in midlife adults the effect of health was significant and negative in the initial model, $\beta = -.37, p < .05$. In the final model, self-rated health remained a significant predictor, $\beta = -.38, p < .05$, while the effect of sex tended towards significance, $\beta = .28, p < .10$. Predictably, being female was more strongly associated with depressed affect (e.g., D. Goldberg, 2006; Nadelson, 2007). Neither parental generative behaviour, nor parental generative accomplishment was a significant predictor of depressed affect.

In older adults, the results for depressed affect were similar to those for integrity, except that the effect of self-rated health was stronger and the associations were negative, rather than positive. Thus, in the final model, the respective coefficients for self-rated health and parental generative accomplishment were $\beta = -.41, p < .001$, and $\beta = -.30, p = .01$.

Summary

In midlife adults, neither integrity nor depressed affect was convincingly predicted by parental generative accomplishment, although there was the suggestion of a modest relationship in the case of integrity. In older adults, on the other hand, both integrity and depressed affect *were* predicted by parental generative accomplishment. As expected, parental generative behaviour did not predict well-being in either group. Thus, Hypothesis 6.3a was supported in older adults, but not in midlife adults. Self-rated health was a predictor of depressed affect in both midlife and older adults.

Table 6.9. Regression of Depressed Affect on Parental Generative Behaviour, Parental Generative Accomplishment & Control Variables: Midlife Adults.

<i>Model</i>	<i>Predictors</i>	<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R 2</i>	<i>Adj. R 2</i>	<i>Δ R 2</i>	<i>F Ch</i>	<i>df1</i>	<i>df2</i>
1	(Constant)	13.33	5.03		2.65*	.48	.23	.14	.02	.64	2	41
	Age in years	-.07	.11	-.14	-.62							
	Sex	1.44	.89	.23	1.62							
	Self-rated health	-2.64	1.05	-.37	-2.52							
	No. of children	-.37	.50	-.10	-.75							
	Mean age children	-.07	.09	-.19	-.81							
2	(Constant)	14.44	5.24		2.76*	.49	.24	.13	.01	.66	1	40
	Age in years	-.08	.11	-.15	-.69							
	Sex	1.81	1.00	.29	1.81							
	Self-rated health	-2.72	1.06	-.38	-2.57*							
	No. of children	-.42	.50	-.12	-.84							
	Mean age children	-.12	.11	-.31	-1.11							
	Parental generative behaviour	-.06	.07	-.17	-.81							
3	(Constant)	14.43	5.34		2.70*	.49	.24	.11	.00	.00	1	39
	Age in years	-.08	.11	-.15	-.67							
	Sex	1.81	1.03	.29	1.76							
	Self-rated health	-2.72	1.08	-.38	-2.53*							
	No. of children	-.42	.52	-.12	-.81							
	Mean age children	-.12	.11	-.31	-1.10							
	Parental generative behaviour	-.06	.08	-.17	-.79							
	Parental generative accomplishment	-.01	.48	.00	-.02							

* $p < .05$.

Table 6.10. Regression of Depressed Affect on Parental Generative Behaviour, Parental Generative Accomplishment and Control Variables: Older Adults

<i>Model</i>	<i>Predictor</i>	<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>R</i>	<i>R²</i>	<i>Adj. R²</i>	ΔR^2	ΔF	<i>df1</i>	<i>df2</i>
1	(Constant)	8.04	5.92		1.36	.54	.29	.22	.01	.50	2	54
	Age in years	.06	.09	.12	.70							
	Sex	.22	.78	.04	.29							
	Self-rated health	-	.92	-.48	-							
			3.43			3.73***						
	No. of children	-.28	.32	-.11	-.87							
	Mean age children	-.03	.08	-.08	-.44							
2	(Constant)	7.77	5.96		1.30	.54	.29	.21	.01	.46	1	53
	Age in years	.07	.09	.13	.80							
	Sex	.38	.81	.06	.47							
	Self-rated health	-	.93	-.48	-							
			3.48			3.75***						
	No. of children	-.31	.33	-.12	-.95							
	Mean age children	-.05	.08	-.11	-.58							
3	Parental generative behaviour	-.05	.07	-.08	-.68							
	(Constant)	5.85	5.74		1.02	.61	.37	.28	.07	6.13*	1	52
	Age in years	.10	.09	.18	1.11							
	Sex	.17	.78	.03	.21							
	Self-rated health	-	.91	-.41	-							
			2.94			3.23***						
	No. of children	-.28	.31	-.10	-.88							
	Mean age children	-.07	.08	-.15	-.86							
Parental generative accomplishment	-.01	.07	-.01	-.11								
		-.90	.36	-.30	-2.48*							

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

6.4.4.3. Global Generativity as a Mediator of the Relationship between Self-Evaluations of Parental Generativity and Psychological Well-being

The next set of hypotheses concerned the possible mediation of the relationship between evaluations of parental generativity and psychological well-being by self-evaluations of global generativity. Again, analyses were carried out separately for midlife and older adults. Because parental generative behaviour was unrelated to psychological well-being in both groups, there was theoretically no relationship to mediate in this case. However, as was reported in previous studies, it is possible that the inclusion of a third variable may uncover a suppressor effect (Paulhus, Robins, Trzesniewski, & Tracy, 2004).

As discussed in previous chapters, mediation analyses are warranted when there are strong bivariate relationships among the predictor, the mediator and the criterion, as well as theoretical grounds for expecting mediation (Baron & Kenny, 1986; Holmbeck, 1997). In this case, the empirical conditions were partly satisfied in the case of older adults, but were not satisfied for midlife adults. In the latter group, parental generative accomplishment (the hypothesised predictor) was only weakly related to self-evaluations of global generativity (the hypothesised mediator) and to integrity (criterion 1), and was unrelated to depressed affect (criterion 2). In older adults, on the other hand, the bivariate and multivariate relationships between the predictor and each of the two criterion variables were moderately strong, although the correlations between the mediator and the criterion variables were less impressive, being non-significant in the case of depressed affect, and relatively weak (although significant) in the case of integrity. Because the pre-conditions were clearly not met

in the case of midlife adults (i.e., there were no relationships to mediate), the decision was made to test for mediation only in older adults.

According to Baron and Kenny (1986), and as discussed in previous chapters, the sequence involved in formal mediation analyses comprises: (a) regression of the mediator on the predictor, (b) regression of the criterion on the predictor, and (c) regression of the criterion on the predictor and the mediator together. Although steps (a) and (b) had to some extent been subsumed in prior multivariate analyses, for ease of interpretation, they were included in the analyses.

Table 6.11 shows the results of the mediation analyses for integrity and depressed affect in older adults. Parental generative accomplishment was a moderately strong predictor of global generativity ($\beta = .39, p < .001$). Parental generative accomplishment was also a strong predictor of integrity ($\beta = .46, p < .001$). When both parental generative accomplishment and self-evaluations of global generativity were specified to predict integrity, only the effect of parental generative accomplishment was significant, being barely reduced by the presence of global generativity ($\beta = .42, p < .001$). By contrast, the effect of global generativity was nonsignificant, $\beta = .11, ns$.

When depressed affect was the criterion, the effects were similar. Parental generativity was moderately related to depressed affect, $\beta = -.39, p < .001$. When both were present in the model, the effect of parental generativity was reduced only marginally, $\beta = -.33, p = .01$, while the effect of global generativity was not significant, $\beta = .16, ns$. Again, the mediation hypothesis was not supported.

Table 6.11. Mediation Analyses for Integrity and Depressed Affect in Older Parents.

Criterion/ Model	Predictor	B	SE B	Beta	t	R	R ²	Adj. R ²	Δ R ²	Δ F	df1	df2
Self-evaluations of global generativity												
1	(Constant)	48.51	11.03		47.15***	.39	.15	.14	.15	1.46***	1	58
	Parental generative accomplishment	3.46	1.07	.39	3.23***							
Integrity												
1	(Constant)	4.95	.75		54.55***	.46	.22	.20	.22	15.98***	1	58
	Parental generative accomplishment	3.12	.78	.46	4.00***							
2	(Constant)	36.76	4.72		7.79***	.48	.23	.20	.01	.81	1	57
	Parental generative accomplishment	2.82	.85	.42	3.32***							
	Self-evaluations of global generativity	.09	.10	.11	.90							
Depressed Affect												
1	(Constant)	3.35	.35		9.52***	.39	.16	.14	.16	10.65***	1	58
	Parental generative accomplishment	-1.19	.37	-.39	-3.26**							
2	(Constant)	6.00	2.20		2.73*	.42	.18	.15	.02	1.49	1	57
	Parental generative accomplishment	-1.00	.40	-.33	-2.54*							
	Self-evaluations of global generativity	-.05	.04	-.16	-1.22							

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

6.4.5. Age-Cohort Differences

The final set of hypotheses predicted that the relationships between the components of parental generativity – parental generative behaviour and evaluations of parental generative accomplishment – and evaluations of global generativity would be stronger in older than in midlife adults (H6.5); and that the relationship between parental accomplishment and psychological well-being would also be stronger in older adults (H6.6). The results from within-group analyses thus far indicated that such might be the case.

To test hypotheses formally, two regression analyses were conducted in which either (1) age group, parental generative behaviour, and their interaction term (H6.5), or (2) age group, evaluations of parental generative accomplishment, and their interaction term (H6.5, H6.6) were the respective predictors. The outcomes were evaluations of global generativity (H6.5), and integrity and depressed affect (H6.6). Midlife parents formed the comparison group in all cases.

The results for the prediction of global generativity (H6.5) are shown in Table 6.12. As indicated in the top half of the table, the effect of the age by parental generative behaviour interaction was significant, $\beta = .38$, $p < .05$, confirming that the effect of parental generative behaviour on global self-evaluations of generativity was stronger and more positive in older adults than in midlife adults ($\beta = -.17$, *ns*). However, the interaction between age and parental generative accomplishment was not significant, despite the relatively large size of the associated regression coefficient, $\beta = .49$, $p = .19$. Thus, it could not be concluded that the difference between midlife and older parents in the relationship between parental generative

accomplishment and global generativity that was detected in within-group analyses was statistically reliable.

Table 6.12. Regression of Global Generativity on Age Group, Parental Generative Behaviour, Parental Generative Accomplishment and Interaction Terms.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>
Predictor = Parental Generative Behaviour					
1	(Constant)	49.45	1.18		41.93***
	Age=Old	-.93	1.57	-.06	-.59
2	(Constant)	48.95	1.26		38.94***
	Age=Old	-.03	1.76	.00	-.02
	Parental generative behaviour	1.15	1.01	.12	1.14
3	(Constant)	50.05	1.28		39.19***
	Age=Old	-.11	1.70	-.01	-.06
	Parental generative behaviour (PGB)	-1.40	1.33	-.15	-1.05
	Old x PGB	5.57	1.96	.38	2.84**
Predictor = Parental Generative Accomplishment					
1	(Constant)	49.45	1.18		41.93***
	Age=Old	-.93	1.57	-.06	-.59
2	(Constant)	49.53	1.13		43.73***
	Age=Old	-1.02	1.51	-.06	-.67
	Parental generative accomplishment	2.64	.84	.29	3.14
3	(Constant)	49.48	1.13		43.82***
	Age=Old	-8.18	5.58	-.51	-1.47
	Parental generative accomplishment (PGA)	1.12	1.42	.12	.79
	Old x PGA	2.34	1.76	.49	1.33

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

Turning to the interaction between age and parental generative accomplishment in the prediction of psychological well-being (H6.6), the results hinted at support for this hypothesis in the case of depressed affect, but failed to do so in the case of integrity. Thus, the result for depressed affect lent modest support for the notion that the negative relationship with parental generative accomplishment was stronger in older adults than in midlife adults, $\beta = -.62$, $p = .10$. However, in the case of integrity,

the interaction effect failed to approach significance, $\beta = .25$, $p = .50$. Thus, again, between-group analyses indicated that the differences between midlife and older adults that were implied by within-group analyses were not statistically reliable.

Table 6.13. Regression of Integrity and Depressed Affect on Age Group, Parental Generative Accomplishment and Their Interaction Term.

<i>Model</i>		<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>
Criterion = Integrity					
1	(Constant)	38.18	.96		39.74***
	Age=Old	2.78	1.28	.21	2.17
2	(Constant)	38.26	.89		42.83
	Age=Old	2.69	1.19	.20	2.26
	Parental generative accomplishment	2.77	.66	.37	4.18
3	(Constant)	38.24	.90		42.69***
	Age=Old	-.37	4.43	-.03	-.08
	Parental generative accomplishment (PGA)	2.12	1.12	.28	1.89
	Old x PGA	1.00	1.39	.25	.72
Criterion = Depressed Affect					
1	(Constant)	4.03	.41		9.85***
	Age=Old	-.68	.55	-.12	-1.25
2	(Constant)	4.01	.40		10.11
	Age=Old	-.66	.53	-.12	-1.24
	Parental generative accomplishment	-.83	.29	-.27	-2.84
3	(Constant)	4.03	.39		10.24***
	Age=Old	2.48	1.94	.44	1.28
	Parental generative accomplishment (PGA)	-.17	.49	-.05	-.34
	Old x PGA	-1.03	.61	-.62	-1.68 [†]

[†] $p < .10$; *** $p < .001$.

6.5. Discussion

This study examined two aspects of parental generativity – parental generative behaviour and self-evaluations of the parental role – and their relationship with global self-evaluations of generativity and psychological well-being (integrity and

depressed affect) in a sample of midlife and older parents. The role of global self-evaluations of generativity as a possible mediator of the relationship between parental generative accomplishment and psychological well-being was also examined, along with possible age differences in the relationship between parental generativity and global generativity.

Within-age group analyses suggested that the relationships among these variables were different in the two cohorts of parents in this study. Although midlife parents engaged in higher levels of parental generative behaviour than older parents, neither parental generative behaviour nor evaluations of the parental role was related to evaluations of global generativity, and evaluations of parental generativity were only marginally related to one dimension of psychological well-being (integrity). By contrast, global self evaluations of generativity were strongly related to integrity, although unrelated to depressed affect.

In older parents, on the other hand, parental generative behaviour and evaluations of parental generativity both predicted self-evaluations of global generativity, while parental generative accomplishment also predicted integrity and depressed affect. However, global generativity was somewhat weakly related to well-being, and there was a tendency for its effects to be reduced by evaluations of parental generativity. Thus, to a certain extent, the relative effects of global and parental generativity were reversed in midlife and older adults.

Because between-group analyses of interaction effects failed to lend resounding statistical support for the age differences implied by these within-group analyses, the results of the latter should be interpreted with caution. With that in mind, however, their possible implications are discussed in the following sections, together with limitations of the study and suggestions for future research.

Relationships between Parental and Global Generativity

In midlife parents, parental generativity was essentially unrelated to global generativity. Thus, although these midlife parents engaged in high levels of parental generative behaviour, and evaluated their parental generativity as highly as older parents evaluated theirs, neither behavioural nor self-evaluative dimensions of parental generativity contributed to their assessments of their global generativity. These results lead to the conjecture that these midlife parents must have derived their sense of global generativity from elsewhere, most probably from other roles. An obvious candidate is the worker role, but other possibilities include the spousal role (MacDermid, Franz, & De Reus, 1998), the volunteer role, or the role of adult child providing assistance to older parents (Peterson, 2002).

In older parents on the other hand, there was a much stronger relationship between parental and global generativity (as indicated by both within-group analyses, and between group analyses of interaction effects), particularly in older mothers. The results are consistent with the arguments advanced in the introduction to this chapter relating socioemotional selectivity (Carstensen, 1991; Lang & Carstensen, 2002) to an emphasis on generativity within the parenting domain. That is, older adults may choose to direct their generativity towards those with whom they have the closest emotional ties. However, the results are also consistent with possible cohort, as well as age, differences in the importance of parenting as an expression of generativity, particularly in mothers. Given that the average age of children among older parents was 43 (as opposed to 23 in the midlife sample) the majority of these mothers would have begun raising their children in the 1960s or earlier. In accordance with prescribed gender roles at the time, they may have focused on motherhood rather than paid work (if they had any) as a primary source of achievement and identity. For

these women, therefore, the mother-child relationship and the success or failure of children in their adult lives might have been of critical importance to a sense of generative accomplishment. For the midlife mothers, on the other hand, who began raising children from the late 1970s onwards, intervening changes in societal expectations concerning gender equality and women's participation in the paid workforce (e.g., Bolzendahl & Myers, 2004; Brooks & Bolzendahl, 2004) may have meant that the worker role had begun to assume greater importance as a source of achievement and competence in women's lives (see also MacDermid, Heilbrun, & DeHaan, 1997). These changes may in turn have meant that these women's relationships with their children, and their perceptions of their children's progress in life were less central to their sense of generative identity.

Clearly, it is not possible to tell from a cross-sectional study whether the differences observed between these two age groups reflect age effects or cohort differences. A longitudinal panel study would be required to trace the patterns of stability or change within the same group of individuals, as well as differences between cohorts (Papalia, Camp, & Feldman, 1996).

One intriguing finding that was common to both midlife and older parents was that parental generative behaviour was unrelated to self-perceptions of parental generativity. In this study, the measure of parental generative accomplishment focused on ratings of the parent-child relationship and how children have turned out as products of parental generativity. It is possible that an alternative measure, for example, one that focused on parents' self-ratings of their current responsiveness to their children, or their involvement in nurturing and guiding them, might have been more closely linked to the measure of parental generative behaviour used in the study.

Parental Generativity, Global Generativity and Psychological Well-being

As well as differing in the extent to which parental generativity was related to global generativity, within-group analyses indicated that midlife and older parents also differed in the extent to which parental generative accomplishment predicted psychological well-being. The finding that in midlife adults parental generative accomplishment was only weakly related to integrity and was unrelated to depressed affect was unexpected, but is consistent with prior evidence suggesting that generativity in the parental role may not be strongly related to psychological well-being during midlife (e.g., MacDermid, De Haan, & Heilbrun, 1996; MacDermid, Franz, & De Reus, 1998). However, it should be borne in mind that the non-significant results may have been influenced by the relatively small sample size. Thus, although the correlation and regression coefficients were insufficiently large to achieve statistical significance, they were not small enough to rule out the possibility that a genuine, if relatively modest, relationship, might exist between parental generative accomplishment and certain dimensions of psychological well-being in midlife parents. Further research might help ascertain whether the trend towards a relationship between parental generative accomplishment and integrity that was observed in this study would be statistically reliable in a larger sample.

Nevertheless, the results obtained for midlife parents were initially somewhat puzzling. As was suggested for global generativity, they indicate that these midlife parents drew their sense of well-being from areas other than the parenting role, again, possibly from other role involvements. While it is not possible to tell from these data which roles – public, professional or personal – might have contributed more to their well-being than the parenting role, the finding that global generativity was strongly related to midlife integrity while parental generative accomplishment was not, points

to a possible focus on the “bigger picture” in these midlife parents. Put somewhat differently, it seems that the sense of having made a contribution to the wider society was a more important source of gratification than was the sense of having made a contribution to one’s own children. Such an interpretation is consistent with theoretical notions of midlife review, as well as the notion that generativity at midlife may be associated with a widening sphere of influence and radius of care (Erikson, 1963; Stewart & Ostrove, 1998; Zucker, Ostrove, & Stewart, 2002). It is also consistent with the notion that midlife parents (particularly mothers) may desire to move beyond parenting as their chief expression of generativity towards other forms such as creativity or productivity (e.g., Stewart & Vandewater, 1998). However, the results are also consistent with the notion that midlife parents may feel strong societal pressures (i.e., cultural demand; McAdams & de St. Aubin, 1992) not only to produce happy well-adjusted children, but also to have a significant generative impact in other life domains.

It will be recalled that Ryff and her colleagues (Ryff, Lee, Essex, & Schmutte, 1994; Ryff, Schmutte, & Lee, 1996) found strong relationships between midlife parents’ ratings of young adult children’s adjustment, parents’ self-attributions for their children’s adjustment and parents’ psychological well-being. While the results for the midlife parents in this study were not consistent with these earlier findings, those for older parents were. For these older parents – particularly older mothers – parental generative accomplishment was strongly related to both integrity and depressed affect. Further, the effect of parental generative accomplishment on integrity eclipsed that of global generativity. Although the measure of parental accomplishment used in this study was different from the measures used by Ryff and her colleagues (Ryff, Lee, Essex, & Schmutte, 1994; Ryff, Schmutte, & Lee, 1996) –

it was more self-referential, focused as much on the parent-child relationship as on ratings of children's adjustment, and combined perceptions of children's success with perception of parental responsibility – the results of the studies are nevertheless consistent.

While the absence of a convincing relationship linking parental generativity to either global generativity or psychological well-being in midlife adults was somewhat puzzling, the absence of a convincing link between global generativity and psychological well-being in older adults was more so, particularly given the strength of the relationship that was found in the older participants in Part 1 of this thesis. Several explanations for the inconsistency may be suggested. Firstly, the administration of the second questionnaire by interview, rather than as a self-complete instrument (as had been done in the first survey), may have disrupted an automatic tendency on the part of participants to respond similarly to both the global generativity and psychological well-being variables. If this were the case, the results from the second questionnaire would provide a more accurate representation of the relationship between global generativity and well-being than the results from the first. It was the author's impression when administering the interview that rather than responding automatically or attempting to present themselves in an advantageous light, respondents were for the most part answering questions thoughtfully and reflectively. The inclusion of a social desirability measure on both occasions might have helped to resolve the question of participants' response tendencies.

Secondly, the intermingling of the global generativity with the well-being items for the second sample may have diluted their impact on well-being. For the first sample, by contrast, the items were administered as a block, which may have heightened the effects of self-evaluation on well-being. If this were the case,

however, one would expect the effect in midlife adults to have been similarly diluted. Administering the questions in two different ways (either interspersed with other questions or in a single group) to two separate groups of individuals might assist in resolving this question.

A third possibility concerns possible differences between the older participants in Parts 1 and 2 of the thesis. It will be recalled that the majority of older participants in Part 1 were drawn from seniors' and volunteer groups, while those in Part 2 had volunteered to take part in a study of cognitive ageing (some reported having done so to resolve concerns about their own cognitive functioning). Thus, by definition, the older adults in the first sample may have had a greater investment in generativity than many of those constituting the second sample.

A fourth explanation is that for older people the perceived importance of global self-evaluations of generativity may depend on whether such evaluations are made in the context of, or separately from, evaluations of domain-specific generativity. In the former case, the importance of global generative self-evaluations may be superseded by the importance of evaluations relating to the specific domains in question. (It will be recalled that in Part 2 of this thesis, questions pertaining to generativity and psychological well-being were positioned after a lengthy set of questions concerning generativity in a variety of life domains.) The logical implication of this argument, however, is that in midlife adults, by contrast, self-evaluations of global generativity may be important to well-being, regardless of whether specific domains are, or are not, under consideration. If this is the case, the results again point to the primacy of global generativity as a midlife issue.

Limitations of the Current Study and Suggestions for Future Research

In addition to those already mentioned, several improvements could be made to the design of the current study to provide a more in-depth examination of parental generativity. A larger sample would permit the detection of smaller effect sizes as well as engendering greater confidence in the generalisability of the results.

Importantly, a larger sample would allow scrutiny of gender differences in the relationships among global generativity, parental generativity and psychological well-being, something that was not permitted by the small numbers (particularly of fathers) in this study. This is particularly pertinent, given the recent body of research interest in the links between fatherly involvement and generativity (Christiansen & Palkovitz, 1998; Dollahite, 2004; Hawkins, Christiansen, Sargent, & Hill, 1993; Snarey, 1993; Westermeyer, 2004).

The present study did not investigate the role of parental generative concern. Inclusion of an appropriate measure, such as investment in the parenting role, might help to determine how well a model that incorporates generative concern, behaviour and self-evaluations (as in Part 1 of this thesis) may be applied to the domain-specific level (i.e., to the parental role), as well as to the global level. Differences in parental investment might (or might not) also account for the age differences in the relationship between parental generative accomplishment and psychological well-being that were suggested by within-group analyses. Such a measure would allow insight into the ways in which parental generative concern influences relationships linking parental generative behaviour and self-evaluations to global self-evaluations of generativity and psychological well-being. Similarly, measures of parental satisfaction and closeness to children might also influence perceptions of parental

generativity and their relationship to both global generativity and psychological well-being.

It is acknowledged that the measure of parental generative behaviour used in this study may also have been somewhat circumscribed. While parental *care* may prompt the giving of support and guidance, parental *respect* for adolescent and adult children may on occasion entail the withholding of advice (Erikson, Erikson, & Kivnick, 1986). Parental generativity towards adult children may also involve financial and other forms of instrumental assistance. These different forms of parental generative behaviour may differentially impact on relationships between parents and children (Ingersoll-Dayton, Neal, & Hammer, 2001), and on parental self-assessments of generativity.

Finally, the inclusion of measures of other role involvements (e.g., worker, volunteer, grandparent), and investments in these roles could shed light on how these contextual and personal factors influence engagement in and evaluations of parental generativity. For example, women who are less invested in the worker role might gain a greater sense of generative satisfaction and accomplishment from the parenting role (cf. Peterson & Stewart, 1996).

Similar to the research of MacDermid and her colleagues (e.g., MacDermid et al., 1998) the measure of parental generative accomplishment used in this thesis could conceivably be viewed as a measure of overall parental role quality. A future analysis of parental generativity might treat separately the individual elements of parental generative accomplishment, such as evaluations of parent-child relationship quality, adjustment of children, and attributions of responsibility for children's adjustment (e.g., Ryff, Lee, Essex, & Schmutte, 1994; Ryff, Schmutte, & Lee, 1996),

rather than combine them within a single measure as was done in this thesis. This would allow the role of each of these elements to be examined.

Prior research has suggested that the nature and extent of parental assistance differs for sons and daughters, with parents providing more assistance to caregiving sons than to caregiving daughters (Ingersoll-Dayton, Neal, & Hammer, 2001). Also, there is evidence that parental well-being is more positively related to perceptions of sons' than of daughters' adjustment, and that attributions of parental responsibility for children's success in life may interact with the gender of both parent and child to influence parental well-being (Ryff, Lee, Essex, & Schmutte, 1994; Ryff, Schmutte, & Lee, 1996). Thus, the gender of both children and parents may influence expressions and evaluations of parental generativity, and their consequences for both global generativity and psychological well-being. Again, knowledge of such characteristics of parents and children would allow greater contextualisation of generativity.

Finally, determination of the extent to which parental generativity (or any other form of domain-specific generativity) converges with global generativity would require an analysis, not only of relationships between domain-specific and global measures of generative self-evaluation (as was attempted in this study), but also of correlations between domain-specific and global measures of concern, and behaviour. Such analysis would help to determine to what extent global evaluations of generativity are indeed a function of generativity in specific life domains, or whether they are an independent form of generativity that focuses on the bigger picture.

Chapter 7 General Discussion

7.1. Overview

Using the prior theories of McAdams and de St. Aubin (1992) and Stewart and Vandewater (1998) as a guide, this thesis aimed to test a model of generativity that consisted of value-expressive, behavioural and self-evaluative components. These components were assessed via self-report and were operationalised at both the global and the domain-specific level. The overarching hypothesis was that generative concern, generative self-evaluations, and generative behaviours would be differentially related to age and to psychological well-being. A particular focus was on the distinction between generative concern and generative self-evaluations. It was believed that these two elements of generativity have previously been confounded in the literature, thereby masking the relationships of each with psychological well-being.

With some qualifications, the research found broad support for the main hypotheses. In Chapter 2, self-report measures were developed that yielded three psychological and three behavioural components of generativity. The former consisted of generative concern (a value-expressive component), together with self-evaluations of current and whole-of-life generativity. Behaviours consisted of guiding and influencing, community service, and childcare. While there were high correlations among the psychological components, the analyses in Chapter 3 confirmed that all six components of generativity were characterised by differing age profiles. Overall, results supported the propositions that positive self-evaluations of

generative impact and accomplishment are more characteristic of maturity than of young adulthood; that midlife may be characterised by generative self-evaluations rather than generative concern; and that generative self-evaluations are less characteristic of young adulthood than is generative concern.

The results reported in Chapters 4 and 5 yielded support for the proposition that the components of generativity are differentially related to psychological well-being. In Chapter 4, it was found that generative self-evaluations were not only more strongly related to psychological well-being than was either generative concern or generative behaviour, but that they also to some extent moderated the relationship of generative concern to psychological well-being. In this way, the results challenged earlier claims (e.g., de St. Aubin & McAdams, 1995) that generative concern per se promotes psychological well-being. The results of Chapter 5 pointed to the moderating role of age, by suggesting that whole-of-life self-evaluations of generativity may be of particular importance to the well-being of midlife adults, and also that current self-evaluations of generativity may interact with generative concern to influence midlife well-being. Chapter 6 underscored differences in the generativity of midlife and older adults in the parenting domain, and in the implications of parental versus global generativity for psychological well-being. Finally, the research also found evidence to suggest that the Loyola Generativity Scale (a widely accepted measure of generative concern) may have more in common with generative self-evaluations than with generative concern, as implied by its convergence with the purposely developed measures of these constructs, as well as its relationships with age and well-being.

Some specific predictions of the thesis were not supported, however. For example, scores on the measure of generative concern did *not* differ between age

groups, as had been expected, and were only weakly related to the measure of generative behaviour. Secondly, self-evaluations of current generativity were *not* more strongly related to psychological well-being in midlife adults than in younger or older adults (as had been expected) although they did play a moderating role in the relationship between generative concern and integrity. Thirdly, contrary to expectations, among older adults with low levels of generative concern, those with *high* self-evaluations of generativity had higher depression scores than those with low self-evaluations of generativity. Finally, in the second sample of older adults, whole-of-life self-evaluations of generativity were only weakly related to psychological well-being, compared with self-evaluations of parental generativity. Such findings point to the possible need to refine measures and to replicate the studies.

Several wider questions arise from the results of the thesis, concerning the conceptualisation and measurement of generativity, and future research into the relationship between generativity, age and well-being. These topics will be discussed in the following sections.

7.2. Measurement of Generativity

The present thesis aimed to address the measurement of generativity by distinguishing between generative concern and generative self-evaluations, between self-evaluations of current and of whole-of-life generativity, and among several types of generative behaviour. The implications of each of these will be discussed in turn.

7.2.1. Distinguishing Between Generative Concern and Generative Self-Evaluations

An initial aim of the present research was to create instruments that would distinguish between generative concern and generative self-evaluations at the self-report level, since it was believed that these two elements had been confounded in McAdams and de St. Aubin's (1992) measure of generative concern, the Loyola Generativity Scale (LGS). This was done by initially separating, and then supplementing, the value-expressive and self-evaluative items that make up the LGS and examining their measurement properties using confirmatory factor analysis. By demonstrating that the measures of concern and self-evaluations that were subsequently developed were differentially related to age and well-being, the research showed that it was possible to distinguish between these constructs at the self-report level, and pointed to the conceptual and empirical importance of doing so. It also garnered support for the hypothesis that self-evaluations of generativity are more strongly related to psychological well-being than is generative concern.

Given the abundance of tools that have been developed to distinguish among the various components of generativity (e.g., to differentiate motivational aspects of generativity from indicators of generative accomplishment or fulfilment), the value of appearing to introduce yet more instruments for this purpose may be arguable. However, by targeting generative concern separately from generative self-evaluations, the instruments developed in this thesis were successful in generating self-report measures of the two constructs that were distinct rather than confounded (as has been argued to be the case with the LGS). At the same time, because the instruments used a common self-report method, they provided measures that were

complementary, rather than disparate, as would arguably have been the case if different methodologies had been used. It is believed that the use of such a conservative measurement approach in this thesis warranted confidence in the resulting differences among the measures that were identified in subsequent analyses.

One important methodological issue that needs to be addressed is the extent to which the measures that were developed were subject to social desirability response bias, the tendency to “endorse items in response to social or normative pressures instead of providing veridical self-reports” (Ellingson, Smith, & Sackett, 2001). This concern arises primarily because generativity may be regarded as a socially desirable construct, particularly one that embodies positive moral qualities and actions (e.g., Paulhus & John, 1998). According to Paulhus and John (1998), measures of such constructs may be subject to “moralistic bias”, the exaggerated tendency to present oneself as being of good character. Furthermore, in the present study, such a tendency may have been exacerbated by the removal of all negatively worded items following reliability and confirmatory factor analyses. Future research using these measures should include an appropriate measure of social desirability (e.g., Crowne & Marlowe, 1960), and control for its effects in subsequent analyses of the relationship between the generativity measures and psychological well-being. Furthermore, because preliminary analyses resulted in some scales on which all items were unidirectional further scale development is warranted to produce items that are worded both positively and negatively.

Besides addressing this methodological issue, replication of the results is required to determine whether the relationships with age and well-being that were observed in this thesis (particularly in the studies comprising Part 1) extend beyond the samples under investigation. Such replication is needed to augment confidence in

the measures used, as well as in the degree to which empirical differences between generative concern and generative self-evaluations reliably conform to those observed in this thesis. At the same time, a comprehensive evaluation of the current measures also requires examination of the degree to which they converge with prior measures of generativity, for example, of motivation on the one hand (goals, strivings, desires, needs for agency and communion) and generative fulfilment or realisation on the other. For example, it could be anticipated that a valid measure of generative concern would be more strongly correlated with spontaneous descriptions of generative goals or strivings than with descriptions of generative accomplishments or high points, while the reverse could be expected of measures targeting self-evaluations of generativity.

Nevertheless, it cannot be denied that an array of approaches to the conceptualisation and measurement of generativity already exists, particularly those purporting to differentiate elements of generative motivation from elements of generative realisation, and, within these broader categories, to distinguish among the various elements themselves. If the various operational definitions and associated measures are to be useful, an understanding is needed, not only of how they converge, but also of how they differ at both the conceptual and empirical level. For example, distinctions among generative concern, commitment and desire should entail clear hypotheses regarding how these constructs are likely to differ in their relationship both with other components of generativity, and with age, well-being and other behaviours. It could be conjectured, for example, that descriptions of goals or strivings may be more sensitive to age differences than are self-report, value-expressive measures of generative concern such as that used in this thesis. (It may also be that the different *themes* expressed in goals or strivings are differentially

associated with age.) On the other hand, self-evaluative measures of generative accomplishment or achievement may demonstrate stronger relationships with certain self-report measures of psychological well-being than do descriptions of generative high points, or observer-based measures of generative realisation. This is because, focusing on the self, such measures may highlight congruencies or discrepancies between desired and actual levels of generative accomplishment, which may lead to favourable or unfavourable comparisons between desired and real selves (Higgins, 1987), or to social comparisons between one's own accomplishments and the imagined or real accomplishments of others (Heidrich & Ryff, 1993a). In turn, descriptions of high points, or observer-based measures of accomplishment, might reveal strong relationships with alternative indicators of adjustment, such as social integration, positive relationships with others, or parental or work satisfaction.

As described elsewhere in this thesis, both McAdams and Peterson, and their respective colleagues (McAdams, Ruetzel, & Foley, 1986; Peterson, 1998; Peterson & Stewart, 1996) have emphasised the importance of assessing generativity, particularly generative motivation, at the implicit level, using measures derived from personal narratives or semi-projective techniques. Such measures purportedly capture deeper levels of personality, including needs or motivations of which individuals may not be explicitly aware, but which influence their behaviour over time (McClelland, Koestner, & Weinberger, 1989). Given that correlations between implicit and self-attributed needs (e.g., for affiliation, power, achievement) are generally low (McClelland, Koestner, & Weinberger), it might be particularly informative to understand the relationship between self-report and implicit measures of *generative* motivation, and whether there are behavioural and psychological consequences of discrepancies between them. Discrepancies between self-reported measures of

generative self-evaluation and observer-based measures of generative realisation could also be investigated.

7.2.2. *Distinguishing Between Current and Whole-of-Life Generativity*

A second aim concerning the measurement of generativity was to distinguish between self-evaluations of current and whole-of-life generativity for the purposes of demonstrating differential relationships with age, as well as with well-being within different age groups. It will be recalled that they were intended to correspond to Stewart and Vandewater's (1998) notions of generative capacity and accomplishment, respectively, in terms of anticipated age-cohort differences and in their importance to psychological well-being in midlife and older adults. Thus, current self-evaluations were expected to be particularly characteristic of midlife adults, while whole-of-life self-evaluations were expected to be particularly characteristic of older adults. There was also, in this author's view, a clear *conceptual* link between self-evaluations of whole-of-life generativity and generative accomplishment: both appear to represent generative contributions or achievements that have been completed. However, it was less clear that the notion of self-evaluations of current generativity (the degree to which individuals believe they currently exert a positive generative impact) was conceptually identical to Stewart and Vandewater's notion of generative capacity (an increased sense of productivity, effectiveness and care). Based on the results of this thesis, as well as the results of prior published studies (e.g., Stewart & Vandewater, 1998; Zucker, Ostrove, & Stewart, 2002), it appears likely that, empirically speaking, the two might show similar age profiles, confirming that both are an indicator of midlife generativity. However, they might differ in their relationship with well-being: in the current

research, self-evaluations of current generativity *was* related to psychological well-being, while in prior research, Stewart and Vandewater (1998) reported that generative capacity was not. Further investigation is required, both to determine whether the relationship between current self-evaluations of generativity and psychological well-being that was reported in this study is replicable, and to establish other points of convergence or divergence between self-evaluations of current generativity and generative capacity.

Despite their differing age profiles, the very high correlations between current and whole-of-life self-evaluations, and the general similarity of their relationships with psychological well-being, suggest a considerable degree of commonality between them. This casts some doubt on the extent to which the differing temporal orientations expressed in these two measures were perceived as meaningful by respondents. It is possible that, unless they are prompted to do otherwise (as they were in this thesis), most people will use examples of current, as well as retrospective, generativity, to form their self-assessments of whole-of-life generativity, and of retrospective generativity to form self-assessments of current generativity. That is, a *total* generative self-concept may comprise self-assessments of both past and present generativity. As previously described, the main justifications for obtaining separate measures of each in this study were to uncover differential patterns of age differences, and to identify possible age-related differences in the relationship of each to well-being. Again, replication is required to establish the reliability of the results obtained in this thesis. However, if age effects are not the main focus of research, it may be feasible simply to choose either current or whole-of-life as a measure of self-evaluation, to develop a composite measure that incorporates both, or to have both load as indicators on a single latent variable in a

path model. Indeed, the extent to which *total* generative self-evaluations of generativity are influenced by age (in their composition, their level, and in their behavioural and well-being consequences) may constitute an additional research question.

7.2.3. Distinguishing Among Generative Behaviours

The final measurement aim in this thesis was to distinguish among different types of generative behaviour, partly with the aim of determining whether different types of generative behaviour may be differentially related to psychological well-being. The associated analyses appeared to uncover a dominant theme, that of guiding and influencing others (possibly in an organisational setting), which was strongly related to self-evaluations of generativity and to self-esteem. Two additional themes were also identified. The first of these, community service was also correlated with self-evaluations of generativity, but the second, childcare, was not. This was somewhat unexpected, given that care for children is closely aligned with the central theme in Erikson's formulation of generativity, namely care for the next generation. Nevertheless, it is acknowledged that the measure of childcare is unlikely to have captured the intensive involvement characteristic of those responsible for child care, such as parents or teachers.

While guiding and influencing others is consistent with the generative theme of passing on knowledge and guidance (and while the measure developed in Chapter 2 also incorporated an element of productivity), it is not clear that it necessarily encapsulates the theme of care, the virtue that necessarily accompanies generativity in Erikson's formulations (Erikson, 1963, 1980). Care implies a concern that extends beyond the self, as well as an ethic of responsibility and a preparedness to put aside

one's own needs for the sake of others and their welfare (Bradley & Marcia, 1998; Erikson, 1963; McAdams & de St. Aubin, 1992; Skoe, Pratt, Matthews, & Curror, 1996). It is conceivable that someone in a position of authority or power, whose role involves guiding or influencing others, might believe that they are having, or have had, a generative impact on others even if they do not particularly care about the welfare of those that they are guiding or influencing. Care may also lead to acts of generativity involving sacrifice or generosity, which may be reflected by community service or childcare, as much as by guiding and influencing. Indeed, in transcending the self, care may provide a motivation for generative action that is different from the kind of generative desires or generative aspirations (for agency and/or communion) that may provide the initial impetus for generativity. That is, rather than representing a response to one's own needs for generative self-realisation, care entails a response to, and sense of responsibility for, the perceived needs of others.

While care is an implicitly acknowledged theme in most treatments of generativity, the extent to which it is explicitly highlighted appears to vary somewhat across formulations. In Erikson's formulation, the individual must learn or acquire care as he or she increasingly engages in, and masters, generative tasks. It is implied, therefore, that care is a manifestation of mature generativity. In McAdams and de St. Aubin's theory (McAdams & de St. Aubin, 1992), care is represented by generative concern, linking inner desires for agency and communion to generative commitment and behaviour. Thus, concern for the next generation somehow arises as a response to one's own inner desires and cultural demands, and is causally prior to commitment and behaviour. Interestingly, however, within McAdams' coding scheme for life narratives, care of others was originally included within the realm of intimacy or communion (McAdams, 1980). It is thereby differentiated from the themes that are

assumed to characterise generativity, even though three of these – offering maintaining and intergenerational involvement – could be seen to represent caring expressions of generativity and legacy (although clearly offering, maintaining, an intergenerational involvement invoke caring expressions of generativity). In Stewart et al.'s (1988) taxonomy, on the other hand (based on Erikson's original writings), parental generativity, or concerns for children, and care for people other than children are included among the major themes of generativity, along with more agentic aspects, such as procreativity, productivity and creativity (Stewart, Franz, & Layton, 1988; Stewart & Vandewater, 1998). Other researchers have similarly emphasised the importance of the disposition to care (Keyes & Ryff, 1998) and/or the caring treatment of others as manifestations of generativity (e.g., Bradley, 1997; Peterson, 2002; Snarey, 1993).

Care may therefore be regarded as an essential ingredient or concomitant of generativity. Accordingly, self-report measures of generativity should also correlate with measures of care, as well as with measures of associated constructs such as empathy. Various schemes and associated interview schedules exist for the purpose of categorising individuals according to their level of care (Bradley, 1997; Bradley & Marcia, 1998; Skoe, Pratt, Matthews, & Currer, 1996). In Bradley's (1997) five-category scheme for coding generativity, for example, a generative person is one who, on the basis of the extent and breadth of their life involvements, is deemed to be actively concerned with the growth of self and others, and to demonstrate an inclusive scope of caregiving concern (corresponding to Erikson's "widening radius of care"). As such, generative individuals are distinguishable from those with more restricted and/or self-focused life involvements, who are by contrast designated as agentic, communal, conventional, or stagnant. It would be interesting to see the

extent to which scores on self-report measures of generativity correspond with the categories generated by such interview schedules, and whether they reliably differentiate “generative” individuals from so-called “agentic” or “communal” ones.

7.3. Detecting Age Effects in Generativity

This research employed profile analysis to analyse age effects in generativity. This technique was ideally suited to detect between- and within-group differences among the various components, as was warranted by a cross-sectional approach to Stewart and Vandewater’s (1998) model. In particular, the analysis of repeated measures offered a detailed snapshot of the different ways in which generativity was configured within each of the age-cohorts. To my knowledge this use of profile analysis has not been attempted before in the analysis of age effects in generativity.

Nevertheless, cross-sectional designs are clearly not sufficient for the examination of developmental differences in personality, since they confound age with cohort (Papalia, Camp, & Feldman, 1996). In this respect, a longitudinal design is preferable, since it shows the effects of age (although if confined to a single cohort, it confounds age with time of measurement; Papalia, Camp, & Feldman, 1996). Typically, age effects are more muted in longitudinal studies than in cross-sectional ones, suggesting some degree of intra-individual stability or positive selection effects due to attrition (Luszcz, 1998). In any case, if data are still being collected, the movement of the Mills, Radcliffe, Smith and Michigan cohorts of women (e.g., Helson & Moane, 1987; Helson, Stewart, & Ostrove, 1995; Peterson & Stewart, 1996; Stewart, Ostrove, & Helson, 2001) into older adulthood may provide an

opportunity to map longitudinal changes in generativity, particularly in the areas of generative realisation, capacity and accomplishment in older adulthood.

Notwithstanding the limitations imposed by the cross-sectional design of the current study, certain of the observed age effects were remarkably consistent with Stewart and Vandewater's developmental model. These were the relatively low assessments of current and whole-of-life generativity in younger adults; the relatively high levels of current self-evaluations and of overall generativity in midlife adults, and, to a lesser extent, the relatively high levels of whole-of-life self-evaluations in both midlife and older adults. Concerning the first of these, mention was made in Chapter 3 that higher self-assessments of generativity might have been found in young adults with emerging careers, and/or young families, than was observed in the young (mainly) undergraduate participants in this research. Nevertheless, even younger adults who occupy the roles of parent or worker might not experience the same degree of confidence in their generative impact as is felt by the midlife and older participants in our study. Because they may lack a sense of generative capacity (to use Stewart and Vandewater's terminology), younger adults who are new to such roles may feel somewhat daunted by the generative demands placed upon them, particularly if they have yet to experience a degree of success in their efforts to meet these demands. Future research might compare self-assessments of generativity in younger and midlife adults as a function of their social roles (e.g., as parents, workers, or in specific occupational categories), and of their experience and confidence within those roles.

7.4. Relationship Between Generativity and Well-being

Chapters 4, 5 and 6 of this thesis investigated the relationships between generativity and various indicators of psychological well-being. In Chapters 4 and 5, the emphasis was on the components of global generativity, while in Chapter 6 the focus was on generativity within the specific domain of parenthood.

In Chapter 4, strong support was found for the hypotheses that self-evaluations of generativity would be a stronger (positive) predictor of psychological well-being than generative concern, that generative self-evaluations would moderate the relationship between generative concern and psychological well-being, and that generative self-evaluations would mediate the relationship between generative behaviour and psychological well-being. By contrast, generative concern demonstrated relatively weak bivariate correlations with psychological well-being, as well as a tendency to be a negative predictor, especially at low levels of generativity self-evaluations. The substantive significance of these findings has been discussed earlier, particularly as they point to the importance of distinguishing between value-expressive and self-evaluative aspects of generativity in the prediction of well-being. However, two additional issues are raised, as discussed below.

The first concerns the choice of indicators of psychological well-being. While integrity, self-esteem and depressed affect are commonly used indicators of subjective well-being, they clearly do not represent all facets of psychological health (Ryff, 1989a; Ryff & Keyes, 1995). The attainment of intimacy and personal growth, for example, may represent appropriate indicators of developmental well-being, while purpose in life has been conceptually linked to generativity (Ryff, 1989a). Concerning the latter, it may be that generative concern, or other motivational

indicators, such as desire, strivings or goals, are more strongly related to a sense of meaning in life than they are to indicators of satisfaction, such as integrity. In other words, an overarching generative concern or desire for generative fulfilment may provide a rationale and purpose for one's goals and actions.

A second issue that stems from the cross-sectional nature of the research concerns the direction of the relationship between generativity and psychological well-being. In other words, rather than generative fulfilment leading to psychological well-being, it is possible that being contented and happy leads to higher levels of generative engagement. Happy and contented individuals may behave generatively out of a sense of gratitude for their lot in life, a desire to share their good fortune with others, or a desire to give something back. Similar notions have been explored by McAdams and his colleagues (McAdams, Diamond, de St. Aubin, & Mansfield, 1997) who have suggested that particularly generative individuals experience a sense of "blessing" early in life, as well as a sensitivity to the needs and suffering of others. However, in the current study, it seems likely that if this were the case, equally strong correlations would have been observed between generative concern and psychological well-being as between generative self-evaluations and well-being (i.e., happy people would also be those with high levels of generative concern). In any case, the question of directionality may only be resolved through longitudinal research, with several waves of data collection allowing the temporal ordering of generativity and psychological well-being to be established.

In a related vein, a possibility is that the capacity for generativity and the capacity for psychological well-being are functions of individual differences in temperament. Prior research has found that generativity is related to several of the Big Five (Costa & McCrae, 1985; L. R. Goldberg, 1990; McCrae & Costa, 1987)

personality traits, including extraversion, absence of neuroticism, and openness to experience (e.g., de St. Aubin & McAdams, 1995; Peterson, 2002). In addition, numerous studies have related subjective well-being to extraversion and neuroticism (see DeNeve & Cooper, 1998 for a comprehensive review). Further research could illuminate the extent to which, after controlling for the effects of these personality traits: (1) personal values, goals and strivings (i.e., personal concerns; McAdams, 1995) are related to the components of generativity (e.g., concern, behaviour and self-evaluations); and (2) generativity contributes to psychological well-being.

7.5. Additional Research Questions

Several suggestions for further research have already been made, including the desirability of comparing the measures developed in this thesis with prior measures, and of replicating the current studies to determine the reliability of the results. However, several additional topics also warrant further investigation. These include domain-specific generativity, generativity within specific age groups, and the ability to distinguish between generativity and its constituent components.

7.5.1. Domain-Specific Generativity

As suggested in earlier chapters, studies of role-specific generativity are somewhat sparse. Although studies of parental generativity (McKeering & Pakenham, 2000; Snarey, 1993), and of generativity across multiple roles (MacDermid, De Haan, & Heilbrun, 1996; MacDermid, Franz, & De Reus, 1998; MacDermid, Heilbrun, & DeHaan, 1997) exist, detailed quantitative explorations of generativity within certain important life domains (e.g., worker, volunteer or

grandparent) have not appeared in the literature to supplement qualitative explorations of generativity (Fisher, 1995; Warburton, McLaughlin, & Pinsker, 2006). It is believed that the approach developed in this thesis may provide a suitable framework for investigations of this type. Thus, it is believed that an adequate representation of generativity within such roles would include elements corresponding to: (1) motivation or concern, (2) behaviour, and (3) self-evaluations. By incorporating role-specific measures of these elements, a comprehensive understanding of the nature of generativity within those roles may be permitted, as well as the mechanisms linking role-specific generativity to role satisfaction, self-assessments of global generativity and psychological well-being. By also relating investigations of generativity to role-structural characteristics, an understanding may be gleaned of the contextual opportunities and constraints that govern these generative expressions.

The exploration of parental generativity in Chapter 6 provided a partial illustration of the type of role-specific investigation of generativity being advocated: this showed how parental generative behaviour and self-perceived parental generativity did, or did not, relate to perceptions of global generativity and psychological well-being. To give a further illustration, a study of work-related generativity within the worker role could undertake analysis of work-related generative concern or motivation (investment in the worker role), engagement in work-related generative behaviour (generative behaviour), and self-perceived generativity within the worker role (self-evaluations). Possible antecedents could include on-the-job experience, seniority or status, type of work, and/or working conditions, while outcomes could include worker satisfaction, global generativity and psychological well-being.

To some extent the prior research of MacDermid and her colleagues (MacDermid, De Haan, & Heilbrun, 1996; MacDermid, Franz, & De Reus, 1998; MacDermid, Heilbrun, & DeHaan, 1997) has touched on similar topics. As described elsewhere, these investigators have linked perceptions of role-specific generativity to role satisfaction and competence and to psychological well-being. However, as also discussed, their research could be supplemented by including specific types of generative behaviour, along with these role-related perceptions.

7.5.2. Further Exploration of Generativity in Different Age Groups

While generativity may be predominantly a midlife issue, it is not exclusive to midlife adults, as has been abundantly shown in this and prior research. The investigation of role-specific generativity may provide a suitable arena for the exploration of generative expressions within age groups, and might also further illuminate differences between age groups. Again, the parental example described in Chapter 6 provides a partial illustration of such an approach: it allowed comparison of parental generativity in midlife and older parents, as well as of the consequences (or lack thereof) of parental generativity for global generativity and psychological well-being. To return to the worker example described in the previous section, such an investigation could allow comparison of generativity in younger and older workers. It could also shed light on whether age-related differences in self-evaluations of *global* generativity are a function of differences in perceptions of *work-related* generativity, and in turn, whether these are mediated by differences in experience, seniority, and/or type of work. Similar comparisons could be undertaken between younger and midlife parents, or between midlife and older grandparents.

There has recently been an interest in grand-generativity as a characteristic of positive ageing (Warburton, McLaughlin, & Pinsker, 2006), and as a route to health and vitality in older adulthood (Carlson, Seeman, & Fried, 2000). The psychosocial benefits for older adults of activities associated with generativity, such as volunteering, have also been investigated (Morrow-Howell, Hinterlong, Rozario, & Tang, 2003; Musick & Wilson, 2003; Narushima, 2005), along with their benefits for health and longevity (Musick, Herzog, & House, 1999). In addition, the possible benefits of “bridging employment” as a means of remaining generative during the retirement transition have also been canvassed (partly as a response to societal needs to find ways of providing for ageing baby-boomers; Calo, 2005). However, caution should perhaps be exercised before assuming that generativity is a psychosocial priority for all older adults, or that continuing to make a contribution necessarily promotes psychological well-being in this age group. In this thesis, although there was evidence of a strong relationship between self-evaluations of global generativity and psychological well-being among the older adults in the first sample, the same was not true of the older adults in the second sample. Rather, in the latter group only perceptions of *parental* generativity were related to psychological well-being, and, while engagement in parental generative behaviour and assessments of global generative behaviour were related to each other, neither predicted psychological well-being. Such results are consistent with findings reported by Timmer and her colleagues (Timmer, Bode, & Dittmann-Kohli, 2003). These researchers found that, among gains that were anticipated during the second half of life by a population-based sample of German adults (aged 40 to 84 years), plans and wishes featuring generativity were mentioned infrequently compared with those involving new projects and leisure pursuits. Further, among the generative plans and goals that were

mentioned, those relating to familial generativity (e.g., spending time with children and grandchildren) were mentioned more often than those relating to public generativity (e.g., volunteering). Thus, it is possible that although engagement in certain forms of public generativity (e.g., volunteering) may promote health and extend longevity (Musick, Herzog, & House, 1999), or may provide older adults with the reassurance that they are still making a generative contribution, it may not necessarily make older people happy. Rather, it needs to be placed within the context of close personal relationships and rewarding leisure pursuits.

Despite these qualifications, the relationship between particular domains of generativity and psychological well-being in older adults still warrants further investigation. Volunteering and grandparenting are obvious arenas for such investigations, particularly since they embody public and familial expressions of generativity, respectively, and also because they are conceptually parallel to work and parenthood in early and middle adulthood. As previously mentioned, such investigations could elucidate which domains are most strongly associated with psychological well-being, as well as the mechanisms that link the components of generativity within these domains – concern, behaviour, self-evaluations – to well-being.

One interesting model that has been put forward focuses on physical health status, rather than psychological well-being, as a potential outcome of generativity in later life. In this model, Carlson, Seeman and Fried (2000) propose that generative engagement fosters physical, cognitive and psychosocial activity, which in turn acts as mediator of the relationship between generativity and health status. What makes this model interesting is the linking of the physical and cognitive domains with a particular realm of psychosocial functioning and personality (i.e., generativity).

Given that current formulations emphasise the importance of meaning activity, social relationships and health maintenance (e.g., Antonovsky & Sagy, 1990; Luszcz, 1998) as components of positive ageing, it would be particularly informative to determine whether being *generative* improves health over and above simply being *active*, either physically or socially. It could be that generative activity – particularly in the form of guiding and influencing others or volunteering – helps to maintain particular kinds of cognitive skills, as well as a sense of purpose and social integration that may foster health and well-being.

7.5.3. Connections Between Generativity and Other Constructs

A final set of research questions concerns the extent to which generativity may be differentiated from other constructs, particularly those that are deemed to form its constituent parts. Generativity is linked to themes as diverse as procreativity, productivity, creativity, mastery, and care, and yet it is somehow meant to be more than any or all of these (Erikson, 1963; Erikson, Erikson, & Kivnick, 1986). If generativity is a meaningful construct it ought to be possible to measure the ways in which it differs from each of these individual components. For example, how is a generative person different from a (merely) caring person on the one hand, or a (merely) creative or powerful one on the other? Or how is the experience of *generative* accomplishment distinct from experiences of other kinds of accomplishment (e.g., academic, sporting or career-based achievements)? Presumably, as elaborated by Erikson, McAdams, Peterson and others, it is the synthesis of such qualities as productivity and care, agency and communion, concern

for the self and the other that characterises the generative person, as well as their over-riding concern for the next generation.

7.6. Practical Implications of the Research

As well as having clear theoretical implications, the research also suggests some practical ones. Some examples follow, but this list is by no means exhaustive. Each follows directly from results of this research, hence they provide an evidence-based approach to practice that is directed to enhancing the quality of life.

The finding that self-evaluations of generativity were positively related to psychological well-being suggests the potential value of fostering positive re-appraisals of generativity. Appropriate interventions could include: assisting such people to identify the areas in which they have already made a generative contribution; assisting them to find suitable avenues for the expression of unfulfilled generative concerns and desires; and building a sense of generative capacity through the identification of existing strengths, and the development of new ones. This type of intervention would be particularly important for those individuals with low levels of generative self-evaluation and high levels of generative concern. The reason for this suggestion is that in the present research, it was this group that had especially low levels of psychological well-being.

Engaging in generative behaviours involving guiding and mentoring others may provide an avenue to positive generative self-evaluations. This suggestion stems from the finding that this type of behaviour was most closely linked to positive generative self-evaluations.

For older adults, the findings from the second study highlighted the importance to psychological well-being of a positive sense of parental generative accomplishment. The findings also point to the possible benefits of maintaining and/or repairing parent-child relationships in older adulthood (e.g., Blieszner, 2006; Erikson, Erikson, & Kivnick, 1986), as well as the potential difficulties faced by older adults without children. That is, even though having children does not itself guarantee psychological well-being in older adulthood (Koropecky-Cox, 2002), the absence of children and grandchildren may leave a gap in one's opportunities for intergenerational intimacy and generativity in later life. Although there are individual and gender differences in the extent to which childlessness affects psychological well-being in later life (Zhang & Hayward, 2001), it is possible that volunteer programmes offering opportunities for mentoring or caring for people of younger generations (e.g., Fisher, 1995) may be particularly valuable in promoting a positive sense of generativity in childless older people (e.g., Fisher, 1995).

7.7. Conclusion

This research investigated the nature of generative concern, generative self-evaluations and generative behaviours. It aimed to show that these aspects of generativity are distinguishable from one another at the self-report level, and that the constructs differ in their relationships with age and well-being. In particular, it aimed to show that, at the global level, generative concern and generative self-evaluations, two components that have been previously confounded in the literature, should be

considered as different constructs, with different consequences for psychological well-being.

While this thesis highlighted differences between generative concern and generative self-evaluations in their relationships with age and well-being, it remains to be seen whether these two elements are differentially related to other constructs or behaviours that have been related to generativity in the literature. Of especial interest are measures of constructs that have been associated with generative concern on the basis of both prior theory and of their correlations with the LGS. Examples include social involvement, involved parenting styles, and intergenerational involvement (Hart, McAdams, Hirsch, & Bauer, 2001; Lawford, Pratt, Hunsberger, & Pancer, 2005; McKeering & Pakenham, 2000; Peterson, 2002; Pratt, Danso, Arnold, Norris, & Filyer, 2001). A frequent assertion of this thesis, and one that has been supported by the results herein, is that, although the LGS may contain elements of generative concern, the full instrument may more appropriately be regarded as a measure of generative self-evaluations. Put somewhat differently, the LGS may be viewed as a self-report measure of generative realisation or accomplishment (cf. Keyes & Ryff, 1998; Stewart & Vandewater, 1998). If this is the case, high correlations between the LGS on the one hand, and indicators of positive intergenerational involvement or other prosocial behaviours on the other, may indicate that *both* are indicators of generative realisation, *or* that involvement in such generative projects as parenting and the like (which may initially be prompted by high levels of generative concern or desire) may lead to a positive sense of generative realisation or accomplishment. This is in contrast to the more accepted alternative interpretation, which maintains that correlations between LGS scores and intergenerational involvement and the like are *outcomes* of generative concern as suggested by McAdams and de St. Aubin's (1992)

original model (although it is acknowledged that McKeering et al. use the LGS as an index of societal generativity). While generative concern may indeed motivate caring involvement with members of the next generation, and/or behaviours aimed at making the world a better place for them to inherit, for the sake of conceptual and empirical clarity it may be better to use the full LGS as a self-evaluative measure of generative accomplishment or realisation than of generative concern, and either use an abbreviated version of the LGS, or adopt an alternative instrument, to assess generative concern.

Appendices

Appendix A: Introductory Letter and Questionnaire for Part 1.



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July 1999

Dear Sir/Madam

I hold the position of Professor with the School of Psychology in the Faculty of Social Sciences at Flinders University. This letter is to introduce Carolyn Boyd, a postgraduate student who is undertaking research into certain aspects of psychological development in adulthood. The aim of her research is to extend knowledge of how personality, attitudes and beliefs develop during adulthood, and whether any such development influences behaviour and well-being. I would be most grateful if you could spare the time (approximately 30 to 40 minutes) to assist in the project by completing a questionnaire relating to certain aspects of the topic, and returning it to Flinders University in the reply-paid envelope.

Any information will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting report. A summary of the findings will be provided for you, on request, once all the data have been gathered, analysed and interpreted. You are, of course, entirely free to discontinue your participation at any time or to decline to answer particular questions.

Persons who complete the questionnaire will be eligible to be in the draw for one of three gift vouchers, valued at \$40, \$25, or \$15. To enter the draw, please put your name and address on the ticket attached to the questionnaire and return it with the completed questionnaire. The raffle will be drawn on 30 September, and winners will be notified by telephone or mail.

Any enquiries you may have concerning this project should be directed to me at the address provided above or telephone 8201 2481. This project has been approved by the Social and Behavioural Research Ethics Committee. The Secretary of this Committee can be contacted on 8201 3153.

Thank you in advance for your help and cooperation.

Yours faithfully

Mary Luszcz, PhD
Professor

Enc

Instructions

Thank you for agreeing to take part in this study. These pages contain questions about a range of attitudes, beliefs and views that you might have on a wide variety of matters. Please take your time and work through them on your own. Some of the statements in the questions may not directly apply to you but please answer them as best you can. We are interested in **your own opinion**, not your judgement of what others think or what might be the “right” answer. **Remember, there are no right or wrong answers to these questions, because people are different.** Please take your time and answer the questions to the best of your ability.

Most questions are followed by **seven** choices. Draw a circle around the number corresponding to your choice. Mark only one number for each statement.

Example. This question asks your opinion about how you feel about a particular job:

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Moderately Agree	Strongly Agree
I think I would like the work of a teacher.	1	2	3	4	5	6	7

Choose the answer that is correct for you. If you agree strongly with the statement you would circle **7**. If you **disagree strongly** you would circle number **1**. Numbers **2** and **6** mean that you **moderately** agree or disagree, while **3** and **5** mean that you **slightly** agree or disagree. The number **4** answer gives you a middle choice to use if you can't decide on any of the other responses.

So, if you **moderately agree** with this statement, your response would look like this:

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Moderately Agree	Strongly Agree
I think I would like the work of a teacher.	1	2	3	4	5	6	7

Keep these points in mind:

- (a) Except where indicated, please try to answer **every** question, even if it doesn't seem to apply to you very well.
- (b) Answer as honestly as you can what is true for **you**. Please do not mark something because it seems like the “right” thing to say.
- (c) Some sections are similar but they ask about **different time periods**, so please **read carefully** and answer according to the instructions.

Questions are on both sides of the page. Please turn to page 1 and begin answering the questions.

Section 1: To begin with, we would like you to think about how you feel about certain aspects of your life. For each of the statements below, please indicate how strongly you agree or disagree by circling the number that matches your own attitude most closely.

	<i>Strongly Disagree</i>	<i>Moderately Disagree</i>	<i>Slightly Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Slightly Agree</i>	<i>Moderately Agree</i>	<i>Strongly Agree</i>
1. When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6	7
2. I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6	7
3. Even though I may not have experienced everything I hoped for, I am contented with how my life is now.	1	2	3	4	5	6	7
4. I may have made some mistakes in the past, but I feel that all in all things have turned out for the best.	1	2	3	4	5	6	7
5. I feel very comfortable with the values I have.	1	2	3	4	5	6	7
6. People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6	7
7. I am not interested in activities that will expand my horizons.	1	2	3	4	5	6	7
8. I gave up trying to make improvements or changes in my life a long time ago.	1	2	3	4	5	6	7
9. I feel like many of the people I know have got more out of life than I have.	1	2	3	4	5	6	7
10. In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6	7
11. I don't want to try new ways of doing things - my life is fine the way it is.	1	2	3	4	5	6	7
12. Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6	7
13. In general, I know what I want out of life.	1	2	3	4	5	6	7
14. I live one day at a time and don't really think about the future.	1	2	3	4	5	6	7
15. I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6	7

16. Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5	6	7
17. If I could live my life over, I would change almost nothing.	1	2	3	4	5	6	7
18. I have the sense that I have developed a lot as a person over time.	1	2	3	4	5	6	7
19. I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5	6	7
20. I have a sense of direction and purpose in life.	1	2	3	4	5	6	7
21. With time, I have gained a lot of insight about life that has made me a stronger, more capable person.	1	2	3	4	5	6	7
22. I feel disappointed because life has not turned out as I had hoped.	1	2	3	4	5	6	7
23. Many days I wake up feeling discouraged about how I have lived my life.	1	2	3	4	5	6	7
24. There is truth to the saying you can't teach an old dog new tricks.	1	2	3	4	5	6	7
25. The past had its ups and downs, but in general, I wouldn't want to change it.	1	2	3	4	5	6	7
26. It is important to me to be a good listener when close friends talk to me about their problems.	1	2	3	4	5	6	7
27. I do not enjoy being in new situations that require me to change my old familiar ways of doing things.	1	2	3	4	5	6	7
28. I often feel lonely because I have few close friends with whom to share my concerns.	1	2	3	4	5	6	7
29. Although outwardly I am at ease, inwardly I am often unsure.	1	2	3	4	5	6	7
31. For me, life has been a continuous process of learning, changing, and growth.	1	2	3	4	5	6	7
32. So far, I have got the important things I want in	1	2	3	4	5	6	7

life.							
33. I feel like I get a lot out of my friendships.	1	2	3	4	5	6	7

Section 2: Now, we would like you to reflect on some more aspects of your life. For these statements try and think about how things have been *throughout your life overall, rather than how they might be right now*. Please circle the number that is closest to your own attitude.

	<i>Strongly Disagree</i>	<i>Moderately Disagree</i>	<i>Slightly Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Slightly Agree</i>	<i>Moderately Agree</i>	<i>Strongly Agree</i>
1. During my life, people have often come to me for advice.	1	2	3	4	5	6	7
2. I feel that throughout my life few people have needed me.	1	2	3	4	5	6	7
3. I have been able to pass on the knowledge that I have gained through my experience.	1	2	3	4	5	6	7
4. I feel as though I have done nothing of worth to contribute to others.	1	2	3	4	5	6	7
5. I have made and created things that have had an impact on other people.	1	2	3	4	5	6	7
6. I have accomplished things that will have lasting value.	1	2	3	4	5	6	7
7. During my life, I have given valuable service to the community.	1	2	3	4	5	6	7
8. I feel as though I have achieved things that will benefit the next generation.	1	2	3	4	5	6	7
9. I feel that I have done nothing that will survive after I die.	1	2	3	4	5	6	7
10. Others would say that I have made a unique contribution to society.	1	2	3	4	5	6	7
11. I have generally found enough time to do the things I enjoy.	1	2	3	4	5	6	7
12. Others have said that I have been a very productive person.	1	2	3	4	5	6	7
13. In general, my actions have not had a positive effect on others.	1	2	3	4	5	6	7

	<i>Strongly Disagree</i>	<i>Moderately Disagree</i>	<i>Slightly Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Slightly Agree</i>	<i>Moderately Agree</i>	<i>Strongly Agree</i>
14. I feel as though I have made a difference to many people.	1	2	3	4	5	6	7
15. I have made or created something that I can pass on to the next generation.	1	2	3	4	5	6	7
16. I have given valuable support to a charity or community group.	1	2	3	4	5	6	7

Section 3: In this section, we would like to find out how you feel about yourself. For these statements the responses range from “Almost Always True of Me” to “Never True of Me”. Please circle the number that most closely represents how you feel now.

	Almost Always True of Me	Often True of Me	Sometimes True of Me	Not Often True of Me	Never True of Me
1. I feel that I'm a person of worth, at least on an equal plane with others.	1	2	3	4	5
2. I feel that I have a number of good qualities.	1	2	3	4	5
3. I am able to do things as well as most other people.	1	2	3	4	5
4. I feel that I do not have much to be proud of.	1	2	3	4	5
5. I take a positive attitude towards myself.	1	2	3	4	5
6. I think I am no good at all.	1	2	3	4	5
7. I am a useful person to have around.	1	2	3	4	5
8. I feel I can't do anything right.	1	2	3	4	5
9. When I do a job, I do it well.	1	2	3	4	5
10. I feel that my life is not very useful.	1	2	3	4	5

Section 4: Earlier, you were asked to think about some aspects of your life as they may have been in your life overall. In this section we would like you to consider similar statements about how you feel things are *at the present time*. Please circle the number that is closest to your own attitude.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. People often come to me for advice.	1	2	3	4	5	6	7
2. I am accomplishing things that will have lasting value.	1	2	3	4	5	6	7
3. I feel as though I am achieving things that will benefit the next generation.	1	2	3	4	5	6	7
4. I give valuable support to a charity or community group.	1	2	3	4	5	6	7
5. I am making or creating things that have an impact on other people.	1	2	3	4	5	6	7
6. I feel as though my contributions will exist after I die.	1	2	3	4	5	6	7
7. I believe I support the community in valuable ways.	1	2	3	4	5	6	7
8. I feel that I'm doing nothing that will survive after I die.	1	2	3	4	5	6	7
9. Others would say that I'm making unique contributions to society.	1	2	3	4	5	6	7
10. I have something of value to pass on to the next generation.	1	2	3	4	5	6	7
11. I feel as though I make a difference to many people.	1	2	3	4	5	6	7
12. I usually find enough time to do the things I enjoy.	1	2	3	4	5	6	7
13. I feel as though I'm doing nothing of worth to contribute to others.	1	2	3	4	5	6	7
14. I do not feel that other people need me.	1	2	3	4	5	6	7
15. In general, my actions do not have a positive effect on others.	1	2	3	4	5	6	7
16. Other people say that I am a very productive person.	1	2	3	4	5	6	7
17. I feel that I will be remembered a long time after I die.	1	2	3	4	5	6	7

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Moderately Agree	Strongly Agree
18. I am able to pass on the knowledge that I have gained through my experience.	1	2	3	4	5	6	7
19. I am making or creating something valuable for the next generation.	1	2	3	4	5	6	7
20. I have important skills that I teach others.	1	2	3	4	5	6	7

Section 5: In this section, please think about how you live your life and the sorts of things that may be important to you. For each statement please circle the number that is closest to your own attitude.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. I try to spend my time being productive.	1	2	3	4	5	6	7
2. It is important to me that I achieve something that will benefit future generations.	1	2	3	4	5	6	7
3. It is important to me that I pass on my skills to others.	1	2	3	4	5	6	7
4. I don't feel committed to supporting any charities or community groups.	1	2	3	4	5	6	7
5. One day I hope to achieve something of lasting value.	1	2	3	4	5	6	7
6. If I were unable to have children of my own, I would like to adopt children.	1	2	3	4	5	6	7
7. I believe that planning for future generations is very important.	1	2	3	4	5	6	7
8. One day I hope to make an important contribution to society.	1	2	3	4	5	6	7
9. I have a responsibility to improve the community in which I live.	1	2	3	4	5	6	7
10. I get a lot of satisfaction out of helping others.	1	2	3	4	5	6	7
11. I hope that my contributions will exist after I die.	1	2	3	4	5	6	7
12. I do not volunteer to work for a charity or other community organisation.	1	2	3	4	5	6	7
13. I believe that society cannot be responsible for providing food and shelter for all homeless people.	1	2	3	4	5	6	7

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Moderately Agree	Strongly Agree
14. I try to pass along the knowledge I have gained through my experiences.	1	2	3	4	5	6	7
15. It is important to me that I pass on something valuable to the next generation.	1	2	3	4	5	6	7
16. I make a point of finding time to do the things I enjoy.	1	2	3	4	5	6	7
17. I think I would like the work of a teacher.	1	2	3	4	5	6	7
18. I want to be remembered a long time after I die.	1	2	3	4	5	6	7
19. I try to support the community in valuable ways.	1	2	3	4	5	6	7
20. I believe that to be a good parent is one of the most important tasks that people undertake.	1	2	3	4	5	6	7
21. It is important to me that I make or create something that will survive after I die.	1	2	3	4	5	6	7
22. I try to be creative in most things I do.	1	2	3	4	5	6	7
23. I try to do things that will have a positive effect on others.	1	2	3	4	5	6	7
24. It is important to me that I make a difference to many people.	1	2	3	4	5	6	7
25. I have made many commitments to different kinds of people, groups, and activities in my life.	1	2	3	4	5	6	7

Section 7. Now, we have some questions about your health. Please tell us:

1. How would you rate your overall health at the present time? (Please circle the number of your answer.)

- 1 Excellent
- 2 Very good
- 3 Good
- 4 Fair
- 5 Poor

2. Compared to one year ago, would you say your health is? (Circle number.)

- 1 Better
- 2 Same
- 3 Worse

3. How often does your health stop you doing the things you want to do?

- 1 Hardly ever
- 2 Sometimes
- 3 Often
- 4 Most of the time

Section 8: In this section we would like you to tell us how you have been feeling recently. Please say how often you felt this way during the past week:

	Never	Sometimes	Often	Almost All of the Time
1. I was happy.	0	1	2	3
2. I felt that everything I did was an effort.	0	1	2	3
3. I felt hopeful about the future.	0	1	2	3
4. I felt afraid.	0	1	2	3
5. I felt depressed.	0	1	2	3
6. I enjoyed life.	0	1	2	3
7. I had crying spells.	0	1	2	3
8. I felt sad.	0	1	2	3
9. I could not get going	0	1	2	3

Section 9: Now, we would like to get an idea of some of the things you may have done recently. Below is a list of specific actions or activities. Over the past **two months**, it is likely that you may have performed some of these activities. It is also likely that you have **not** performed many of them during this time. Please consider each one to determine whether or not you have performed it during the past **two months**. If you have performed the activity, please try to determine how many times you have done it during the past two months. Please circle "0" if you have not performed it all, "1" if you have performed it once, and "2" if you have performed it more than once.

Action or Activity	Number of times performed during the last two months.		
	Not performed at all.	Performed once.	Performed more than once.
1. Taught somebody a skill.	0	1	2
2. Went to see a movie, play or concert.	0	1	2
3. Gave money to a charity.	0	1	2
4. Did volunteer work for a charity or community or environmental organisation.	0	1	2
5. Listened to a person tell me his or her personal problems.	0	1	2
6. Purchased a new car or major appliance (e.g. dishwasher, television set).	0	1	2
7. Taught Sunday school or provided similar religious instruction.	0	1	2
8. Baked a cake (or biscuits, muffins, etc.).	0	1	2
9. Told somebody about my own childhood.	0	1	2
10. Read a story to a child, or played a game with a child.	0	1	2
11. Looked after somebody else's children.	0	1	2
12. Took part in an athletic sport or other vigorous exercise.	0	1	2
13. Gave clothing or personal belongings to a not-for-profit organisation (such as Goodwill, Salvation Army, etc.).	0	1	2
14. Was elected or promoted to a leadership position.	0	1	2
15. Made a decision that influenced many people.	0	1	2
16. Ate dinner at a restaurant.	0	1	2
17. Produced a piece of art or craft (such as pottery, quilting, woodwork, painting, etc.).	0	1	2
18. Produced a plan for an organisation or group outside my own family.	0	1	2
19. Visited a nonrelative in a hospital or nursing home.	0	1	2
20. Spent time reading a novel.	0	1	2
21. Made something for somebody and then gave it to them.	0	1	2
22. Drew upon my past experiences to help a person adjust to a situation.	0	1	2
23. Picked up rubbish off the street or some other area that is not my property.	0	1	2
24. Gave a stranger directions on how to get somewhere.	0	1	2
25. Attended a community or neighbourhood meeting.	0	1	2
26. Wrote a poem, story or piece of music, or worked on something original for publication (e.g. newsletter, journal article, all or part of book).	0	1	2
27. Took in a pet off the street or from an animal shelter.	0	1	2
28. Did something that other people considered to be unique and important.	0	1	2

Action or Activity	Number of times performed during the last two months:		
	Not performed at all.	Performed once.	Performed more than once.
29. Attended a religious meeting or service.	0	1	2
30. Attended a meeting or activity at a church or other place of worship (not including conventional worship service such as Mass, Sunday morning service, etc.).	0	1	2
31. Offered physical help to a friend or acquaintance (e.g. helped them move, fix a car, do housework or gardening.)	0	1	2
32. Had an argument with a friend or family member.	0	1	2
33. Contributed <i>time or skills</i> to a political, social or environmental cause.	0	1	2
34. Contributed <i>money</i> to a political, social or environmental cause.	0	1	2
35. Planted or tended a garden, tree, flower or other plant.	0	1	2
36. Wrote a letter to a newspaper (magazine, politician, etc.) about a social cause.	0	1	2
37. Cooked a meal for friends or nonresident family members.	0	1	2
38. Donated blood.	0	1	2
39. Offered someone spiritual or moral guidance.	0	1	2
40. Sewed (knitted, crocheted, etc.) or mended a garment or other object.	0	1	2
41. Restored or renovated a house, part of a house, a piece of furniture, etc.	0	1	2
42. Assembled or repaired a child's toy.	0	1	2
43. Invented something.	0	1	2
44. Provided first aid or other medical attention.	0	1	2
45. Attended a party or dinner party.	0	1	2
46. Took an afternoon nap.	0	1	2
47. Helped to organise a benefit or fund-raiser.	0	1	2
48. Took part in a benefit or fund-raiser organised by somebody else (e.g., bought chocolates for local school; attended a charity concert).	0	1	2
49. Learned a new skill (e.g. a language, musical instrument, welding, embroidery, etc.) or improved an existing skill.	0	1	2
50. Became a parent (had a child, adopted a child, or became a foster parent).	0	1	2
51. Supported an environmental project (e.g. a community or local council recycling campaign, tree planting project, litter clean-up).	0	1	2
52. Served as a role model for a young person.	0	1	2
53. Provided constructive criticism about somebody's performance.	0	1	2
53. Kept a diary or journal.	0	1	2
54. Took family photographs, or recorded family activities.	0	1	2
55. Wrote letters to family or friends.	0	1	2

Section 9: Finally, we would like to ask you a few questions about yourself for statistical purposes.

1. Are you (Please circle the number of your answer.)

- 1 Male
- 2 Female?

2. What is your present marital status? (Circle number.)

- 1 Never married.
- 2 Married (or living with a partner)
- 3 Divorced
- 4 Separated
- 5 Widowed

3. What is your present age? years.

4. Which of the following best describes your current employment status? (Circle number(s).)

- 1 Retired
 - 2 Unemployed
 - 3 Home duties/child-care responsibilities
 - 4 Working full-time
 - 5 Working part-time
 - 6 Studying full-time
 - 7 Studying part-time
 - 8 Voluntary work
 - 9 Other (please describe)
-

5. Which of these categories best describes your highest qualification? (Circle number.)

- 1 Primary school course
 - 2 Up to Year 10 or equivalent (3rd Year High School, Intermediate)
 - 3 Year 11 or equivalent (Leaving, O Levels)
 - 4 Year 12 or equivalent (Matriculation, Leaving Honours, A Levels, etc.)
 - 5 Trade or Apprenticeship
 - 6 Certificate or Diploma
 - 7 Part of a Degree
 - 8 Bachelor Degree
 - 9 Honours Degree or Graduate Diploma
 - 10 Higher education (Masters Degree or Doctorate)
 - 11 Adult education or Hobby course
 - 12 Other education (please specify)
-
- 13 No formal tuition

Appendix B. Summary of Missing Data for Part 1

	<i>N</i>
8.5 I felt depressed	291
8.2 everything an effort	291
8.3 hopeful about future	291
8.4 felt afraid	291
8.1 felt happy	291
8.6 I enjoyed life	291
8.8 felt sad	291
6.2 hope to benefit future gen	290
6.6 hope to achieve sthg of lasting value	290
6.9 hope to make important contribution	291
6.1 try to be productive	291
6.15 society not responsible	291
6.16 try to pass along knowledge	291
6.18 important to pass on sthg to next gen	292
6.20 wd like work of teacher	291
6.28 concerned about future of environment	286
6.17 try to support community	292
6.26 creative in most things	291
6.12 hope contributions will exist after I die	291
6.3 it is important to teach my skills to others	291
6.22 want to be remembered after I die	291
6.25 important to create sthg that will survive	291
6.27 positive effect on others	291
6.29 important to make a difference to many people	291
6.30 made many commitments to others	292
6.5 not committed to charity	291
6.7 adopt children	291
6.8 important to plan for future generations	291
6.10 responsibility to improve community	291
6.11 satisfaction out of helping others	291
6.13 committed to preserve environment	287
6.14 do not volunteer	291
1.2 warm trusting relationships	291
1.6 giving person	291
1.16 close relationships frustrating	291
1.26 important to be a good listener	291
1.28 feel lonely, few close friends	291
1.33 get a lot out of friendships	291
1.1 pleased with life story	290
1.3 content now	290
1.3 turned out for best	290
1.9 others get more out of life	290
1.10 disappointed in achievements	290
1.22 disappointed about life	290
1.23 wake up feeling discouraged	289
1.25 wouldn't change past	290
2.1 people have often come for advice	289
2.2 needed by few people	289

2.3 able to pass on knowledge	289
2.4 contributed nothing to others	289
2.5 made an impact on other people	289
2.6 accomplished things of lasting value	289
2.7 given valuable community service	289
2.8 achieved things to benefit next generation	289
2.9 done thing that will survive	289
2.10 unique contribution to society	289
2.12 been very productive person	289
2.13 actions have not had positive effect	289
2.14 made difference to many people	289
2.15 created something to pass on to next generation	289
2.16 supported charity or community group	289
4.1 people come for advice	291
4.10 something of value for next generation	291
4.11 make a difference to many people	291
4.12 find time to do what I enjoy	292
4.13 doing nothing of worth to contribute to others	291
4.14 others don't need me	291
4.15 actions don't have positive effect	291
4.16 productive person	291
4.17 will be remembered after I die	291
4.18 able to pass on knowledge	291
4.19 making something to pass on to next gen	291
4.2 lasting value	291
4.3 benefit next generation	291
4.4 support charity	291
4.5 impact on others - present	291
4.6 contributions will exist after I die	291
4.7 support the community in valuable ways	291
4.8 doing nothing that will survive	291
4.9 unique contribution to society present	291
3.1 person of worth	291
3.10 feel life not very useful	291
3.2 number of good qualities	291
3.3 able to do things as well as others	291
3.4 not much to be proud of	291
3.5 take positive attitude towards self	291
3.6 I think I am no good at all	291
3.7 useful person to have around	291
3.8 can't do anything right	291
3.9 when do a job, do it well	291
Valid N (listwise)	275

Appendix C. Factor Loadings for Generative Behavior Checklist

Rotated Component Matrix(a)

	<i>Component</i>											
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>
9.1 taught a skill	.634	-.078	-.036	.112	.093	.208	.039	.030	-.138	.042	.299	-.124
9.3 gave money to charity	-.070	.174	.206	.056	.037	-.026	.702	.107	-.018	.086	.026	.105
9.4 voluntary work	-.089	.705	.143	.122	.140	.010	.163	-.003	-.009	-.079	.016	.103
9.7 taught Sunday school	-.026	.007	.545	.082	.597	.007	-.066	-.024	.057	.053	.044	-.175
9.8 baked a cake	-.147	.217	-.053	.131	-.047	.579	.099	-.004	-.009	.371	.113	-.012
9.5 listened to personal problems	.130	-.012	.014	.065	.022	.068	-.003	.122	.201	.200	.734	.075
9.9 told somebody about childhood	.165	-.088	-.182	.084	.044	-.012	.145	.100	.483	.300	.202	.261
9.10 read story to child	.090	.172	-.047	.701	-.024	.103	-.015	.073	.196	.212	.134	.044
9.11 looked after someone's children	-.047	.249	.100	.694	-.083	.097	-.126	.131	.164	-.002	.002	.120
9.13 gave away clothing	-.109	.233	.094	.124	.053	.235	.254	.293	.383	-.033	-.023	.269
9.14 was elected or promoted	.199	.188	-.030	.028	.739	.042	-.024	-.056	-.015	-.056	.025	.118
9.17 produced art or craft	.038	-.140	.233	.098	.014	.648	.006	.124	-.045	-.203	-.188	-.055
9.15 made influential decision	.593	.229	-.026	-.091	.328	-.050	-.011	.094	.062	.068	.029	.103
9.18 produced plan for outside organisation	.559	.137	.009	-.173	.354	-.042	-.045	.121	-.246	.044	.037	.182

	<i>Component</i>											
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>
9.19 visited someone in hospital	-.010	.075	.318	.120	.057	-.005	.084	-.060	.069	.127	.069	.702
9.22 drew upon past experiences	.605	-.022	-.045	.198	.214	-.012	.116	-.072	.217	-.017	.193	-.072
9.21 made sthg for someone	.031	.040	-.072	.061	.127	.672	.128	-.119	.142	.192	.017	.041
9.23 picked up rubbish off the street	-.042	.099	.005	.105	.072	-.094	.167	.764	.025	.064	-.036	.116
9.24 gave stranger directions	.208	-.019	-.044	.002	.023	.065	.062	.675	.172	.146	.006	-.250
9.25 attended neighbourhood mtg	-.064	.612	.096	.065	-.109	-.039	-.001	.106	-.091	.055	-.270	.410
9.26 wrote sthg original	.219	-.003	.015	-.025	.548	-.056	.194	.219	.084	.201	-.019	-.085
9.28 did sthg important	.338	.144	-.115	.053	.526	.145	.100	.075	.284	.076	-.087	.055
9.30 attended mtg at church	.014	.137	.845	.057	-.020	.031	.171	-.023	.049	.042	-.029	.127
9.29 attended religious meeting	.006	.075	.825	.049	-.022	.027	.180	.011	.018	.044	.037	.178
9.31 offered physical help to friend	.345	.050	.039	.094	.026	.259	-.265	.382	-.242	-.137	.238	.209
9.33 contributed time and skills	.176	.582	-.119	.008	.223	.173	.320	-.071	.138	.062	-.158	.107
9.34 contributed money	.123	.152	.142	.011	.046	.176	.758	.109	.028	.021	.005	-.035
9.39 offered spiritual or moral guidance	.247	.070	.308	.028	.209	.186	-.140	.132	.664	.003	.056	-.085
9.42 assembled child's toy	.089	.006	.031	.757	.044	.060	.087	-.043	-.220	-.153	.001	.002
9.44 provided first aid	.377	.095	.010	.203	-.188	.401	-.083	.051	.181	-.036	.114	.007
9.47 helped to organise fundraiser	.114	.658	.132	.045	.160	.026	.077	.140	.038	.005	.136	-.297

	<i>Component</i>											
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>
9.48 took part in fundraiser organised by someone else	.290	.369	.325	.137	-.179	-.027	.114	-.012	.009	.499	.033	-.272
9.51 supported environmental project	.049	.087	-.050	.075	.067	.187	-.019	.268	.164	.327	-.582	.061
9.52 served as role model	.533	-.071	.030	.343	.037	-.052	.069	.012	.368	-.107	-.050	-.120
9.53a provided constructive criticism	.734	-.072	.088	-.013	.044	-.039	-.019	.053	.121	.054	-.197	-.025
9.55 took family photographs	.075	-.211	.155	.567	.158	.117	.187	.047	.054	.261	-.125	.010
9.56 wrote letters to family	-.004	-.093	.084	.042	.168	.126	.054	.153	.039	.728	.011	.154

Appendix D. Analysis of differences in psychological components of generativity between completers and non-completers of GBC.

	use in gbc analyses?	N	Mean	Std. Deviation	Std. Error Mean
Gen concern	Full GBC	67	25.8206	5.56812	.68025
	11 item GBC	33	27.0606	5.96835	1.03896
WOL gen	Full GBC	67	36.6536	8.20680	1.00262
	11 item GBC	33	37.0000	6.08276	1.05887
Pres gen	Full GBC	67	45.6383	10.55550	1.28956
	11 item GBC	33	43.8182	10.59320	1.84404

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Gen concern	Equal variances assumed	.247	.620	-1.023	98	.309	-1.23998	1.21262	-3.64639	1.16642
WOL gen	Equal variances assumed	2.177	.143	-.215	98	.830	-.34639	1.61182	-3.54499	2.85221
Pres gen	Equal variances assumed	.009	.925	.810	98	.420	1.82013	2.24746	-2.63987	6.28013

Appendix E. Analysis of Within-Subjects Differences in GBC Scores in Younger Adults who Completed the GBC.

	Mean	Std. Deviation	N
Zscore: guiding	.2680030	.95141715	68
Zscore: good works	-.5690920	.76049811	68
Zscore: childcare	-.1036835	1.12629403	68

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
gen3	Sphericity Assumed	23.924	2	11.962	15.810	.000	.191
	Greenhouse-Geisser	23.924	1.862	12.849	15.810	.000	.191
	Huynh-Feldt	23.924	1.913	12.506	15.810	.000	.191
	Lower-bound	23.924	1.000	23.924	15.810	.000	.191
Error(gen3)	Sphericity Assumed	101.386	134	.757			
	Greenhouse-Geisser	101.386	124.752	.813			
	Huynh-Feldt	101.386	128.176	.791			
	Lower-bound	101.386	67.000	1.513			

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	gen3	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
gen3	L1	47.650	1	47.650	42.605	.000	.389
	L2	9.394	1	9.394	5.183	.026	.072
Error(gen3)	L1	74.933	67	1.118			
	L2	121.447	67	1.813			

Appendix F. Analysis of Within-Subjects Differences in GBC Scores in Younger Adults, Including Those who did not Complete the GBC.

	Mean	Std. Deviation	N
Zscore: guiding	.2449871	.93415327	100
Zscore: good works	-.3887520	.67913324	100
Zscore: childcare	-.0674387	.92807621	100

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
gen3	Sphericity Assumed	20.083	2	10.041	16.148	.000	.140
	Greenhouse-Geisser	20.083	1.922	10.447	16.148	.000	.140
	Huynh-Feldt	20.083	1.960	10.249	16.148	.000	.140
	Lower-bound	20.083	1.000	20.083	16.148	.000	.140
Error(gen3)	Sphericity Assumed	123.122	198	.622			
	Greenhouse-Geisser	123.122	190.306	.647			
	Huynh-Feldt	123.122	193.995	.635			
	Lower-bound	123.122	99.000	1.244			

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	gen3	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
gen3	L1	40.163	1	40.163	36.361	.000	.269
	L2	9.761	1	9.761	6.537	.012	.062
Error(gen3)	L1	109.351	99	1.105			
	L2	147.824	99	1.493			

Appendix G: Information Sheet, Consent Form and Questions for Part 2

Information Sheet

Introduction

Thank you for agreeing to take part in this survey. The survey forms part of a project that aims to examine differences in the ways in which midlife and older adults structure their lives and prioritise their activities. This sheet is designed to give you some background information on the project and to inform you of your rights, should you agree to take part.

Background

Some psychologists believe that the desire to make a contribution to society and the next generation is at its highest in midlife, but tapers when individuals enter later life. However, research indicates that some older adults place great value on making contributions to others, as shown by their participation in such activities as volunteering and looking after grandchildren. What is not clear, however, is that performing these activities significantly contributes to the well-being of either midlife or older adults.

In this study we want to build up a profile of the activities and well-being of midlife and older adults. Questions will focus on the areas of paid and voluntary work, involvement with children and/or grandchildren, and some aspects of social and family networks. The study will also look at the role of one's priorities and opportunities for engagement in the various activities. The emphasis will be on how involvement in these areas relates to individuals' assessments of their contributions to others and to their own personal well-being.

Procedure

If you take part in the study you will be asked to answer questions at an interview. The interview will be administered on a single occasion either at your home or at the School of Psychology at Flinders University. It will take around one and a half to two hours. The information you provide will be recorded by the researcher and used in analyses, along with information provided by all other participants. Any information given will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting report. You will naturally be free to discontinue your participation at any time, or to refuse to answer particular questions.

If you feel the need to discuss any personal issues that arise as a result of taking part in the survey, a registered psychologist, Ms Shri Maine, is available to talk to free of charge. She can be contacted on 8201 2996.

Any further questions you may have concerning this project should be directed to myself, Carolyn Boyd, 8391 6586, or to Professor Mary Luszcz, 8201 2481. This project has been approved by the Social and Behavioural Research Ethics Committee of Flinders University. The secretary of this committee, Lesley Wyndram, can be contacted on 8201 3153.

Consent Form

Flinders University
Social and Behavioural Research Ethics Committee

Consent Form for Interview

I,

Being over the age of 18 years, hereby consent to participate as requested in the interview for the research project on activities and personality development during adulthood, being undertaken by Carolyn Boyd of the School of Psychology at Flinders University.

- 1. I have read the information provided
- 2. Details of procedures and any risks have been explained to my satisfaction.
- 3. I am aware that I should retain a copy of the information Sheet and Consent Form for future reference.
- 4. I understand that
 - a. I may not directly benefit from taking part in this research.
 - b. I am free to withdraw from the project at any time and am free to decline to answer particular questions.
 - c. While the information gained in this study will be published as explained, I will not be identified, and individual information will remain confidential.

Participant's Signature: Date:

I certify that I have explained the study to the volunteer and consider that he/she understands what is involved and freely consents to participation

Researcher's Signature:.....Date:

Questions

2.0a Do you have any children?

- 1 No Please go to Section 2.2.
- 2 Yes Please continue answering the questions below.

2.0b Please list the age and sex of each of your children and say whether or not they live with you. Start with the oldest and work your way down to the youngest.

Age	Sex	Where they live	
		With me	Not with me
		1	2
		1	2
		1	2
		1	2
		1	2
		1	2

2.1: Your Younger Children

We start off with your involvement with your younger children, aged 12 or less.

2.1 Do you have any children aged 12 or less?

- 1 No Please go to Section 2.2.
- 2 Yes Please continue answering the questions below.

2.1a During the last three months, how often did you have contact with one your children aged 12 or less? *Prompt Sheet 1.*

- 1 Never Go to Section 2.2
- 2 Once or twice
- 3 About once a month
- 4 About once a fortnight
- 5 About once a week
- 6 Several times a week
- 7 Most days

2.1b I'm going to read out a series of activities, and I'd like you to say approximately how often *over a 3-month period* you would perform each of them with each one of your children aged 12 or less.

Prompt Sheet 1	<i>Never</i>	<i>Once or twice</i>	<i>Once a month or less</i>	<i>About once a fortnight</i>	<i>About once a week</i>	<i>Several times a week</i>	<i>Most days</i>
1. Read to, play with or chat with them.	1	2	3	4	5	6	7
2. Take physical care of them (e.g., mind them, prepare meals, do washing.)	1	2	3	4	5	6	7
3. Help them to acquire knowledge or learn a skill.	1	2	3	4	5	6	7
4. Express anger or annoyance with them.	1	2	3	4	5	6	7
5. Comfort them.	1	2	3	4	5	6	7
7. Give them praise or encouragement.	1	2	3	4	5	6	7
8. Make something for them.	1	2	3	4	5	6	7
9. Mend something for them.	1	2	3	4	5	6	7
10. Plan an activity for them.	1	2	3	4	5	6	7
11. Reprimand or discipline them.	1	2	3	4	5	6	7
12. Arrange a social or recreational outing for them.	1	2	3	4	5	6	7

2.1c Overall, how close is your relationship with your younger children? *Prompt Sheet 2.*

Not at all close			Close			Extremely close
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7

2.1d Overall, how rewarding is your relationship with your younger children? *Prompt Sheet 3.*

Not at all rewarding			Rewarding			Extremely rewarding
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7

2.2: Your Teenage Children

Now I'm going to ask about your involvement with your teenage children.

2.2 Do you have any children aged between 13 and 20?

- 1 No Please go to Section 2.3.
- 2 Yes Please continue answering the questions below.

2.2a During the last three months how often did you have contact with one of your children aged between 13 and 20. *Prompt Sheet 1*

- 1 Never Go to Section 2.3.
- 2 Once or twice
- 3 About once a month
- 4 About once a fortnight
- 5 About once a week
- 6 Several times a week
- 7 Most days

2.2b How often *over a three-month period* would you engage in each of the following kinds of activities with each one of your children aged between 13 and 20.

Prompt Sheet 1	<i>Never</i>	<i>Once or twice</i>	<i>About once a month</i>	<i>About once a fortnight</i>	<i>About once a week</i>	<i>Several times a week</i>	<i>Most days</i>
1. Have a conversation or discussion with them.	1	2	3	4	5	6	7
2. Provide physical care for them (e.g., do washing, prepare meals.)	1	2	3	4	5	6	7
3. Help them to acquire knowledge or learn a skill.	1	2	3	4	5	6	7
4. Provide emotional support or comfort for them.	1	2	3	4	5	6	7
5. Reprimand or discipline them.	1	2	3	4	5	6	7
6. Give encouragement to them.	1	2	3	4	5	6	7
7. Make something for them.	1	2	3	4	5	6	7
8. Mend something for them	1	2	3	4	5	6	7
9. Have an argument or disagreement with them.	1	2	3	4	5	6	7
10. Take them to a social or recreational activity.	1	2	3	4	5	6	7

2.2c Overall, how close is your relationship with your teenage children? *Prompt Sheet 2.*

Not at all close			Close			Extremely close
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7

2.2d Overall, how rewarding is your relationship with your teenage children? *Prompt Sheet 3.*

Not at all rewarding			Rewarding			Extremely rewarding
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7

2.3: Your Younger Adult Children

2.3 Do you have any children aged between 21 and 39?

- 1 No Please go to Section 2.4.
- 2 Yes Please continue answering the questions below.

2.3a How often during the last three months did you have contact with one of your children aged between 21 and 39. *Prompt Sheet 1*

- 1 Never Go to Section 2.4.
- 2 Once or twice
- 3 About once a month
- 4 About once a fortnight
- 5 About once a week
- 6 Several times a week
- 7 Most days

2.3b Approximately how often *over a three-month period* would you engage in each of the following kinds of activities with each one of your children aged between 21 and 39.

Prompt Sheet 1	<i>Never</i>	<i>Once or twice</i>	<i>About once a month</i>	<i>About once a fortnight</i>	<i>About once a week</i>	<i>Several times a week</i>	<i>Most days</i>
1. Have a conversation or discussion with them.	1	2	3	4	5	6	7
2. Give practical help to them (e.g., with shopping, gardening, housework).	1	2	3	4	5	6	7
3. Help them to learn a skill or acquire knowledge.	1	2	3	4	5	6	7
4. Provide emotional support for them.	1	2	3	4	5	6	7
5. Listen while they tell you about something important..	1	2	3	4	5	6	7
6. Give encouragement to them.	1	2	3	4	5	6	7
7. Have an argument or disagreement with them.	1	2	3	4	5	6	7
8. Make something for them.	1	2	3	4	5	6	7
9. Mend something for them.	1	2	3	4	5	6	7
10. Receive practical help (e.g., with shopping, gardening, housework) from them.	1	2	3	4	5	6	7
11. Receive help in learning a skill from them.	1	2	3	4	5	6	7
12. Receive emotional support from them.	1	2	3	4	5	6	7
13. Receive guidance or advice from them.	1	2	3	4	5	6	7
14. Receive encouragement from them.	1	2	3	4	5	6	7

2.3c Overall, how close is your relationship with your young adult children? *Prompt Sheet 2.*

Not at all close	Close					Extremely close
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7
1	2	3	4	5	6	7

2.3d Overall, how rewarding is your relationship with your young adult children? *Prompt Sheet 3.*

Not at all rewarding		Rewarding				Extremely rewarding	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	

2.4: Your Midlife Adult Children

2.4 Do you have any children aged between 40 and 64?

- 1 No Please go to Section 2.3.
2 Yes Please continue answering the questions below.

2.4a How often during the last three months did you have contact with one of your children aged between 40 and 64? *Prompt Sheet 1*

- 1 Never Go to Section 2.5.
2 Once or twice
3 About once a month
4 About once a fortnight
5 About once a week
6 Several times a week
7 Most days

2.4b How often over a three-month period would you do each of the following kinds of activities with each one of your children aged between 40 and 64?

Prompt Sheet 1	<i>Never</i>	<i>Once or twice</i>	<i>About once a month</i>	<i>About once a fortnight</i>	<i>About once a week</i>	<i>Several times a week</i>	<i>Most days</i>
1. Have a conversation or discussion with them.	1	2	3	4	5	6	7
2. Give practical help to them (e.g., with shopping, gardening, housework).	1	2	3	4	5	6	7
3. Help them to learn a skill or acquire knowledge.	1	2	3	4	5	6	7
4. Provide emotional support to them.	1	2	3	4	5	6	7
5. Give advice or guidance to them.	1	2	3	4	5	6	7
6. Give praise or encouragement to them.	1	2	3	4	5	6	7
7. Have an argument or disagreement with them.	1	2	3	4	5	6	7
8. Receive practical help (e.g., with shopping, gardening, housework) from them.	1	2	3	4	5	6	7
Other	1	2	3	4	5	6	7

2.4c Overall, how close is your relationship with your middle-aged children? *Prompt Sheet 2.*

Not at all close		Close				Extremely close	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	

2.4d Overall, how rewarding is your relationship with your middle-aged children? *Prompt Sheet 3.*

Not at all rewarding		Rewarding				Extremely rewarding	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	
1	2	3	4	5	6	7	

The following questions have to do with how you might feel about your children and your relationship with them. Please say how much you agree or disagree with the following statements.

Prompt Sheet 4.	<i>Strongly Disagree</i>	<i>Moderately Disagree</i>	<i>Slightly Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Slightly Agree</i>	<i>Moderately Agree</i>	<i>Strongly Agree</i>
1. I feel very proud of my children's achievements.	1	2	3	4	5	6	7
2. I feel as though my children and I enjoy the time that we spend together.	1	2	3	4	5	6	7
3. When my children and I disagree, I'm usually able to help us find a solution that suits us both.	1	2	3	4	5	6	7
4. I find that my relationship with my children is often difficult and frustrating.	1	2	3	4	5	6	7
5. I feel confident that I'm helping (or have helped) my children to develop the skills they need to do well in life.	1	2	3	4	5	6	7

Prompt Sheet 4.	<i>Strongly Disagree</i>	<i>Moderately Disagree</i>	<i>Slightly Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Slightly Disagree</i>	<i>Moderately Agree</i>	<i>Strongly Agree</i>
6. When my children are upset, I feel that they are usually able to confide in me.	1	2	3	4	5	6	7
7. I find that looking after my children leaves me little time for myself.	1	2	3	4	5	6	7
8. I've often felt uncertain about what's best for my children.	1	2	3	4	5	6	7

Appendix H. Descriptive Statistics and Missing Data for Part 2.

1. Parental Generative Behaviour – Adolescent Children

	N	Minimum	Maximum	Mean	Std. Deviation
2.2104 help u21 learn skill	25	1.00	7.00	4.5600	2.20000
2.2105b listen to sthg important u21	25	3.00	7.00	5.8000	1.29099
2.2106 give encouragement u21	25	2.00	7.00	5.8400	1.54596
2.2107 give advice or guidance u21	25	2.00	7.00	5.4800	1.15902
2.2108 talk to u201 about sthg important	25	2.00	7.00	4.7200	1.48661
Valid N (listwise)	25				

2. Parental Generative Behaviour Towards Young Adult Children

	N	Minimum	Maximum	Mean	Std. Deviation
2.3105 listen to sthg important u40	48	1.00	7.00	3.5104	1.53502
2.3106 provide support or encouragement	53	1.00	7.00	3.8396	1.60460
2.3107 give advice or guidance	53	1.00	7.00	2.7547	1.55546
2.3108 talk to u40 about sthg imp	48	1.00	7.00	2.8438	1.49523
2.3109 help u40 learn skill	53	1.00	4.00	1.4906	.72384
Valid N (listwise)	48				

3. Parental Generative Behaviour Towards Midlife Adult Children

	N	Minimum	Maximum	Mean	Std. Deviation
2.4105 listen to sthg important u65	53	1.00	7.00	3.4151	1.62237
2.4106 provide support or comfort	53	1.00	7.00	3.8774	1.76206
2.4107 give advice or guidance to u65	53	1.00	7.00	2.1698	1.32630
2.4108 talk to u65 about sthg important	53	1.00	7.00	2.8113	1.66475
2.4109 help u65 learn skill	53	1.00	4.00	1.1509	.53336

4. Self-Evaluations of Parental Generative Accomplishment

	N	Minimum	Maximum	Mean	Std. Deviation
2.501 very proud of chn's achvmts	106	3.00	7.00	6.7264	.63295
2.502 chn & I enjoy spending time together	106	2.00	7.00	6.4151	.88499
2.503 can find solution to disagreements	106	1.00	7.00	5.6226	1.34662
2.504 relationship with kids difficult & frustrating	106	1.00	7.00	5.2123	2.00825
2.506 chn can confide in me	106	2.00	7.00	5.9528	1.33190
2.508 uncertain about what's best for chn	105	1.00	7.00	4.1619	2.02448
2.505 helping chn to develop life skills	106	1.00	7.00	6.3349	1.17051

5. Global (Whole-of-Life) Generativity

	N	
	Valid	Missing
8.201 people have sought advice	107	0
8.206 passed on skills to others	107	0
8.208 achievements benefit next gen	107	0
8.214 have passed on knowledge	107	0
8.220 made things that impact others	107	0
8.227 accomplished things of lasting value	107	0
8.229 contributed nothing of worth to others	107	0
8.236 have made valuable contributions to society	105	2
8.242 others would say I have been productive	106	1
8.244 something of value to pass on to next gen.	107	0
8.245 during life have made a difference to many people	107	0
8.247 will be remembered a long time after I die	106	1
8.252 I've been creative in most things I've done	106	1
8.253 actions have not had positive effect on others	107	0

6. Psychological Well-being.

	N	Minimum	Maximum	Mean	Std. Deviation
8.3101 I was happy	107	.00	3.00	.5981	.69851
8.3102 everything I did was an effort	107	.00	2.00	.6822	.57623
8.3103 I felt hopeful about the future	106	.00	3.00	.6604	.74177
8.3104 I felt afraid	107	.00	1.00	.2710	.44658
8.3105 I felt depressed	107	.00	2.00	.4299	.53398
8.3106 I enjoyed life	107	.00	2.00	.5140	.66396
8.3107 I had crying spells	101	.00	2.00	.2079	.47575
8.3108 I felt sad	107	.00	2.00	.6729	.49097
8.3109 I could not get going	107	.00	2.00	.5047	.57255
8.213 pleased with life story	107	2.00	7.00	5.8692	1.19024
8.221 made mistakes but overall content	107	2.00	7.00	5.9159	1.19844
8.228 happy with life now	106	2.00	7.00	5.9528	1.22965
8.235 disappointed about my achievements in life	107	1.00	7.00	5.1402	1.96406
8.243 many days wake up feeling discouraged	107	2.00	7.00	6.2897	1.30318
8.254 many people have got more out of life than I have	106	2.00	7.00	5.7170	1.47845

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