

Positive Development over the Transition to Adulthood: Its Nature and Antecedents

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ABSTRACT

This thesis explores the nature, development, and correlates of positive development over the transition to adulthood. Recently, calls have been made for a greater focus on successful functioning over the life span. The positive development framework, which in general terms refers to the positive aspects of human behaviour and to successful developmental outcomes, seeks to address these calls and provides a framework for understanding pathways towards adaptive functioning.

The potential for positive development is of particular relevance to the emerging adulthood period, as successful development during this period is likely to affect the degree to which young people become well-functioning adults with the capacity to successfully negotiate the tasks of adulthood. Emerging adulthood extends from the late teens to the early twenties and is defined by extensive role exploration, without clear normative expectations (Arnett, 2000a). It has been described as a window of opportunity for positive change in life course trajectories, but is also a period in which the incidence of risk behaviours and mental health problems is relatively high.

The current study draws on data from the Australian Temperament Project (ATP), a large scale longitudinal community based study, which has followed the development of a cohort of Australian children from infancy to emerging adulthood. A robust multidimensional model of positive development in emerging adulthood has recently been developed using ATP data, that identifies five important domains of positive development at 19-20 years, including social competence, life satisfaction, trust and tolerance of others, trust in authorities and organisations, and civic action and engagement (M. Hawkins, Letcher, Sanson, Smart, & Toumbourou, 2009). Using this model, the current research aims to contribute to understanding of the nature of

positive development and how the potential for positive development in all young people can be promoted. The research includes two studies.

Study 1 examined factors that promote dimensions of positive development over the transition to adulthood, in order to identify potential targets for interventions. To this end, hierarchical multiple regression analyses were used to investigate the contributions of individual, relational, and community level factors over childhood and adolescence to aspects of positive functioning. The findings suggested that positive development is facilitated by strong relationships with others and important institutions such as school, as well as the individual's capacity for effective self regulation, particularly during adolescence. These domains represent potential targets for interventions to promote positive development in emerging adulthood.

Study 2 investigated the relationship between positive development and psychopathology. The current ambiguity around this relationship centres on two questions: 1) Are positive development and poor outcomes best conceptualised as separate constructs or poles of a single dimension?; and 2) If positive development and poor outcomes reflect separate constructs, what is the nature and strength of the relationship between them? The answers to these two questions have important implications for the development of models, theories, and interventions, including whether the same interventions can be expected to both promote positive development and reduce negative outcomes. Structural equation modelling was used to test competing conceptualisations of this relationship. The results suggested that positive development and psychopathology are distinct constructs that share a moderate relationship. Person centred cluster analyses identified four groups of young people sharing similar experiences of positive and problematic outcomes. These analyses indicated that the absence of psychopathology does not ensure the presence of

positive functioning, and that distinct intervention strategies to address positive development and problem outcomes are therefore likely to be necessary.

The two studies in this thesis contribute to understanding of the nature of positive development in emerging adulthood, including its boundaries with other important constructs such as psychopathology, and identify child and adolescent factors that may influence the course of positive development over this transition period. The results can thus help guide attempts to promote successful adaptation over this critically important period.

DECLARATION OF ORIGINALITY

This is to certify that:

1. The thesis comprises only my original work towards the Doctor of Educational Psychology except where indicated in the Preface,
2. Due acknowledgement has been made in the text to all other material used,
3. The thesis is less than 100,000 words in length, exclusive of tables, maps, bibliographies and appendices.

Signed: _____

Date: _____

PREFACE

This thesis includes material that also appears in two multi-authored journal articles. The material in Study 2a is presented in the article “Differentiating three conceptualisations of the relationship between positive development and psychopathology during the transition to adulthood” which is currently in press in the *Journal of Adolescence*. This paper was authored by Meredith O'Connor, Ann Sanson, Mary Hawkins, John Toumbourou, Primrose Letcher, and Erica Frydenberg. Secondly, the material presented in Study 2b appears in the article “The relationship between positive development and psychopathology during the transition to adulthood: A person-centred approach”, which is authored by Meredith O'Connor, Primrose Letcher, Craig Olsson, Erica Frydenberg, John W. Toumbourou, Ann Sanson, and Mary Hawkins, and is currently under review in *Development and Psychopathology*. For both of these articles, the literature review, analyses, and discussion of the findings were originally conducted by Meredith O'Connor. Her supervisors (Ann Sanson and Erica Frydenberg) provided advice. Other authors contributed by provision of the overall model of positive development (Mary Hawkins), and advice on the selection and use of measures. Mary Hawkins provided advice on issues concerning the structural equation modelling analytic strategy in Study 2a. All authors also read and provided editing advice on the draft manuscripts to increase their suitability for a journal format.

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CHAPTER 1: GENERAL INTRODUCTION

This thesis explores the nature, development, and correlates of positive development over the transition to adulthood. As part of the broader Positive Psychology movement, calls have been made for a greater focus on successful functioning and development over the life span (Seligman & Csikszentmihalyi, 2000). The positive development framework, which in general terms refers to the positive aspects of human behaviour and successful developmental outcomes, seeks to address these calls and provide an approach to understanding pathways towards successful functioning.

The potential for positive development is of particular relevance to the emerging adulthood period, as successful development during emerging adulthood is likely to affect the degree to which young people become functioning adults with the capacity to successfully negotiate the tasks of adulthood. Emerging adulthood extends from the late teens to the early twenties and is defined by extensive variability and role exploration, without clear normative expectations (Arnett, 2000a). It corresponds to the end of formal secondary schooling, and the beginning of many new educational, occupational, and life-style possibilities. Emerging adulthood has been described as a window of opportunity for positive change in life course trajectories, as well as a period in which the incidence of risk behaviours and mental health problems is relatively high (Masten et al., 2004).

This thesis examines two important questions regarding positive development during emerging adulthood. These two questions are interrelated, but require an understanding of different domains of research. Hence, this general introduction is followed by an introduction to Study 1, which explores developmental antecedents of dimensions of positive development in emerging adulthood. Next, the sample and

available data, analytic techniques and results, and preliminary discussion of these are presented. Study 2 explores the relationship between positive development and psychopathology, with current knowledge on this question reviewed in Chapter 6, followed by a description of the analyses and preliminary discussion of the findings. Chapter 10 considers the overall implications of the results across Studies 1 and 2.

1.1 Positive psychology

The last decade has seen increasing awareness of the undesirable consequences of psychology's traditional emphasis on deficits and dysfunction. The medical model emerged as an influential meta-theory in psychology early in the foundational stages of the discipline (Laungani, 2002), and as a result psychological research and practice has tended to focus on mental illness. Hence, we now have a relatively well developed understanding of mental illness and its causes and correlates, as well as effective diagnostic systems and treatments for many psychological disorders (Seligman & Csikszentmihalyi, 2000). The alleviation of suffering associated with mental illness is undoubtedly a worthy goal, and these advances represent valuable contributions to the field and to the lives of individuals (Peterson, 2006).

In an important review of the state of psychology when President of the American Psychological Association in 1998, Martin Seligman argued that curing mental illness is 'important, but not all important' (Seligman, 1998: p. 559). Psychology's concern with deficit has come at the expense of making significant gains in our understanding of how people develop successfully under normal conditions or about human thriving (Seligman, 2002; Sheldon & King, 2001). Consequently, little is known about how normal lives and talent can be improved in order to make people happier, more fulfilled, and more productive (Joseph & Linley,

2006b; Vaillant, 2000). Furthermore, assumptions of human nature as disordered and passive have contributed to a biased view of humanity that ignores the full range of human capacities (Bailey, 2002; Joseph & Linley, 2006a). Hence, Seligman and colleagues have called for a greater focus on the positive aspects of functioning in order to right this imbalance.

A similar focus on deficit has also been observed in the field of developmental psychology. For example, children have tended to be seen as fragile and vulnerable, and adolescents have often been characterised as ‘problems to be managed’ (Damon, 2004; Lerner, Brentano, Dowling, & Anderson, 2002). Hence, developmental pathways towards psychopathology have attracted a great deal of attention, whereas much less is known about the pathways through which young people become competent adults (Larson, 2000). The positive psychology movement has thus also called for an increased focus on successful development, and how best to promote the potential for positive development in young people (Seligman & Csikszentmihalyi, 2000).

1.2 Models of positive functioning

The call for research on positive development is clearly timely, but requires a clear conceptualisation of what positive development actually ‘means’. A number of theoretical approaches seek to provide a developmental framework for understanding pathways towards successful functioning, including the resilience and developmental assets frameworks, social capital theory, developmental psychopathology, and the developmental systems approach. The following discussion provides an outline of each of these approaches, and examines their strengths and limitations as frameworks for understanding healthy development.

Resilience. Resilience refers to good outcomes in spite of serious threats to adaptation or development (Masten, 2001). Interest in resilience began with the observation that many children growing up in disadvantaged circumstances develop well, and resilience research aims to identify what factors account for these better than expected outcomes (Masten, 2001; Masten & Coatsworth, 1998). A number of large longitudinal studies have been inspired by the resilience framework (e.g., Project Competence, Garmezy, Masten, & Tellegen, 1984; and the Kauai Longitudinal Study of Hawaiian children exposed to multiple risk factors, Werner, 1993). These studies have identified a range of factors that promote resilience, with consistent evidence of the importance of relationships with caring adults and strong cognitive abilities (Masten & Coatsworth, 1998; Tiet et al., 1998). The resilience approach challenged a number of assumptions of a medical-model understanding of human behaviour, such as the fragility of human nature and causal-deterministic explanations of poor outcomes. However, a limitation of resilience research is that it has focused almost exclusively on those who are ‘at risk’, and development under normal circumstances has at best only been considered as a control condition (Rutter, 2007). Hence, this approach has yet to examine the question of how positive functioning can be enhanced in all young people, including those not in significantly disadvantageous circumstances.

Developmental assets. The developmental assets framework emphasises the importance of social, environmental, and psychological resources that enhance young people’s educational and health outcomes in both high risk and normative settings (Benson, 2007). Unlike the resilience model, this approach emphasises the promotion of positive outcomes rather than merely the avoidance of negative outcomes (Scales, Benson, Leffert, & Blyth, 2000; Theokas et al., 2005). Furthermore, it has increased

awareness of the importance of community and environmental factors in helping young people to achieve productive and healthy futures (Benson, Leffert, Scales, & Blyth, 1998). However, Small & Memmo (2004) note that further attention is needed in the developmental assets literature to operationalising assets more specifically.

Social capital and citizenship. In general terms, social capital refers to the networks of social ties that allow communities to achieve collective goals that benefit the entire community, including young people (Portes, 1998; Putnam, 1995a). On an individual level, it is associated with participation in community groups, trust in others in the community, dense social networks, cooperation, and a feeling of belongingness in the community (Whitley & McKenzie, 2005). High social capital is thought to promote beneficial community conditions, such as economic growth, effective political institutions, and lower crime rates (Brehm & Rahn, 1997). Interestingly, though, high social capital can also be associated with factors that may impede successful functioning, such as constraints on individual freedom and the exclusion of others (Portes, 1998).

The concept of citizenship is closely related to that of social capital, and emphasises the importance for democratic society of membership in groups and organisations, such as religious or community groups. Good citizenship is also defined by positive contributions to the community, such as through volunteer work. The citizenship literature emphasises the importance of social connectedness, group interaction, and community involvement for positive functioning (Kosterman et al., 2005).

Developmental psychopathology. The developmental psychopathology approach is based on the premise that the study of developmental pathways towards competence will build understanding of the aetiology, prevention, and treatment of

psychopathology (Cicchetti, 1984). Developmental psychopathology is concerned particularly with the processes by which patterns of maladaptation arise and may be prevented or ameliorated (Masten & Curtis, 2000). The approach emphasises the complexity of adaptational processes, as well as individual differences and the importance of a developmental perspective (Rutter & Sroufe, 2000; Sroufe & Rutter, 1984). Although developmental psychopathology considers adaptation and psychopathology as two sides of the same coin, it nevertheless has given much more attention to maladaptation (Sroufe & Rutter, 1984), and tends to be interested in understanding positive functioning only to the extent that it informs an understanding of abnormal development.

Developmental systems theory. Developmental systems theory emerged from the field of biology as an alternative model for understanding the ways in which genes and environments interact to produce phenotypes. It proposes that biological processes operate by continually assembling new systems that transcend one another and have new systemic qualities, where each system is irreducible to any lower level of structure and can be described and explained only in its own terms (Lerner, 2006). Hence, it rejects simple dichotomies such as gene/environment or continuity/discontinuity (Oyama, Griffiths, & Gray, 2001), and, like Sameroff's (2000) transactional model, suggests that the unit of analysis in empirical research should be individual by context relations, where healthy development represents mutually beneficial interactions between the individual and their social context. Given the potential for change in individual by context relations within the system and across time, developmental systems theory further emphasises the plasticity of human development. Hence, rather than questioning how we can foster positive development in young people, developmental systems theory asks how we can foster mutually

beneficial individual by context relations between young people and their environments (Lerner & Overton, 2008). Applying these concepts in empirical research presents challenges, including the complexities of measuring and statistically analysing person by context relations (Sameroff & MacKenzie, 2003).

1.3 Positive development

The broad positive development framework draws on aspects of all of these models of positive functioning. While different researchers have emphasised different aspects of positive development, in general terms it refers to the positive aspects of human behaviour and to successful developmental outcomes (M. Hawkins, et al., 2009). This approach emphasises a positive, asset-building orientation that views young people as resources to be developed rather than categorising youth according to their deficits (Lerner, et al., 2002). It further emphasises the plasticity of human development as well as the importance of relations between individuals and their real-world ecological settings (Silbereisen & Lerner, 2007).

The positive development approach has a number of significant advantages over the other models discussed. The positive development field has relevance for all youth, rather than targeted groups such as those experiencing extreme adversity as in the resilience framework (Small & Memmo, 2004). Furthermore, it acknowledges that simply preventing problems is not enough to prepare youth for adulthood: ‘Suppose we introduced an employer to a young person we worked with by saying, “Here’s Johnny. He’s not a drug user. He’s not in a gang. He’s not a dropout. He’s not a teen father. Please hire him.” The employer would probably respond, “That’s great. But what does he know, what can he do?”’ (Pittman, Irby, Tolman, Yaohalem, & Ferber, 2001: p. 4). Hence, the positive development framework is adopted in this thesis as an approach for understanding healthy development over the transition to adulthood.

1.3.1 Positive youth development

The strengths of the positive development framework as a model for understanding pathways towards successful adaptation have been well illustrated in the positive youth development field, which applies the positive development framework to the period of adolescence (Lerner, Almerigi, Theokas, & Lerner, 2005). The positive youth development literature also draws heavily on developmental systems theory, which conceptualises positive development as mutually beneficial individual by context relations. A key assumption of the positive youth development perspective is that when the strengths of young people are aligned with resources available in the primary contexts of adolescent development (such as school, home, and community), positive youth development is promoted both at specific time points as well as across time (Silbereisen & Lerner, 2007).

The positive youth development framework has had a significant impact on policy and intervention efforts aimed at adolescents in the US, and has been popular with non-formal educational programs and with community organisations that seek to promote the well-being of youth across the board (Roth & Brooks-Gunn, 2003). This approach provides a common language and an easily understood framework around which politically and institutionally diverse groups, programs, and organisations can unite (Small & Memmo, 2004). The effectiveness of community programs based on the positive youth development framework in promoting positive youth development has been empirically supported (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004).

The positive youth development field has also contributed to theory and model development by proposing and empirically testing an operationalised model of successful development during adolescence. Based on the experiences of practitioners

and reviews of the adolescent development literature, Lerner and colleagues proposed ‘five C’s’ of successful adolescent functioning, namely competence (e.g., academic competence), confidence (e.g., self-worth), connection (e.g., to family), character (e.g., valuing diversity), and caring (e.g., sympathy for the disadvantaged) (Lerner et al., 2005). They also proposed a ‘sixth C’ that results from manifestations of the five C’s over time, which they termed ‘Contribution’, defined by contributions to the self (such as maintaining health), and to family, community, and the institutions of civil society (Lerner, Lerner, et al., 2005).

1.4 The relevance of positive development models for emerging adulthood

Arnett (2000a) has described emerging adulthood as a developmental period spanning the transition between adolescence and full adult status, generally defined as the period between 18 and 25 years, observed in modern western industrialised countries. Adaptational issues are particularly salient during this time; many young people experience positive changes to their life-course direction, yet a significant proportion also experience problem outcomes, such as psychopathology. Below, the characteristics of this period are first discussed, before considering positive adaptation during the emerging adulthood period in section 1.5.

Evidence of the prolonged transition between adolescence and adulthood in present-day western industrialised countries can be seen in the increased age at which young people attain traditional indicators of full adult status. For example, the average age of marriage in Australia has increased substantially (by 4.5 years) over the past two decades (Australian Bureau of Statistics, 2007), as has the age at which young people enter parenthood: 25% of women aged between 20-24 years in 1986 had at least one child, compared to 15% of women in this age group in 2005 (Australian Bureau of Statistics, 2008). Numerous socio-historical changes have contributed to

the prolongation of this transition period. For example, women's roles have changed dramatically in recent history, with working outside the home becoming normative, less restricted career opportunities, and increased access to higher education (Arnett, 2004; Birrell, Dobson, Rapson, & Smith, 1995).

As well as this lengthening of the transition period, there is also greater heterogeneity in young people's pathways towards adulthood. There are few strict social norms dictating what young people should be doing during this time, and these wide boundaries have allowed a broader range of individual differences to be expressed (Arnett, 2005). Arnett (2006) suggests that emerging adulthood 'is perhaps the period of life in which variance is greatest, in many aspects of development' (p. 15). Despite this diversity, Arnett (2000a) has identified five defining characteristics of the emerging adulthood period, including identity exploration, instability, self-focus, a subjective experience of being 'in-between' adolescence and adulthood, and high levels of optimism for the future.

Identity exploration. Identity exploration has typically been associated with adolescence, with Erikson (1968) describing identity formation versus role confusion as the central task of this period. Arnett (2000a) suggests that identity exploration continues into emerging adulthood, with an intensification of the process begun in adolescence. For example, adolescents may experiment with different romantic partners with the central question being what type of person they would like to be with in the here and now, whereas emerging adults may enter into a number of different committed relationships as they explore what kind of person would suit them as a life partner. Similarly, whereas adolescents may experiment with a number of part time jobs primarily to gain disposable income, emerging adults may explore numerous work roles and options with the aim of establishing long term career goals

(Arnett, 2004; Roisman, Masten, Coatsworth, & Tellegen, 2004). Arnett's (2000a) description of the intensification of identity exploration in emerging adulthood has strong parallels with Erikson's (1968) concept of a 'psychosocial moratorium' – a period of 'time out' in which to explore various roles, self-images and future plans without yet committing to a particular alternative – which Erikson considered to be a luxury of wealthy adolescents (Cote, 2006; Hauser, 1971).

Instability. Emerging adulthood is also a period of considerable instability. As emerging adults experiment with different possibilities for the future across multiple domains of their lives, they must move between many different contexts, relationships, and roles. As Arnett (2004) observes, 'exploration and instability go hand in hand' (p. 12). The instability of emerging adulthood is well illustrated by the rate at which emerging adults change residence. Many emerging adults move from the family home into the private rental market (in Australia, commonly a 'share house' arrangement with peers, Natalier, 2007), only to return to the parental home at some point (an increasingly common phenomenon coined 'boomerang children', Goldscheider & Goldscheider, 1994), or to move in with a partner only to move out when the relationship dissolves (Wyn & White, 1997). This changeability stands in contrast to the 40% of Australians in their 20s in 1976 who were living as a couple with at least one child (Australian Bureau of Statistics, 2005). Hence, whereas the late teens and early twenties used to involve 'settling down' into stable adult roles, it now involves frequent change as young people explore their options for the future (Arnett, 2000a).

Self-focus. Emerging adulthood has been described as an age of self-focus, where young people are engaged with the task of uncovering what 'works' for them in different areas of their lives, and to a large extent, they need to justify and explain

their decisions only to themselves. This makes emerging adulthood a time for focusing on the self, with a considerable sense of personal freedom (Reifman, Colwell, & Arnett, 2007). The self-focus of emerging adulthood can aid the development of life skills, identity formation, and goals for the future, which all contribute to foundations for adulthood. The self-focused nature of emerging adulthood is in contrast to adolescence, where young people's decisions and behaviour are generally constrained by families' and teachers' rules and guidelines, and to later adulthood, where most young adults are responsible to spouses and children, as well as to a job to which they are committed (Arnett, 2006).

Feeling 'in-between' adolescence and adulthood. Emerging adults subjectively identify as being neither adolescents nor adults, but as being somewhere in between these two developmental periods. When asked if they have reached adulthood, emerging adults typically respond 'in some ways yes, in other ways no' (Arnett, 2001). Their criteria for becoming an adult centre on accepting responsibility for oneself, making independent decisions, and becoming financially independent (Arnett, 1994). Few of these criteria reflect 'all or nothing' milestones – for example, young people may be more financially independent after they leave high school but still receive a parental allowance while enrolled in further study – consistent with emerging adults' perception of moving towards adulthood by degrees rather than in discontinuous stages or steps (Arnett, 2001).

Optimism for the future. Finally, with few normative expectations imposed on emerging adults and the opportunity to experience a wide range of different roles and contexts, the possibilities for the future are extensive (Arnett, 2000a). These possibilities engender a high level of optimism in emerging adults (Arnett, 2006). A survey of 200 18-24 year old Americans found that 96% agreed with the statement 'I

am very sure that someday I will get to where I want to be in life', and 91% agreed with the statement 'If I just work hard enough, I will eventually achieve what I want' (Hornblower, 1997). Similarly, Arnett (2000b) surveyed young people in their 20s and found that the overwhelming majority believed that their future quality of life would exceed that of their parents.

1.4.1 Critiques of Arnett's theory of emerging adulthood

Emerging adulthood is one framework for understanding the transition to adulthood, but other conceptualisations have been suggested (e.g., see Hendry & Kloep, 2007), and Arnett's (2000) model of emerging adulthood has received some criticism in the literature. Arnett proposed that emerging adults experience a gradual, linear progression towards adulthood, and variable centred analyses that reflect average trends have supported this hypothesis. However, person centred analyses often reveal a pattern of young people moving closer to and further away from adult roles (P. Cohen, Kasen, Chen, Hartmark, & Gordon, 2003). For example, as noted above, a return to the family home following a period of independent living is common among Australian emerging adults (Wyn & White, 1997). Hence, the transition to adulthood may be less linear than suggested by Arnett. Nevertheless, overall, individuals appear to move steadily towards adulthood over an extended period of time, despite some regressions on this path.

It has also been noted that Arnett's work on the transition to adulthood suggests that overall, most young people experience this as a positive time. For example, Arnett (2000) describes this period as a time of overwhelming optimism for the future (see section 1.4). However, some young people, such as those from lower socioeconomic backgrounds, may have fewer safety nets, and hence could experience more negative outcomes as a result of their risk taking and identity exploration

(Hendry & Kloep, 2007). Similarly, socioeconomic background is likely to affect the degree to which young people experience the benefits associated with increased capacity for self selection, as opportunities are more limited for those from lower socioeconomic status backgrounds (Schulenberg & Zarrett, 2006). Hence, it is likely that for some young people, particularly those from less resourced backgrounds, the pathway to adulthood may be more unsettled than for others.

Finally, as noted previously and acknowledged by Arnett (2000a), emerging adulthood is a phenomenon of modern western industrialised countries, such as Australia, which represent less than a fifth of the world's population (*Human Development Report*, 2007). Bynner (2005) suggests that even within western countries, the applicability of the theory of emerging adulthood may be more limited than Arnett (2000) originally proposed. Many young people may still take a more traditional route to adulthood, and some subgroups within the population may bypass this period completely. For example, Mormons marry at a young age, restricting their capacity to experience the emerging adulthood period (Bynner, 2005). Social class, gender, ethnicity and locality can also affect the extent to which the characteristics of emerging adulthood are observed (Bynner, 2005; Phinney, 2006). For example, Cohen et al. (2003) found that women assumed adult roles with regard to residence earlier than men and continued with persistently higher levels in this domain, whereas men were more likely to experience full financial independence during emerging adulthood. Hence, it should be recognised that the theory of emerging adulthood may be more applicable to some societies and groups than others.

1.4.2 Possibilities and challenges during emerging adulthood

Potential for positive change. Emerging adulthood represents a period of great potential for positive change. Transition periods provide increased opportunities for

change that can have lasting implications for life course development (Graber & Brooks-Gunn, 1996), and the transition to adulthood may be particularly conducive to long term changes in developmental trajectories as young people move from a relatively structured and contained role in adolescence to a relative lack of structure or institutional support in emerging adulthood, where new pathways may be forged as new opportunities and experiences arise (Schulenberg, Sameroff, & Cicchetti, 2004). Success in meeting the developmental tasks associated with the transition to adulthood provides a firmer foundation for the challenges of the next developmental period (Schulenberg, Sameroff, et al., 2004). Masten et al. (2004) suggest that ‘there are hints that [the transition from adolescence to adulthood] is a window where positive change occurs for some individuals, particularly less adaptive, disadvantaged individuals who make use of opportunities to change context or course’ (p. 1074), thus providing ‘opportunities for positive transformation’ (Masten, Obradovic, & Burt, 2006: p. 173).

‘Turning points’ refer to enduring changes in functioning towards a more positive direction, that may come about as either an abrupt change associated with specific experiences or as a process over time (Bandura, 1982; Elder, Gimbel, & Ivie, 1991; Laub & Sampson, 1993; Mandelbaum, 1973). Turning point experiences appear to be more common during emerging adulthood than in any other developmental period (Elnick, Margrett, Fitzgerald, & Labouvie-Vief, 1999; Grob, Krings, & Bangerter, 2001; Starr, 1994). With the wide variety of different experiences encountered, there are more novel events that can provide the impetus for turning point experiences. Furthermore, experiences of novel contexts bring emerging adults into contact with a more varied range of people and perspectives, thus potentially expanding their perceptions of possibilities for their life. As Arnett (2006) describes,

emerging adulthood 'represents a chance for young people to transform their lives, to free themselves from an unhealthy family environment, and to turn their lives in a new and better direction' (p. 13).

Given the potential for positive change during this period, interventions aimed at supporting changes in the life course during emerging adulthood towards more positive developmental pathways may be particularly effective (Schulenberg, Sameroff, et al., 2004; Schulenberg & Zarrett, 2006).

Challenges. The transition to adulthood can also be a challenging period for young people. The social and institutional structures that both supported and restricted individuals in the course of their transition to adulthood in earlier generations have weakened, so the counterpoint to the greater freedom is 'a profound lack of institutional structure' as young people move into adulthood (Hurrelmann, 1990: p. 236). Hence, young people are more reliant on their own resources than those of outside institutions and to some extent must be able to stand alone as a self-sufficient person, capable of making choices from a wide range of possibilities (Arnett, 2006; Cote, 2006). This challenge may be particularly overwhelming for those with few resources (Arnett, 2006; Schulenberg & Zarrett, 2006). Furthermore, whilst exploration in emerging adulthood contributes to identity formation, the instability that results from experimentation may be disruptive for some young people (Arnett, 2004). Similarly, while the sheer number of possibilities for the future may engender optimism in most emerging adults, for some this may represent a 'tyranny of freedom and choice' (Cote, 2006: p. 92; Robbins & Wilner, 2001).

Consistent with the challenges of this period for vulnerable young people, relatively high incidences of problem outcomes are observed in emerging adulthood. For example, emerging adults have high levels of alcohol consumption (National

Health and Medical Research Council, 2001), which for some young people may reflect experimentation, but for others may reflect a more concerning inability to cope with the demands of this period and lead to dependency and alcohol-related harms (Arnett, 2005). Emerging adults also have a higher incidence of depression than any other age group (Kessler & Walters, 1998), which may be associated with change and disruption during emerging adulthood and the lack of structure and support compared to the adolescent period (Arnett, 2005; Schulenberg & Zarrett, 2006). Emerging adults may also engage in risky health behaviours, such as eating disorders, drug use, and smoking, as part of their exploration process (McCourt, 2004).

1.5 The structure of positive development in emerging adulthood

As a result of the possibilities for change as well as the challenges of the emerging adulthood period, issues of adaptation and the potential for positive development are particularly salient. However, few studies have proposed and empirically tested models of the essential components of positive development in emerging adulthood. This is an essential step for research on the developmental antecedents of positive development and its relationship to other constructs such as psychopathology.

Those studies that have modelled positive development uniformly operationalise it as a multidimensional construct – on this issue there is consensus in the literature. Assessing the degree to which dimensions of positive functioning form a higher-order single construct is important for identifying the core aspects of this construct (that is, which dimensions significantly contribute to overall positive development), and for understanding positive development as a coherent and cohesive construct. However, while some studies combine dimensions of positive development into a single index, others have considered dimensions of positive functioning

separately rather than as part of a unified outcome (Letcher, Hawkins, Sanson, Smart, & Toumbourou, 2007).

There is also confusion in the literature about the boundaries of positive development. For example, one model of positive development in emerging adulthood (Schulenberg, Bryant, & O'Malley, 2004) differentiates between developmental tasks (for example, citizenship behaviours) and positive functioning (including the dimensions of self-esteem, self-efficacy, and social support), whereas other models include developmental tasks as dimensions of positive functioning. Furthermore, models of positive functioning reflect the influence of a range of theoretical orientations, which has contributed to fragmentation of the literature. Finally, only one study has examined the structure of positive development in emerging adulthood using an Australian sample. The following discussion provides an outline of models of positive functioning in emerging adulthood, and examines their strengths and limitations.

Competence. Masten et al. (1995), drawing on the developmental psychopathology framework, examined the structure of 'competence' in childhood and emerging adulthood, as well as the stability of this construct over time. The study drew on data from Project Competence, a relatively small ($N=205$) US community cohort, and used structural equation modelling to develop a model of competence in emerging adulthood (at 20 years). The model included successful functioning in the work, academic, conduct, social, and romantic domains, as measured by parent interview and self-report. This model was a good fit for the data, and competence in the academic, conduct, and social domains at 20 years was associated with competence in these domains in childhood. However, although Masten et al. (1995) suggest that competence is a multidimensional construct, they did not model a second

order latent factor to reflect an overall competence construct, and hence the degree to which successful functioning in these domains reflects a single multidimensional construct is unclear.

Thriving. Also modelling positive development over time, Gambone, Klem, and Connell (2002) drew on data from the Michigan Study of Adult Life Transitions and the Maryland Adolescent Development in Context Study. They took a life span approach and examined positive functioning from mid-adolescence to young adulthood. Looking at the emerging adulthood period, they suggested that positive functioning includes economic self-sufficiency (including education level, wage, and job satisfaction), healthy family and social relationships (for example, dependable family networks), and community involvement (such as membership in community groups). They defined 'thriving' as having optimal levels in at least one of the three outcomes and not being 'at risk' in any of the others. However, the authors did not empirically test this model of positive functioning.

Well-being and developmental tasks. Working within the developmental tasks framework, Schulenberg et al. (2004) assigned scores of succeeding, maintaining, or stalling to reflect progress towards achieving developmental tasks (normative activities and goals) salient in emerging adulthood, including education, work, financial autonomy, romantic involvement, peer involvement, substance abuse avoidance, and citizenship. Their sample included over 3,000 US young people assessed at ages 18, 21-22, and 25-26. As well as categorising positive functioning according to progress in developmental tasks, they further developed a measure of well-being, including the dimensions of self-esteem, self-efficacy, and social support. Using this measure of well-being, they identified trajectory groups of positive functioning over the emerging adulthood period, and found that membership in

different trajectory groups was predicted by progress towards meeting developmental tasks, particularly in the citizenship, education and work domains. Hence, although they found evidence that well-being and success in developmental tasks were highly related, they maintained a distinction between these areas of successful functioning, whereas other studies have integrated aspects of developmental tasks and well-being into a single construct and have generally found this to be a good fit for the data. Furthermore, they included the absence of a problem outcome (substance abuse) as a dimension of positive functioning, which is also contentious (as discussed in Study 2).

Positive functioning. Kosterman et al. (2005) examined data from a large sample of 21 year olds enrolled in the Seattle Social Development Project, which included a large proportion of young people from disadvantaged backgrounds. They identified group involvement, neighbourliness, interpersonal connection, constructive engagement (productive activity, work, or constructive use of time), financial responsibility, and honesty, as aspects of positive functioning. They found that there was relatively little overlap between the dimensions, with the strongest relationship observed between group involvement and volunteering ($r=.4$). The authors concluded that given this lack of overlap in the dimensions, it may be more appropriate to consider aspects of positive functioning separately. However, the authors did not empirically compare the fit of models with and without a second-order latent construct, which would have added weight to their conclusion.

Positive well-being index. In contrast to Kosterman et al. (2005) and a number of the studies described previously, Moore and Gleib (1995) brought together dimensions of positive functioning to form an overall 'Positive Well-being Index' for a representative US sample of 18-22 years olds. This index included the dimensions of life satisfaction, religiosity, closeness with parents, beliefs about the importance of

correcting social and economic inequalities, and community involvement. This model was based on theory as well as the measures available in the data set, but was not empirically tested, and hence the degree to which this model fit the data was not examined. However, the index was related in expected ways to earlier demographic, family, school, and neighbourhood characteristics, suggesting that the dimensions comprising the index did cohere in a meaningful way. For example, young people who experienced fewer family disruptions and closer relationships with their parents were higher on the positive well-being index. However, the inclusion of religiosity as a dimension of positive development is questionable given that the relationship between religiosity and well-being appears to be largely mediated by other factors such as purposefulness and gender (Francis & Wilcox, 1998; French & Joseph, 1999).

In summary, previous studies that have empirically modelled positive development in the emerging adulthood period have been subject to a number of methodological limitations and have raised a number of areas of disagreement. Most problematically, a number of the models were not empirically tested, and of those studies that did empirically examine their model of positive development, most did not examine whether drawing the dimensions together into a second-order latent construct would provide a good fit for the data (thereby providing further evidence of the validity of the positive development construct, and identifying its most salient dimensions). Furthermore, studies have conceptualised a range of different dimensions as reflecting positive functioning, and the boundaries between what is positive development and what is not positive development remain unclear. However, there are also some areas of consensus: positive development is acknowledged to be a multidimensional construct, and to include individual characteristics as well as factors relating to engagement with others and with the wider community.

1.5.1 ATP model of positive development in emerging adulthood

Responding to the limitations of previous research, and incorporating perspectives on developmental psychopathology (Cicchetti, 1984; Masten & Curtis, 2000), life course and life span psychology (Lerner, 2006), and social capital theory (Whitley & McKenzie, 2005), M. Hawkins et al. (2009) recently developed and empirically tested a model of positive development in emerging adulthood (19-20 years). The study drew on data from the Australian Temperament Project (ATP), a large scale longitudinal community based study (see Chapter 3 for more details).

Reviewing the existing literature, M. Hawkins et al. (2009) identified a number of important domains of positive functioning during the emerging adulthood period. *Social competence*, including domains such as empathy, responsibility, and self control, is an important characteristic that helps individuals to meet everyday functional demands, be responsible for themselves and others, and to interact effectively in social relationships (Gresham & Elliot, 1990; Gresham, Sugai, & Horner, 2001). *Life satisfaction* reflects a sense of contentment and feelings of congruency between wants or needs and accomplishments or resources (Keyes & Waterman, 2003), and can be taken as a measure of quality of life (Huebner, 2004; Park, 2004). *Civic action and engagement* refers to the willingness of an individual to take up the role of being a citizen, and is essential for successful democratic society. Furthermore, civic engagement and ethnic tolerance are central to political socialisation (C Flanagan & Sherrod, 1998; Winter, 2000). *Trust and tolerance of social groups and institutions*, and the capacity to harmoniously work with people from different backgrounds and cultures, are also important aspects of social capital (Putnam, 1995b). A summary of these dimensions is provided in Appendix A.

Integrating these important domains of functioning, M. Hawkins et al. (2009) developed a multidimensional model of positive development in emerging adulthood using structural equation modelling (see Figure 1). Five first order constructs, including social competence, life satisfaction, trust and tolerance of others, trust in authorities and organisations, and civic action and engagement, contributed to a second order latent factor reflecting positive development. This model was found to fit the data very well. The study thus provided evidence of a cohesive higher-order construct of positive development in emerging adulthood. The positive development construct accounted for almost half of the variance in the five first order constructs, indicating that the five dimensions were highly interrelated. Hence, this model represents a significant advance in the field, and provides a robust measure of positive development during emerging adulthood which is a suitable vehicle for addressing this thesis' research questions.

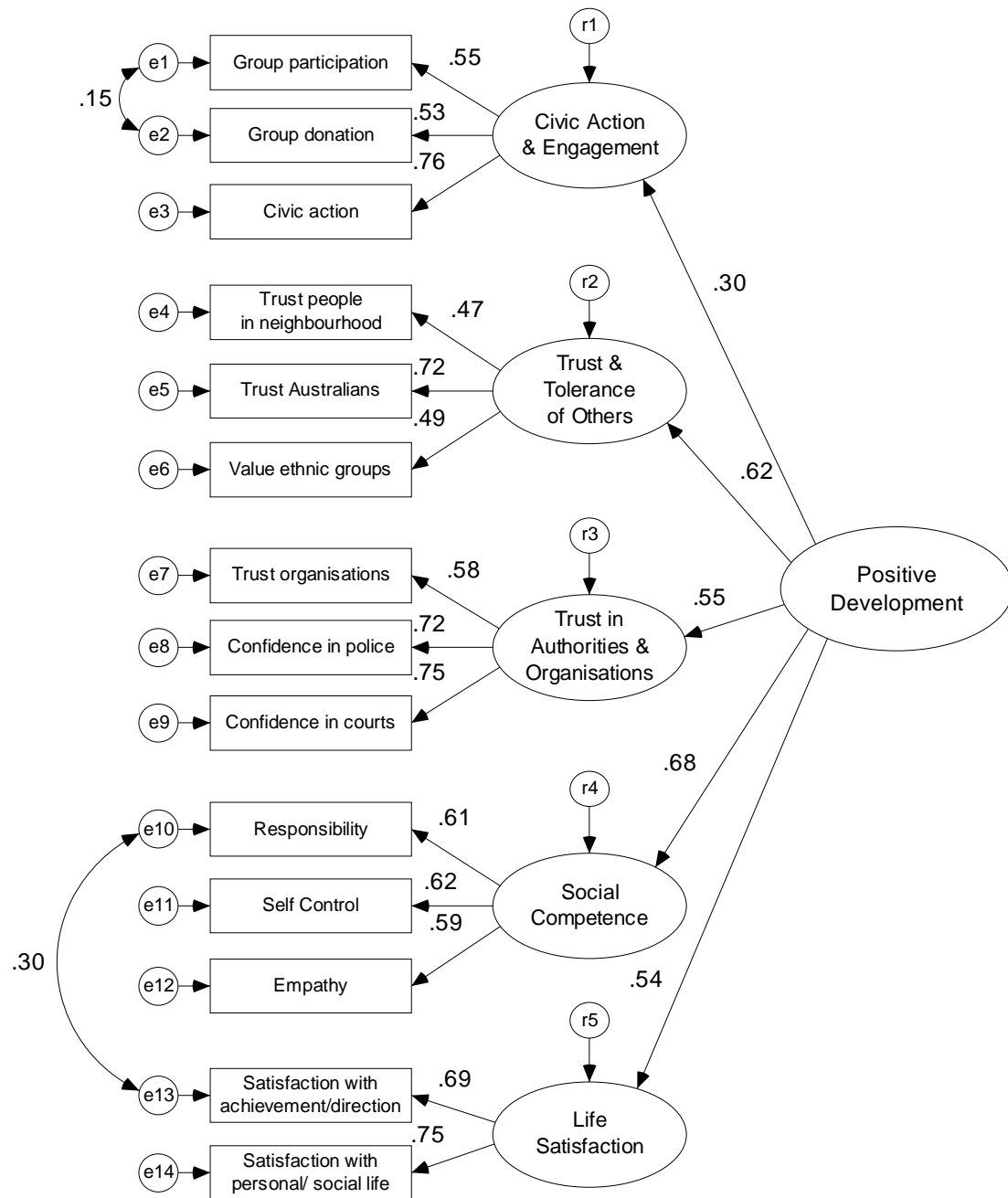


Figure 1. Final second-order factorial structure for positive development in emerging adulthood. Taken with permission from M. Hawkins et al. (2009).

1.6 Research objectives

The Australian Temperament Project (ATP) is a large scale longitudinal community based study, which has followed the development of a cohort of Australian children from infancy to emerging adulthood. The study has collected a

wealth of data across 14 waves from multiple informants, including parents, teachers, and the participants themselves. Drawing on data from the ATP and the model of positive development in emerging adulthood developed by M. Hawkins et al. (2009), the current research aims to contribute to theory and model development, as well as to understanding of how positive development can be promoted in young people. The research includes two studies. Study 1 aims to identify factors that promote dimensions of positive development, in order to identify fruitful targets for intervention. Study 2 aims to investigate the relationship between positive development and psychopathology, and how this relationship should be conceptualised theoretically and empirically in further research, thus further defining the boundaries of the positive development construct and elucidating whether distinct intervention strategies to address positive and problem outcomes are necessary. In Chapters 2 and 6, more detailed reviews of relevant literature are provided leading to the specific aims of each study. These are followed by descriptions of methods and results, and brief discussions, before being integrated into a final discussion of the implications in Chapter 10.

CHAPTER 2: ANTECEDENTS OF POSITIVE DEVELOPMENT IN EMERGING ADULTHOOD

As already discussed, successful development during emerging adulthood is likely to affect pathways through adulthood, and to influence the degree to which young people become well-functioning adults with the capacity to successfully negotiate the tasks of adulthood (Schulenberg, Sameroff, et al., 2004). Yet, as Masten, Obradovic, and Burt (2006) observe, ‘intervening to foster the conditions for positive change during the transition to adulthood requires a more solid base of knowledge than presently exists’ (Masten, et al., 2004: p. 1092). Given the suggestions that the emerging adulthood period may be particularly conducive to positive change (see section 1.4.2), it is important to identify what antecedent factors promote successful development during the emerging adulthood period (Tanner, 2006), and to identify targets for interventions aimed at promoting young people’s potential for positive development and successful functioning.

Study 1 focused on child and adolescent predictors of positive development in emerging adulthood. Below, the existing literature on predictors of positive development is reviewed, in order to identify existing knowledge and gaps in knowledge, and to guide the selection of variables for inclusion in the analysis. Firstly, predictors of the overall multidimensional positive development construct will be considered, followed by predictors of its constituent five dimensions in the M. Hawkins et al. (2009) model.

2.1 Predictors of multidimensional positive development

A number of studies have examined predictors of positive development, conceived as a multidimensional construct. Most studies have sought to evaluate the role of a limited set of predictors, typically focusing on individual characteristics,

relationships with others, and community level factors. The individual-level factors found to predict social, academic, and citizenship aspects of positive development in emerging adulthood include personal and academic characteristics. For example, Shiner (2000) used multiple regression analyses to examine the relationship between personality traits at 8-12 years and adaptive functioning (see section 1.5 for description of this construct and sample) ten years later. Personality traits including mastery motivation, academic conscientiousness, surgent engagement (higher extraversion, expressiveness, and attention), and agreeableness, were predictive of concurrent and later adaptive functioning. Masten et al. (1995), analysing the same data set and using structural equation modelling, found that academic achievement during childhood (ages 8-12 years) was a powerful precursor of their 'competence' construct in emerging adulthood (see section 1.5).

Studies drawing on life course theories emphasize the importance of interactions between the individual and their social context, highlighting the importance of strong relationships with others for successful development. These studies look particularly at well-being as an indicator of positive development and reveal young people's relationships with their parents and peers as important contributors to their later well-being. Schulenberg et al.'s (2004) examination of trajectories of well-being (as measured by self-esteem, self-efficacy, and social support) using data from a large US cohort-sequential longitudinal study found that peer relationships play an important role in the maintenance of well-being: logistic regression analyses revealed that peer involvement predicted a 'steady-high' versus 'decreasing' trajectory of well-being. Van Wel et al. (2002), using path analysis with longitudinal data from a large, national study of Dutch young people, found that the parental bond was important for well-being in emerging adulthood and was at least as

important as peer and romantic connections. Hence, despite differences in the qualities of relationships examined and how positive development has been operationalised, these studies indicate the salience of relationships to later positive development.

The importance of the wider social context, as emphasized in life span and developmental psychopathology theories, is also supported in the literature. For example, using well-being as an outcome, McGraw, Moore, Fuller and Bates (2008) drew on data on an Australian school based sample and found that school connectedness was moderately associated with well-being during the final year of high school (mean age 17 years), and continued to have implications for well-being one year after leaving high school. Despite these indications that broader connectedness factors are likely to be important for positive development, these factors have received relatively little empirical attention.

While this literature on predictors of multidimensional positive development indicates that a wide range of factors are related to positive development in emerging adulthood, there are a number of limitations to these studies. By examining only a few predictors, studies have failed to take into account the wider psychosocial context of development. This has contributed to fragmentation of the literature, since the common and unique contributions of the many significant predictors of positive development remains unknown (Small & Memmo, 2004). Furthermore, longitudinal studies have generally been short-term with few follow ups across important developmental transitions, and few have followed samples from infancy, so little is known about early precursors of positive development in emerging adulthood.

Responding to these limitations in current knowledge, O'Connor et al. (in press) examined child and adolescent precursors of positive functioning in emerging

adulthood, including individual characteristics, relationship factors, and connections to the community, using M. Hawkins et al.'s (2009) multidimensional positive development measure at 19-20 years (see section 1.5.1). Using path analysis, they found that higher levels of positive development in emerging adulthood were associated with stronger family and peer relationships in childhood, higher family socioeconomic status, adjustment to the school setting, and emotional control in adolescence. Some statistically significant gender differences were observed, with emotional control, relationships with parents, and community orientation all being stronger predictors of males' positive development than females'. This refined path analysis was based on fuller prior analyses using multiple hierarchical regression, which is more appropriate for the comparisons examined in Study 1 because of the breadth of predictors examined, and hence the results of these analyses are provided in Appendix B.

2.2 Predictors of positive development dimensions

Identification of the antecedents of the dimensions of positive development, including social competence, life satisfaction, trust and tolerance of others, trust in authorities and organisations, and civic action and engagement, also has important implications for the development of interventions aimed at promoting positive development in emerging adulthood. Understanding how antecedent factors affect specific dimensions of positive development is important for the development of effective interventions targeted at underlying processes that promote positive functioning, rather than factors that are only proxies for underlying processes (Small & Memmo, 2004). For example, despite O'Connor et al.'s (in press) identification of factors from across childhood and adolescence that promote multidimensional positive development in emerging adulthood, it is unclear how these factors exert their

influence. For instance, emotional control appeared to be an important factor in facilitating positive development, and it may be that it does so predominantly by facilitating the development of social competence, but this hypothesis has not been tested.

Identification of the antecedents of specific dimensions of positive development, and how these antecedents relate to predictors of the overall multidimensional positive development construct, also has implications for developing more targeted interventions. For example, levels of civic engagement are low in Australian emerging adults compared to levels of the other dimensions of positive development (M. Hawkins, et al., 2009), and thus policy makers may wish to invest more heavily in factors that promote this aspect of positive functioning in order to yield more substantial gains in overall positive development. It has also yet to be determined whether there are factors that significantly predict a number of dimensions of positive development, and thus could also be particularly gainful targets for intervention, or whether there are specific predictors for each dimension.

Previous research examining antecedents of specific dimensions of positive development has generally been subject to a number of the same limitations that qualify the literature around predictors of the multidimensional positive development construct. Most studies have examined the contributions of only a small number of predictors, so that the relative and unique contributions of the identified predictors and thus the most important targets for interventions remain unknown (Small & Memmo, 2004). Few studies have examined the role of community level variables. Furthermore, most studies have examined concurrent rather than antecedent predictors, thus limiting inferences about causation. Of those that have examined antecedent factors, most include only short-term longitudinal data with few waves of

data collection. Finally, few studies have used representative samples, with undergraduate tertiary students being significantly overrepresented, thus limiting generalisability (Arnett, 2000a). Existing studies for each dimension are reviewed below. Given the lack of research focusing on the emerging adulthood period for the dimensions of life satisfaction, trust and tolerance of others, and trust in authorities and organisations, some studies focusing on adult and adolescent samples will also be examined.

2.2.1 Social competence

A number of studies have examined antecedents of social competence in emerging adulthood, and in contrast to research on other positive development dimensions these include studies with longitudinal data from representative samples. A range of factors across childhood and adolescence have been identified as important for social competence in emerging adulthood, including individual characteristics, aspects of relationships with others, and family relationships. However, there has been little examination of the role of community level factors, such as feelings of connectedness with the community.

Looking at individual characteristics, temperament factors, personality traits, and social skills appear to be strong predictors of later social competence. Using data from the ATP (see Chapter 3), Smart and Sanson (2003) used multiple regression analyses to investigate antecedents of social competence in emerging adulthood (at 19-20 years), and found that temperament factors including reactivity, sociability, shyness, and persistence, as well as the social skills of assertiveness, cooperation, and empathy, were significant predictors of social competence in emerging adulthood.

Newman et al. (1997) drew on data from a longitudinal study of New Zealand children and found that as emerging adults, children categorised as having an

undercontrolled temperament style (irritable, impulsive, and inattentive) at age three had higher levels of interpersonal conflict across interpersonal contexts. Children classified as having an inhibited temperament style (shy, fearful, and inattentive) had lower social support and were described in less socially attractive ways by others. However, in their romantic and work relationships, these difficulties were not observed and they were described as conscientious. Children who were categorised as confident (zealous, friendly, and adjustable) were highest in social competence in emerging adulthood and experienced fewer interpersonal difficulties.

More refined personality traits in later childhood also appear to influence later social competence. Analysing data from Project Competence (described in section 1.5), Shiner (2000) used multiple regression analyses to examine the relationship between personality traits at ages 8-12 years and aspects of adaptive functioning ten years later (aged 18-22). Personality traits including mastery motivation, surgent engagement (vigorous, active engagement in social and non-social settings), and agreeableness, were predictive of social competence during emerging adulthood.

Focusing on the role of relationship factors in the development of social competence, Armistead, Forehand, Beach, and Brody (1995) investigated the impact of family, self, and peer systems in adolescence on interpersonal competence in emerging adulthood. Participants were 110 US young people, with data collected from the young people, their mothers, and teachers in early adolescence (mean age of 13 years), and emerging adulthood (18 to 21 years). They observed a complex relationship whereby parental conflict and divorce predicted lower self esteem, which predicted poorer peer relationships, which then predicted lower social competence in emerging adulthood. This finding demonstrates the interconnectedness of elements of

adolescents' internal and social environments and the importance of these interconnected systems for later development.

The importance of family relationships for later social competence was also observed in Conger et al.'s (2000) study of a small sample in their early 20s who were in ongoing romantic relationships. Participants were initially assessed in the first year of high school (mean age 13 years), and then at regular intervals thereafter. Actual interactions with family members and later with romantic partners were recorded and coded, and participant reports were also collected. Structural equation modelling was used to test the hypothesis that characteristics of family interactions would predict interpersonal competence in emerging adulthood, which would in turn predict the quality of participants' romantic relationships. This model was supported: warm and involved parenting was related to warm, supportive, and non-hostile interactions between the emerging adult and their partner, which was related to relationship quality (happiness and commitment). Hence, parenting practices appeared to be important for the development of social competence, which had implications for the quality of emerging adults' romantic relationships.

These studies suggest that individual characteristics and relational factors are likely to play important roles in the development of social competence. However, the potential relevance of community level factors to social competence has received little empirical attention.

2.2.2 Life satisfaction

A strength of the literature around antecedents of life satisfaction in emerging adulthood is that life satisfaction has been operationalised in a relatively consistent manner across studies, with most employing the Satisfaction With Life Scale, which has good psychometric properties (Diener, Emmons, Larsen, & Griffin, 1985).

However, although life satisfaction appears to be related to age, with older adults reporting greater life satisfaction than younger people, most studies have drawn on samples that include participants from a wide age range (typically including individuals aged 18 years and over). Thus, the combination of results from participants across different developmental periods may be misleading (Hamarat, Thompson, Zabrocky, & Matheny, 2001). Furthermore, studies that have exclusively sampled emerging adults are typically limited to undergraduate University samples, thus limiting generalisability (Arnett, 2000a). Finally, many of the studies identify only concurrent correlations, and hence little is known about longitudinal antecedents of life satisfaction.

In regards to the relationship between life satisfaction and individual characteristics, self-esteem consistently emerges as a predictor of life satisfaction in both the adult and emerging adult literature. Deiner and Deiner (1995) examined the relationship between self-esteem and life satisfaction in a very large sample of college students (over 13,000). The majority of the sample was between the ages of 17 and 25 years. Participants were sampled from 31 countries across 5 continents. They found a moderate correlation between life satisfaction and self-esteem across all participants ($r=.47$). However, the strength of this relationship appeared to be moderated by the degree to which countries were individualistic versus collectivistic, with the relationship being stronger in individualistic cultures.

Also examining the role of individual characteristics in promoting life satisfaction, Pilcher (1998) examined concurrent correlates of life satisfaction in a small sample of US college students (mean age 19 years). She found that life satisfaction was predicted by 'vigour' (or mental energy, measured by the degree to which participants felt, for example, lively, alert, and active), and that lower levels of

life satisfaction were predicted by depression, negative affect, and frequency of illness. Surprisingly, confusion predicted higher life satisfaction, although Pilcher suggested that this may have been an artefact of shared variance with other predictors in the model. These predictors accounted for 54% of variance in life satisfaction, suggesting that affect and day-to-day events explain a substantial amount of the variability in life satisfaction.

Arrindell, Heesink, and Feij (1999) examined the concurrent associations of participants' life satisfaction with other constructs in a large sample of young people (aged 18-26) from the Netherlands. The results suggested that satisfaction with life was positively associated with self esteem and euphoria, and significantly but only slightly associated with sociability and impulsivity. Negative associations were observed with neuroticism, dysphoria, and very small negative associations were observed with disinhibition and boredom susceptibility. Sex differences were also examined and were found to be negligible.

There is also some evidence to suggest that current family relationships may influence the life satisfaction of emerging adults. With a sample of 471 US young people in their late teens and early 20's, Amato (1994) examined concurrent predictors of life satisfaction and found that closeness to mother and closeness to father were significant unique predictors of life satisfaction during emerging adulthood, whereas parental divorce, when included in the same model, was not a significant predictor. However, the percentage of variance accounted for by closeness with parents was very small (9%). Nevertheless, the results suggest that closeness to parents plays some role in predicting life satisfaction, and that parental divorce is not uniquely related to life satisfaction when other family characteristics are taken into account.

Aquilino and Supple (2001) also examined the effects of family characteristics on life satisfaction. This methodologically stronger study utilised data from a random community sample of young people aged 18 to 24 years. The study employed a longitudinal design, although with only two assessments, and a multi-informant procedure incorporating reports from parents and the young people themselves. The study examined the effects of parenting practices in adolescence on life satisfaction 4-5 years later, and found that a coercive parenting style high in conflict, and having a step-parent in the family were predictive of lower life satisfaction in emerging adulthood, whereas being African American and from higher socioeconomic status family was predictive of higher life satisfaction. Higher levels of problem behaviours in adolescence also predicted lower life satisfaction, and this appeared to partially mediate the relationship between parenting patterns and life satisfaction. This model accounted for nearly a quarter of the variance in life satisfaction.

Lay ideas about what makes people feel good about their lives generally include explanations relating to positive or negative life events, such as winning a lottery or losing a job. However, objective life events appear to have relatively small effects, particularly in the long term. Suh, Deiner, and Fujita (1996) drew on short-term longitudinal data from a college sample (aged 20-21 years), and found that life satisfaction was relatively stable ($r=.7$) over a two year period. Although positive life events (such as getting a promotion or getting engaged) and negative life events (such as loss of job) did have an impact on life satisfaction, only positive and negative events from the past three months were significant predictors of current life satisfaction. The authors concluded that life satisfaction does react to life events but returns to an individual's stable baseline level very quickly.

Although transient life events may have little lasting effect on life satisfaction in emerging adulthood, stable life circumstances may have a more enduring impact. Using a large Australian school sample, Winefield, Winefield, Tiggermann, and Goldney (1991) examined the concurrent relationship between employment status and life satisfaction for 23-25 year old participants. Using multivariate analysis of variance they compared the concurrent level of life satisfaction for young people in four categories: satisfied employed, dissatisfied employed, unemployed, and students. They found that those who were employed and satisfied with their job reported the greatest life satisfaction, followed by students, and those dissatisfied but employed. Young people who were unemployed had the lowest levels of life satisfaction.

Focusing specifically on young people in rural areas of the US from low socio-economic backgrounds, Wilson and Peterson (1988) also examined the role of life circumstances in facilitating life satisfaction, and further distinguished between subjective (for example, expected income) and objective (for example, actual income) aspects of current experiences. Participants were 322 young people in their early 20s (mean age 21 years). It was found that income, living closer to their childhood home, and self esteem were all predictors of higher life satisfaction, whereas living in a larger community and incongruence between employment aspirations and employment expectations were predictive of lower life satisfaction. The authors concluded that subjective indicators (self esteem, job aspiration, and expectation congruence) were more important predictors of life satisfaction than objective measures, such as actual job and education attainment, and SES family background. However, this study drew on data from a very specific sample, and the extent to which these results can be generalised is unclear.

In summary, most studies examining antecedents of life satisfaction in emerging adulthood have focused on individual level variables, and suggest that individual characteristics including personality and self-esteem significantly contribute to life satisfaction during the transition to adulthood. The few studies that have examined the role of relationship factors in predicting life satisfaction suggest that relationships with parents have a significant unique effect, but account for relatively little variance in life satisfaction. It also appears that significant positive and negative life events have an impact on life satisfaction, but this effect is relatively short lived. No studies were identified that examined the role of connections to the community for life satisfaction during emerging adulthood, although Wilson and Peterson's (1988) study provides a hint that community level factors may be important. Factors that promote life satisfaction appear to be similar for males and females.

2.2.3 Trust and tolerance

Antecedents of trust in and tolerance of others in the social environment have been largely unexplored, and of the studies that have been published, very few have focused on the emerging adulthood period. Most studies have examined societal level changes that may be responsible for cohort differences in social trust (for example, Putnam, 1995a), rather than individual differences in levels of trust and predictors of these differences. Few studies have examined the development of trust and tolerance of others in Australian young people, with most studies working with US data. Similarly, few have examined the role of childhood factors in the development of social trust, as most longitudinal data has been limited to adolescence. Furthermore, studies examining the development of tolerance of diverse community groups have

generally focused on the negative pole of this construct, examining concurrent associations between personality and racial prejudice.

Examining social trust at both a cohort level and as an individual difference variable, Jennings and Stoker (2004) drew on longitudinal data from a sample of US young people assessed in the last year of high school and during their mid-20s. On average, social trust tended to decline during the emerging adulthood period. They suggested that this may be due to the instability of this period, which brings young people into contact with a range of new circumstances, social environments, and uncertainties, and that social trust rebounds as the young person adapts to these new circumstances and establishes new social relationships. Examining predictors of individual differences in levels of social trust, they found that high school participation in church groups, neighbourhood associations, informal groups or clubs, and overall involvement predicted *less* trust in others when participants were in their mid-20s. They suggested that those involved in organisations were more aware of and troubled by the social and political disturbances of the times, and became less trusting as a result. The loss of these social networks once participants left school may also have contributed to distrust.

Rahn and Transue (1998) examined the relationship between values, such as beliefs about the importance of material possessions in one's life, and social trust in a sample of US high school seniors (hence focusing on adolescence), hypothesising that materialism promotes individualism and withdrawal from community life, which in turn predicts lower levels of social trust. Using multiple regression analyses and including other variables likely to affect levels of social trust, they found support for this hypothesis, with more materialistic values predicting lower levels of social trust. The analysis also identified a number of demographic variables as significant

predictors of social trust, including socioeconomic status, gender, and race.

Satisfaction with life, property and personal safety, the government and the American 'system of doing things' also predicted higher social trust, whereas pessimism predicted lower social trust.

Relationships in adolescence also appear to be important for the development of social trust during emerging adulthood. Using US longitudinal data collected from parents and young people in their late teens and 20s, King (2002) examined predictors of general trust in others in order to determine whether children who experience parental divorce develop a less trusting worldview. King found that high quality parent-child relationships in adolescence predicted higher social trust in emerging adulthood, and that once quality of the parent-child relationship was taken into account, parental divorce did not significantly predict later trust. Participants who were married, happy in their romantic relationship, and had good support from friends and family members were also concurrently more trusting of others.

A number of adolescent findings have also provided insight into this question. Flanagan (2003) theorised that secure attachment relationships, as well as interactions with individuals different from oneself, were important to the development of social trust, or a general sense of trust towards others in the community, in adolescence. Attachment to the school environment may also be influential; for example, Flanagan and Stout (2010) found that adolescents' perceptions of their school environment, including whether they felt that there was a sense of student solidarity, was related to higher social trust. Uslaner's (1998) research further suggests that adolescents' sense of optimism for the future is predictive of higher social trust.

Turning to predictors of tolerance of others, such as tolerance of different ethnic groups, the literature has focused predominantly on concurrent predictors of

racially biased attitudes (taken to be the other end of a continuum of tolerance; Gough & Bradley, 1997). Again, few studies have focused on the emerging adulthood period, and these are limited to undergraduate samples. Right wing authoritarianism – a personality style characterised by conventionalism, submission, and authoritarian aggression (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950) – has been consistently identified as a significant predictor of low tolerance. For example, Dunbar and Simonova (2003) examined the concurrent predictors of racism in US and Czech undergraduates. They found that right wing authoritarianism was concurrently associated with racial bias in both the US and Czech samples. Laythe, Finkel, and Kirkpatrick (2002) similarly found a relationship between right wing authoritarianism and racial bias as well as prejudice against homosexuality in a US undergraduate sample.

In summary, antecedents of trust in others in society and tolerance of group differences have received little empirical attention. In particular, few studies have examined these constructs as individual difference variables in the emerging adulthood period, or in Australian samples. Hence, little is currently known about the developmental course of these important aspects of social capital.

2.2.4 Trust in authorities and organisations

Even fewer studies have examined predictors of trust in authorities and organisations in emerging adulthood, and no studies were identified that drew on data from representative samples of emerging adults. Furthermore, only one study was identified that examined antecedents of trust in authorities and organisations in an Australian sample.

Feist, Bodner, Jacobs, Miles, and Tan (1995) examined correlates of trust (defined as an assumption that the world, its institutions, and people are generally

benevolent) in a sample of undergraduate students. They found that trust was associated with a range of individual characteristics, including physical health, lower levels of daily hassles, feelings of self-worthiness, effective coping skills, feelings of purposefulness in life, environmental mastery (extent to which one seeks out environments that provide a good fit with interests and talents), and self acceptance. However, the authors did not differentiate between general social trust and trust in authorities and organisations in their trust measure, which is problematic. As Putnam (1995b) observes, 'I might well trust my neighbours without trusting city hall, or vice versa' (p. 665).

Drawing on data from the US General Social Survey from 1972 to 1994 of individuals aged 18 years and over, Brehm and Rahn (1997) used structural equation modelling to estimate the predictors of confidence in aspects of the US government. They examined individual level predictors of confidence in the government, which is a component of Hawkins et al.'s (2009) trust in authorities and organisations construct, and found that the strongest predictors were general life satisfaction and more objective indicators of government performance, such as performance of the economy. There were significant but weaker trends for respondents who perceived significant positive changes in their family finances to report more confidence, and for those who were persistently wealthy to report lower confidence. However, the degree to which these findings can be generalised to emerging adults is unclear, particularly as Stone and Hughes' (2002) study (described below) found that younger adults generally have higher confidence in institutions than older adults.

Stone and Hughes (2002) developed a measure of trust in authorities and organisations and examined concurrent predictors of this measure to establish its external validity. The sample was not confined to emerging adults, but included over

1500 participants aged 18 years or older drawn from a national random sample of households in Australia. Examining concurrent associations, they found that confidence in institutions was predicted by younger age, tolerance of ethnic diversity, perceived safety of neighbourhood, and knowledge of local affairs. Lower confidence was predicted by poor health, being politically active, living in a rural area, and being divorced.

As indicated above, the literature around predictors of trust in authorities and organisations is scant, with particularly few longitudinal studies examining its development. The cross-sectional nature of this research means that the direction of effects remains unknown; for example, whether political engagement facilitates trust or is itself a product of higher trust. Hence, very little is currently known about the impact of individual characteristics, relationship factors, and connections to the community across childhood and adolescence on the development of trust in authorities and organisations in Australian young people.

2.2.5 Civic action and engagement

In contrast to the lack of literature around predictors of trust in authorities and organisations, antecedents of civic action and engagement have received more empirical attention. Levels of civic engagement are relatively low among young people. For example, Da Silva, Sanson, Smart, and Toumbourou (2004) found that less than a quarter of ATP participants had engaged in volunteer work by late adolescence, and fewer than 10% had participated in political activities. Studies that have examined predictors of civic engagement have heavily emphasised the importance of group participation in adolescence for later civic behaviour. However, there has been little consistency in the way that civic engagement has been operationalised across studies. Most studies have drawn on US samples and included

voting as an indicator of civic engagement. Voting may be a poor indicator of civic engagement in the Australian context where voting is compulsory for all adults aged over 18 years, resulting in little variability (Evans, 2006). Furthermore, little attention has been given to the role of childhood variables in the development of civic action and engagement, or to family and community characteristics that predict civic engagement in emerging adulthood.

A number of studies suggest the importance of participation in extracurricular activities for later civic engagement. Smith (1999) examined the relationship between participation in extracurricular activities in adolescence and civic engagement in emerging adulthood (assessed two years following high school completion). A large sample was recruited from over 1,000 US schools. Using structural equation modelling, Smith found that individuals who exhibited greater 'civic virtue' (participation in community service activities and adopting the belief that community service and volunteer work are important) in secondary school were more likely to exhibit civic virtue in emerging adulthood (operationalised as actively participating in community and volunteer service). Those adolescents who participated in extracurricular activities in high school were also more likely to participate in community service activities in emerging adulthood, and to actively participate in the political process, such as by voting. Smith suggested that extracurricular activities help young people to develop the norms, attitudes, and skills conducive to later adult political and civic participation.

Similarly, Fredricks and Eccles (2006) drew on longitudinal data from a large US community sample and found that participation in school clubs (such as student government) and prosocial activities (such as volunteer work) in Year 11 predicted aspects of civic engagement one year after leaving high school, including political

involvement (such as attending a demonstration), and social/charitable involvement (such as donating money to a charitable organisation). Higher socio-economic status and the young person's motivation in Year 8 were also significant predictors of the two measures of civic engagement, with motivation assumed to be related to self selection into extracurricular activities. Jennings and Stoker (2004) drew on longitudinal data assessing young people in their final year of high school and in their mid-20s, and also found that participation in church groups and athletics teams in high school predicted involvement in organisations in emerging adulthood.

Academic competence in adolescence has also been identified as an important predictor of emerging adults' civic engagement. Rosenthal, Feiring, and Lewis (1998) examined predictors of volunteering, an aspect of civic engagement, at age 21. They analysed data from a US longitudinal study that had followed a small sample from infancy ($N=105$). The strongest predictors of volunteering were adolescent rather than child or infant variables, including cognitive ability, family coherence, and membership in a prosocial organisation (such as the Scouts).

Also looking at academic performance as an antecedent of civic engagement, Obradovic and Masten (2007) drew on data from Project Competence (described in section 1.5) and found that adolescent academic competence (including academic achievement) along with social competence, were unique predictors of citizenship in emerging adulthood, where citizenship was operationalised as involvement in activities such as voting in elections, and upholding the responsibilities of citizenship and contributing to society at large.

Hence, the literature strongly suggests that involvement in organised groups in adolescence plays an important role in the development of later civic engagement. It has been theorised that adolescent group involvement may introduce young people to

the basic roles and processes required for adult civic engagement, thus aiding the construction of a civic identity that includes a sense of agency and social responsibility (Youniss, McLellan, & Yates, 1997). Academic achievement also appears to be an important factor for civic engagement. However, few studies have examined the role of relationship variables or connections to the community in fostering civic action and engagement. Furthermore, it is difficult to determine the extent to which US findings are generalisable to the Australian socio-political context, especially given the reliance on voting as an indicator of civic engagement in US studies.

2.3 Study 1 Aims and research questions

Identification of the factors that promote dimensions of positive development in emerging adulthood has important implications for intervention development, yet antecedents of a number of these dimensions have received little empirical attention, and the consistency of predictors across the various dimensions of positive development has yet to be examined. As explained in Chapter 3, the ATP provides extensive relevant multi-informant data on a large community sample from infancy to early adulthood, and a well-established and empirically tested conceptualisation of positive development (M. Hawkins et al., 2009) with which to examine precursors of positive adaptation. Hence, Study 1 aims to identify factors that promote specific dimensions of positive development, and to examine similarities and differences in the antecedents of the dimensions and of the overall multidimensional construct, in order to identify fruitful targets for intervention. Specifically, the study aimed to address the following research questions:

1. What childhood and adolescent factors predict the five identified dimensions of positive development in emerging adulthood (namely, social competence,

life satisfaction, trust and tolerance of others, trust in authorities and organisations, and civic action and engagement)?

2. How much commonality is there in the antecedents of the separate dimensions?
3. How much commonality is there in these predictors and those identified as antecedents of the multidimensional positive development construct?

A broad lifespan/ecological development approach and findings of previous research (see section 2.2) were drawn on in selecting predictors to be included in the model, which encompassed variables at the individual, relational, and community levels across childhood and adolescence. Since both theory and empirical research in this area are under-developed, analyses were largely exploratory.

CHAPTER 3: STUDY 1 METHOD

3.1 Participants and procedure

Participants were young people enrolled in the Australian Temperament Project (ATP), a large scale longitudinal study following the psychosocial development of a community sample from infancy to early adulthood. Families were recruited in 1983 from 67 Local Government Authority areas (LGAs) selected by the Australian Bureau of Statistics to provide a representative sample of the population of Victoria. Twenty of the selected areas were urban (1604 children) and 47 were rural (839 children), reflecting the distribution of the population across urban and rural areas in Victoria when the study began. Families were recruited into the study through Maternal and Child Health Centres in the selected LGAs. Mothers of every 4-8 month year old who attended a centre in a designated two week period (between 22nd April and 6th May) were handed an ATP questionnaire for completion and return in a pre paid envelope. This resulted in the recruitment of 2,443 infants and their families, of whom 52% were male and 48% were female.

Since the study began in 1983, fourteen waves of data have been collected from parents (usually mothers), primary school teachers (at 5, 7, and 11 years of age with parental consent), maternal and child health nurses (at 4-8 months), and from the age of 11 onwards, the participants themselves. The study has used a mail survey methodology in which questionnaires are mailed to participants with reply paid envelopes for return. Questionnaires have covered a range of psychosocial and demographic information. Domains measured in childhood include temperament, behavioural and emotional problems, physical health, family stress, school adjustment, reading skills, and social competence. In adolescence, the range of topics covered was broadened to also include personality, peer relationships, parenting, and

civic mindedness (for further information see: Prior, Sanson, Smart, & Oberklaid, 2000).

Participants in both Study 1 and Study 2 were the 1,158 participants who completed the thirteenth survey at age 19-20 years, and thus had data on positive development in emerging adulthood. As in previous waves, questionnaire booklets were mailed to participants. One round of postal reminders was undertaken, and was followed by a second mail-out of questionnaires to non-respondents. Finally, non-responding participants were reminded by telephone to return their questionnaires. Responding participants included 647 females and 511 males, representing 77% of the young people who were still enrolled in the study at 19-20 years. Data collected about this sample at 4-8 months, 1-2 years, 3-4 years, 7-8 years, 11-12 years, 12-13 years, 13-14 years, 15-16 years, and 17-18 years were also used in the analyses.

Although the attrition rate has been quite substantial over the two decades of the study, it has occurred gradually. Table 1 demonstrates that by 2002, proportionately more families from a lower socioeconomic background ($t(2437)=10.64, p<.001$), and parents who were not born in Australia ($\chi^2(1)=20.70, p<.001$), have been lost to the study. The retained participants were also significantly 'easier' in temperament style in infancy than non-retained participants ($t(2441)=2.64, p=.01$), although the magnitude of this difference was very small. There was no difference between the retained and non-retained participants in their behavioural problems during infancy ($t(2432)=1.09, p=.28, n.s.$). There was significant diversity in participants' circumstances at 19-20 years; for example, the sample was roughly divided between those who were studying (30.6%), working (32.2%), and both studying and working (32.8%), with a small proportion (4.4%) currently participating in neither study nor work. Hence, the sample continues to include young adults with a

broad range of attributes and from diverse circumstances, although it contains fewer families experiencing socioeconomic disadvantage than at the commencement of the study.

Table 1

Comparison of Retained Sample and Original Cohort on Characteristics at Recruitment in 1983

Domain	Original cohort	Retained sample 2002
SES Quartile in 1983		
Highest	26.7%	32.3%
Medium-High	29.2%	30.4%
Medium-Low	24.4%	23.1%
Lowest	19.8%	14.2%
Mother's country of birth		
Australian	79.9%	83.6%
UK	6.0%	5.6%
Other	14.1%	10.8%
Father's country of birth		
Australian	73.3%	77.0%
UK	7.3%	7.0%
Other	19.4%	16.0%
Infant behaviour problems <i>Mean(SD)</i>	1.73 (.69)	1.72 (.68)
Infant easy-difficult temperament factor <i>Mean(SD)</i>	2.46 (.63)	2.5 (.64)

3.2 Materials

This section firstly describes the outcome measure of positive development in emerging adulthood, followed by a description of the predictor variables used in Study 1. Full details of all measures used are provided in Appendix C.

3.2.1 Positive development measure

The measure used to assess positive development in emerging adulthood (19-20 years) was developed by M. Hawkins et al. (2009) using AMOS 7.0 SEM

confirmatory factor analysis (Arbuckle & Wothke, 2006). This construct incorporates the five domains of social competence, life satisfaction, trust and tolerance of others, trust in authorities and organizations and civic action and engagement, all assessed by self report at 19-20 years. Rates of missing data were very low (averaging 0.7%), and were estimated using the Expectation-Maximization (EM) algorithm. All first order constructs loaded meaningfully on the second order latent positive development construct (from .30 to .68), and all second-order loadings were gender invariant. The second order construct accounted for nearly half of the variance in the five first order constructs and the model provided a very good fit for the data (RMSEA=.05, CFI=.94). Using model-based imputation in AMOS on the final positive development model, latent factor scores were computed for each of the five first-order constructs and used as the positive development outcome measures (Hawkins et al., 2009). The components of these scores are described below.

Social competence was assessed with items developed by Smart and Sanson (2003) following the Gresham and Elliot (1990) model of child and adolescent social competence. Aspects measured included empathy (5 items, $\alpha=.78$, e.g., 'I show my concern for others when they experience difficulties'), responsibility (4 items, $\alpha=.72$, e.g., 'I can be relied on to do things right'), and self control (3 items, $\alpha=.60$, e.g., 'I can assert my opinion without arguing or fighting'). A 5-point Likert scale was used for items in the three social competence measures where 1=never and 5=always.

Items assessing *Life satisfaction* were drawn from Sweet and Bumpass (2002). This measure comprised two subscales: (i) satisfaction with achievement and direction (3 items, $\alpha=.83$, e.g., 'How satisfied are you with what you are accomplishing?'), and (ii) satisfaction with personal and social life (5 items, $\alpha=.75$,

e.g., 'How satisfied are you with your social life?'). Life satisfaction items were rated on a 4-point scale from 'very satisfied' to 'not at all satisfied'.

Three items derived from Stone and Hughes (2002) relating to trust in people in the neighbourhood, trust in Australians, and tolerance of different ethnic groups were used to assess *Trust and tolerance of others*. These were: 'Most people in your neighbourhood can be trusted', 'Having people from different ethnic and cultural backgrounds makes Australia a better place', and 'Thinking about Australia, most people can be trusted'. These 3 items were rated on a 5-point scale from 'disagree completely' to 'agree completely'.

Trust in authorities and organizations was measured by items derived from Flanagan and Longmire (1995) and Stone and Hughes (2002) tapping participants' confidence in police (5 items, $\alpha=.83$, e.g., 'How much confidence do you have in the police to treat everyone fairly' rated on a scale where 1=a great deal and 4=none at all), confidence in the courts (5 items, $\alpha=.87$, e.g., 'How much confidence do you have in the ability of the courts to impose fair sentences' rated on a scale where 1=a great deal and 4=none at all), and trust in organizations (8 items, $\alpha=.83$, e.g., 'the media' rated according to how confident the participant is that they can be relied on to act in a fair or reasonable manner, with ratings made on a scale from 1=not at all confident to 4=very confident).

Civic action and engagement was measured by items derived from Stone (2001) and Stone and Hughes (2002) tapping participation in community activities, participation in groups, and donations to groups, over the past year. Participation in community activities was measured according to 10 items asking participants to indicate how often they had participated in certain activities over the past year. For example, 'In the past 12 months have you attended a public meeting' rated on a scale

where 1=not at all, 2=1-2 times, 3=3-4 times, and 4=five times or more ($\alpha=.58$). Participation in groups was measured according to 9 items asking participants to indicate whether they ‘participated, attended events or meetings’ for 9 groups such as ‘sporting, recreation, or hobby groups’ and ‘self-help or support group’ (rated according to ‘yes’ or ‘no’; $\alpha=.65$). Donations to groups were measured according to whether participants ‘donated money, time etc’ to the same 9 community groups (rated according to ‘yes’ or ‘no’; $\alpha=.60$).

3.2.2 Predictor variables

Study 1 examined predictors of the five dimensions of positive development in emerging adulthood. As noted above, both theory and previous empirical data (see section 2.2) were drawn on in selecting predictors to be included in the model. The current study examines the roles of individual characteristics (temperament, personality, social skills, academic competence, emotional control, sensation seeking), relationships (attachment to parents and peers, parenting style, family environment), and community engagement (school bonding, community bonding, political and environmental awareness) over childhood and adolescence in predicting later aspects of positive development. These predictors included some factors amenable to intervention whereas others are less malleable. To simplify analyses, the data were divided into three developmental periods: childhood (4-8 months to 11-12 years, waves 1 to 8), early adolescence (12-13 and 13-14 years, waves 9 and 10) and mid/late adolescence (15-16 and 17-18 years, waves 11 and 12).

Some domains, such as temperament, were measured at multiple waves within a developmental period. Where this occurred, previous literature was used to guide the selection of the most salient time point. Given the length of the childhood period (which encompassed eight waves of data collection), data was taken from multiple

time points where this was indicated by the literature. If the literature did not provide a means of differentiating between time points, variable selection was based on the psychometric properties of the measures, including their internal reliability. Where data was available from multiple informants, parent and teacher reports were used in preference to self-reports to reduce the effects of shared method variance (Podsakoff, MacKenzie, Podsakoff, & Lee, 2003).

Almost all predictor variables employed traditional Likert-scale response options. Some of the scales were constructed such that lower values reflected higher levels of the construct. These original response options are presented here, but were reversed in the analyses so that higher values always reflect higher levels of the construct, in order to aid interpretation. Reliability estimates ranged from $\alpha=.47$ to $\alpha=.94$. Although some predictor variables had only moderate reliability, previous research has shown that these variables are meaningfully related to other constructs.

Childhood predictor variables (4-8 months to 11-12 years). Measures of *temperament* characteristics were drawn from both infancy and later childhood. Whereas temperament in infancy appears to provide a 'starting point' for the developmental process, characteristics in later childhood reflect the effects of interactions with social environments (Shiner & Caspi, 2003). Hence, temperament characteristics show only moderate stability across childhood (B. Roberts & DeVecchio, 2000). Temperament characteristics in infancy (at 4-8 months) were measured by parent report using subscales from the Short Temperament Scale for Infants (Sanson, Prior, Oberklaid, Garino, & Sewell, 1987). Items were rated on a 6-point Likert scale from 'almost never' to 'almost always'. Approach was measured by 7 items (e.g., 'The baby is shy (turns away or clings to mother) on meeting another child for the first time'); $\alpha=.76$). Activity was assessed according to 6 items (e.g.,

'The baby moves about a lot (kicks, grabs, squirms) during nappie-changing and dressing'; $\alpha=.57$). Irritability was measured with 5 items (e.g., 'The baby is fretful on waking up and/or going to sleep (frowns, cries)'; $\alpha=.64$). In later childhood (11-12 years), temperament was measured using parent reports on subscales of the School Age Temperament Inventory (McClowry, 1995), which has been well validated for use with Australian samples (McClowry, Halverson, & Sanson, 2003). Items were rated on a 5-point scale from 1=never/almost never to 5=always/almost always. Twelve items were used to assess negative reactivity (e.g., 'Gets upset when he/she can't find something'; $\alpha=.91$). Approach was measured according to 9 items (e.g., 'Smiles or laughs with new adult visitors at home'; $\alpha=.88$). Persistence was measured by 11 items (e.g., 'returns to responsibilities (homework, chores) after friends phone or visit'; $\alpha=.91$).

Social competence was measured according to parent reports on the Responsibility and Self Control subscales of the well validated Gresham and Elliot (1990) Social Skills Rating System (Walthall, Konold, & Pianta, 2005), when the child was 11-12 years old. The subscales were measured using a 3-point Likert scale where 0=rarely or never and 2=very often. Ten items were used to assess responsibility (e.g., 'Politely refuses unreasonable requests from others'; $\alpha=.67$) and self control (e.g., 'Speaks in an appropriate tone of voice at home'; $\alpha=.83$).

Academic competence was measured at 7-8 years and at 11-12 years by teacher report. Given the importance of academic competence in both early primary school (e.g., for developing intrinsic motivation, Gottfried, 1990) and during the transition to secondary school (e.g., for self esteem, Ross & Broh, 2000), both of these measures were included in the analyses. Academic competence was rated at 7-8 years using the Academic Competence subscale from the Interpersonal Competence Scale

(Cairns & Cairns, 1984). This subscale included two items: teachers rated the child's mathematical ability on a scale where 1=very good at math, 2=so-so and 3=not good at math, and the child's spelling ability on a scale where 1=very good at spelling, 2=so-so, and 3=not good at spelling ($\alpha=.73$). At 11-12 years, teachers rated the Academic Competence subscale from Gresham and Elliot's (1990) rating system. This subscale asked teachers to rate the student on 9 academic skills (e.g., 'Reading skills'), according to a 5-point scale where 1=lowest 10%, 2=next lowest 20%, 3=middle 40%, 4=next highest 20%, and 5=highest 10% ($\alpha=.94$).

Measures of the *child-parent relationship* were taken from infancy and late childhood. The quality of the parent-child relationship at both of these time points appear to have implications for later development (e.g., Carlson, 1998), and the quality of this relationship in later childhood often shows discontinuity with earlier parent-child relationship adjustment (Paikoff & Brooks-Gunn, 1991). The adjustment of the mother-baby pair was measured using parent report at 4-8 months on a single item: 'Compared to other babies, I think my baby is...', rated on a 5-point scale from 'much easier than average' to 'much more difficult than average'. At 11-12 years, the child themselves responded to 8 items from the Parents scale of the Self Description Questionnaire, which has been extensively psychometrically validated (Marsh, Barnes, Cairns, & Tidman, 1984). An example item includes, 'My parents and I have fun together', rated from 1=true to 5=false ($\alpha=.82$).

Peer relationships were measured according to child reports on the Peer scale from the Self Description Questionnaire (Marsh, et al., 1984), which examines the child's self concept about their relationship with their peers. 11-12 year olds rated 8 items (e.g., 'I have lots of friends') according to a 5-point Likert scale ranging from 1=true to 5=false ($\alpha=.87$).

Parental monitoring was assessed using an ATP devised single item ('Most afternoons I know exactly where my child is when school is out') which was rated by parents when the child was 11-12 years old on a 5-point scale where 1=almost never and 5=almost always.

A number of variables were used to assess the *family environment*. Mothers' age at the child's birth was collected from parents at 4-8 months. The total number of children in the family was assessed at 3-4 years, by parent report. Family stress was measured by parent report at 7-8 years. Although measures of family stress were also available in later childhood, family stressors that occur earlier in childhood may have greater repercussions for later outcomes (Haveman, Wolfe, & Spaulding, 1990). Parents indicated whether 7 losses (e.g., 'Loss of health'), 6 changes (e.g., 'Change of house'), and 7 problems (e.g., 'Money worries') taken from the Life Events Scale (J. Smith & Prior, 1995) had occurred in their lives over the past year, and rated the effects of the loss according to 1=good effect, 2=no effect, and 3=bad effect. Family stress was calculated as the grand total of losses, problems, or changes rated as having a negative impact on the family ($\alpha=.60$). Socioeconomic status (SES) was measured across childhood and found to be very stable, and was thus measured according to parent reports at the first wave (4-8 months). Socioeconomic status was measured as a composite of both parents occupational level (from 'upper professional' to 'unemployed or student') and educational levels (from 'post graduate degree' to 'primary schooling'; $\alpha=.78$) (Broom, Jones, & Zubrzycki, 1974; Brotherton, Kotler, & Hammond, 1979).

Early adolescent predictors (12-13 and 13-14 years). *Temperament* was measured in early adolescence (at 12-13 years) according to parent reports on the Negative reactivity, Persistence, and Approach/sociability subscales of the School-age

Temperament Inventory (McClowry, 1995). Twelve items assessed negative reactivity (e.g., 'Gets upset when can't find something'; $\alpha=.92$). Persistence was measured according to 11 items (e.g., 'Switches from one activity to another before finishing the first'; $\alpha=.92$). Approach/sociability was assessed using 9 items (e.g., 'Approaches children his/her age even when he/she doesn't know them'; $\alpha=.88$). A 5-point Likert scale was employed where 1=almost never and 5=almost always.

Parents responded to 9 items comprising the *responsibility* subscale of the Gresham and Elliot (1990) Social Skills Rating System when participants were 13-14 years (e.g., 'Shows concern for peers' rated from 1=rarely/never to 3=very often; $\alpha=.70$).

When participants were 13-14 years of age, their parents rated an ATP-devised scale measuring *school adjustment*. The scale included 4 items (e.g., 'Understanding the work in class') rated on a scale from 1=no problem to 4=big problem ($\alpha=.76$).

Emotional control was also assessed by an ATP-devised scale at 13-14 years of age. Participants self-rated 5 items (e.g., 'Know how to relax when I feel tense') on a 5-point scale ranging from 'strongly disagree' to 'strongly agree' ($\alpha=.60$).

Parent reports at 13-14 years were used to assess *warmth of the parent-teenager relationship*. The ATP-devised scale comprised 6 items (e.g., 'My child talks with me about his/her problems or troubles'), with ratings made on a 5-point scale from 1=always/almost always to 5=never/almost never ($\alpha=.74$).

Family attachment was measured according to a scale adapted from the Inventory of Parent and Peer Attachment (Greenberg, 1987). Teenagers self-rated 8 items at 13-14 years of age (e.g., 'My parents respect my feelings') on a scale where 1=always/almost always true and 5=almost never/never ($\alpha=.85$).

To assess *peer relationships* in early adolescence, parents rated two ATP devised scales at 13-14 years of age: i) peer involvement (8 items, e.g., 'Plays/talks with peers for long periods'; $\alpha=.83$), and ii) participation in organised peer group activities (4 items, e.g., 'Participates in school sports teams'; $\alpha=.64$). Ratings were made on a scale where 0=rarely/never and 2=very often.

Parenting style was measured by parent report at 13-14 years on an ATP devised scale measuring the dimensions of Physical punishment (4 items, e.g., 'I believe that physical punishment is the best way to discipline my child'; $\alpha=.65$), Parental monitoring (5 items, e.g., 'It is difficult for me to know where my child is and what s/he is doing, now that s/he is getting older'; $\alpha=.47$), and Obedience orientation (3 items, e.g., 'I expect my child to follow my direction even if s/he disagrees with my reasons'; $\alpha=.57$). A 5 point scale was employed from 'always/almost always' to 'never/almost never'.

The *family environment* was measured according to family stress and socioeconomic status at 12-13 years of age by parent report. Family stress was measured in the same way as described at 7-8 years ($\alpha=.54$) and socioeconomic status was measured in the same way as described at 4-8 months ($\alpha=.70$).

Mid/late adolescent predictors (15-16 and 17-18 years). Personality was measured by parent report at 15-16 years using the Five Factor Personality Questionnaire (Lanthier & Bates, 1995), which draws on the well validated Big Five model of personality (Digman, 1990), and includes the dimensions of Extraversion (6 items, e.g., 'How talkative do you think he/she is?'; $\alpha=.70$), Agreeableness (6 items, e.g., 'How bossy do you think he/she is?' reverse scored; $\alpha=.78$), Conscientiousness (6 items, e.g., 'How organised do you think he/she is?'; $\alpha=.80$), Neuroticism (6 items, including, 'How nervous do you think he/she is?'; $\alpha=.77$), and Openness to

experience (6 items, e.g., 'How artistic do you think he/she is?'; $\alpha=.77$). Each dimension comprised 6 items rated on a 5 point scale from 'hardly at all' to 'extremely'.

Emotional control was measured by self report at 15-16 years and 17-18 years. However, the measure at 15-16 years had better psychometric properties, and thus was selected for use in the analyses. The ATP-devised scale encompassed 10 items (e.g., 'I am able to keep my feelings under control') rated on a 6-point scale from 'never' to 'always' ($\alpha=.70$).

At 15-16 years, *sensation seeking* was measured using the Thrill and Adventure Seeking subscale from the widely used Sensation Seeking Scale (Zuckerman, 1994). Teenagers indicated whether they would like or would not like to participate in 10 activities (e.g., 'Parachute jumping'; $\alpha=.72$).

School adjustment was measured by an ATP devised scale which was rated by parents at 15-16 years. Five aspects of school competence (e.g., 'Managing school rules and routines') were rated on a 3-point scale where 1=no problem, 2=small problem, and 3=a big problem ($\alpha=.84$). *School bonding* was measured according to O'Donnell, Hawkins, and Abbott's (1995) School Bonding Scale which was completed by the teenager at 17-18 years. This scale comprised 9 items rated on a 5-point scale where 1=always and 5=never/almost never. An example item includes 'I look forward to going to school' ($\alpha=.88$).

Measures of *peer relationships* were taken from subscales of the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987). Self-reports at 17-18 years were used to assess Trust (4 items, e.g., 'My friends accept me as I am'; $\alpha=.84$), Communication (4 items, e.g., 'My friends sense when I'm upset about something'; $\alpha=.7$), and Alienation (4 items, such as 'My friends don't understand what I'm going

through these days'; $\alpha=.64$). Ratings were made on a 4-point scale from 'always/almost always' to 'never/almost never'. *Participation in organised peer group activities* was measured according to parent ratings on an ATP devised measure at 15-16 years of age. Ratings were made on a scale where 0=rarely/never and 2=very often according to 4 items, such as 'Participates in school sports teams' ($\alpha=.60$).

The *parent-child relationship* was measured by teen reports at 17-18 years of age, according to warmth/communication, trust, and Alienation subscales of the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987). Warmth was measured by 7 items, for example, 'Senses when I'm upset about something' ($\alpha=.89$). Eight items assessed Trust, for example, 'Considers my point of view when we discuss things' ($\alpha=.86$). The Alienation subscale included 4 items, for example, 'Doesn't understand me' ($\alpha=.75$). Ratings were made on a 4-point scale ranging from 'always/almost always' to 'never/almost never'.

A number of variables measuring aspects of the *family environment* were assessed at both 15-16 and 17-18 years of age. As young people were more likely to be living in the family home at 15-16, variables from this wave were used in preference to those at 17-18. Parenting style was measured according to two ATP devised scales rated by the parent at 15-16 years on a scale from 1=always/almost always to 5=never/almost never, including: i) Parental monitoring (6 items, e.g., 'It is difficult for me to know where my teenager is and what s/he is doing'; $\alpha=.6$), and ii) Punishment (10 items, e.g., 'I use threats of punishment to control him/her'; $\alpha=.78$). The family environment was measured according to family stress and socioeconomic status at 15-16 years of age by the parent informant. Family stress was measured in the same way as described at 7-8 years as the total of negative stressful events.

Socioeconomic status was measured in the same way as described at 4-8 months ($\alpha=.70$).

Aspects of *community engagement* were measured at 17-18 years according to self-reports on four ATP devised scales. Community bonding was measured by 5 items rated on a 3-point scale from 'true' to 'not true' (e.g., 'I enjoy spending time with my neighbours'), and 3 items rated on a 4-point scale from 'weekly' to 'never' (e.g., 'How often do you and your neighbours chat or talk with one another?'; $\alpha=.80$). The political awareness, environmental awareness, and community orientation scales asked participants to rate the likelihood of their involvement in different activities in the future ('When thinking about how you want to live your life in the future, how likely is it that you will do any of the following?'), with responses made on a 4-point scale ranging from 'not likely' to 'extremely likely'. Political awareness was measured according to 4 items, such as 'Be active in politics' ($\alpha=.76$). Two items assessed environmental awareness (e.g., 'Work to sustain natural environment'; $\alpha=.76$). Community orientation was assessed by 3 items, such as 'Work to improve conditions in your local community' ($\alpha=.61$).

CHAPTER 4: STUDY 1 RESULTS

4.1 Assumptions

Preliminary analyses were performed to examine statistical assumptions, which were all met unless otherwise stated. All variables employed in this thesis were examined (including those for Study 2).

Missing data averaged 8.9% and appeared to be missing at random. The Expectation-Maximization (EM) Algorithm has been identified as an effective method for imputing missing data (Enders, 2006; Kline, 1998; McDonald & Ho, 2002; Raghunathan, 2004), and was employed in the current study. Hence, all analyses were conducted with the same sample of 1,158 participants.

The sample size was sufficient for all of the analyses performed. The ratio of cases to independent variables in the hierarchical multiple regression analyses was more than adequate according to Stevens' (1996) criterion of 15 cases per independent variable.

Variables were screened for outlier cases. Univariate outliers were identified as those with z-scores greater than 3.29, and most variables contained a small number of these. However, some outliers at this level of extremeness are expected with large samples (Tabachnick & Fidell, 2001). Using Mahalanobis Distance (Tabachnick & Fidell, 2001), 63 multivariate outliers were identified at the $p < .001$ level. Cook's Distance was examined to gauge the influence of these outliers. All values were well below 1, suggesting that outlier cases were not having an undue influence on the results (Tabachnick & Fidell, 2001). Hence, outlier cases were retained in the data set.

Multicollinearity among the predictor variables in the regression analyses was also examined. All bivariate correlations between variables were below .70 and all

tolerance values were above .20. Hence, multicollinearity is unlikely to have had a significant influence on the results.

Histograms were examined to assess the normality of observed variables. Although some deviations from normality were observed, the techniques used are moderately robust to such deviations, particularly when the sample size is large (Finney & DiStefano, 2006). Hence, no transformations were made. It was not feasible to examine all pairwise scatterplots to assess linearity; therefore, randomly selected pairs of scatterplots were examined (Tabachnick & Fidell, 2001). All pairs of observed variables appeared to be either unrelated or linearly related.

All analyses described in this thesis were conducted using the SPSS 16.0.1 statistical package (SPSS, 2007).

4.2 Analytic approach

Study 1 examined child and adolescent antecedents of the five dimensions of positive development, namely social competence, life satisfaction, trust and tolerance of others, trust in authorities and organisations, and civic action and engagement, during the transition to adulthood. The predictors examined included individual characteristics (temperament, personality, social skills, academic competence, emotional control, sensation seeking), relationships (attachment to parents and peers, parenting style, family environments), and community engagement factors (school bonding, community bonding, political and environmental awareness).

Descriptive statistics and intercorrelations between the predictor and outcome variables are presented in Appendix D. Looking at the outcome variables, participants rated themselves highly on the social competence variables, indicated that they were relatively satisfied with their social lives and direction, felt that ethnic differences mostly improve Australian society, and that other individuals and organisations within

their neighbourhood and Australia could be trusted. In contrast, levels of civic involvement were low, with few participants making contributions to community groups or participating in civic activities. Turning to the predictor variables, participants showed relatively high levels of social skills, positive relationships, and adjustment to the school setting, and hence the distribution of these variables was negatively skewed. The alienation from parents scale in adolescence demonstrated a normal distribution where participants generally rated the items as true at least sometimes; hence, this variable might be better conceptualised as a more normative individuation from parents. Levels of physical punishment by parents were very low, as were levels of family stress. Aspects of community engagement, such as political awareness, were also somewhat low and positively skewed. All other predictor variables were normally distributed.

For each dimension of positive development, the analysis was performed in two steps. First, hierarchical multiple regression analyses were performed to examine child (4-8 months to 11-12 years), early adolescent (12-13 to 13-14 years), and mid/late adolescent (15-16 to 17-18 years) predictors (see section 3.2.2). Secondly, factors identified as significant predictors in the initial analyses were entered into an overall hierarchical multiple regression. A hierarchical model was employed in order to examine the contributions of later predictors beyond that made by earlier predictors.

O'Connor et al. (in press) performed gender-segregated analyses when examining predictors of the overall multidimensional construct of positive development (see Appendix B). However, few statistically significant gender differences were found. Hence, data for males and females were combined in the current study, and gender was entered in the first step of each analysis to control for

its effects. Socioeconomic status has been identified as a potential confound in previous literature (e.g., Obradovic & Masten, 2007), and hence was also entered in the first step to control for its effects.

Social competence dimensions in childhood and adolescence and group participation in adolescence were included as predictors. These same constructs also form part of the positive development outcome measure. This raises the possibility that the overlap in predictor and outcome measures would inflate the prediction of the outcome measure. However, the items used to assess these dimensions in childhood and adolescence differed from those used in adulthood (see Appendix C). Furthermore, social skills and involvement in groups develop and change over time, as reflected in their only moderate across-time correlations. It was thus of interest to examine to what degree these earlier skills contribute to later outcomes. These considerations justified the retention of early social competence and group participation as predictors in the analyses.

Analyses of the predictors of social competence, life satisfaction, trust and tolerance of others, trust in authorities and organisations, and civic action and engagement, drawn from each of the three age periods (childhood, early adolescence, and mid/late adolescence), are each examined below. A summary table of the results of these analyses is also provided in Appendix E.

4.2.1 Social competence

Being female and from a higher socioeconomic status background significantly predicted higher social competence in each of the analyses except where stated otherwise.

Childhood (4-8 months to 11-12 years). Looking at child predictors of social competence, SES and gender were entered in the first step and explained 7.4% of the

variance in social competence (see column 1, Table 2). After the next step containing the childhood variables was entered, the model as a whole explained a significant 17.9% of the variance in social competence in emerging adulthood ($F(19, 1138)=13.05, p<.001$). Having strong relationships with parents, being more persistent, having good self control, and being academically competent (particularly during the mid primary years) in childhood were significant antecedents of higher social competence in emerging adulthood.

Table 2

Hierarchical Linear Regression Predicting Positive Development Dimensions in Emerging Adulthood from Child Predictors

Variable	1. Social competence			2. Life satisfaction			3. Trust and tolerance of others			4. Trust in authorities and organisations			5. Civic action and engagement		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Step 1															
Gender	.13	.02	.23**	.04	.02	.05	.08	.02	.12**	.09	.01	.19**	.10	.03	.12**
SES	.03	.01	.14**	.02	.01	.06	.07	.01	.24**	.03	.02	.12**	.05	.01	.14**
Step 2															
Gender	.10	.02	.18**	.01	.02	.01	.07	.02	.10**	.08	.02	.17**	.11	.03	.13**
SES	.02	.01	.08**	.02	.01	.06	.06	.01	.19**	.02	.01	.11**	.03	.01	.09**
Temperament															
Approach (inf)	-.01	.01	-.02	-.01	.02	-.01	.02	.02	.04	.01	.01	.03	.01	.02	.02
Activity (inf)	.00	.01	.00	-.02	.02	-.04	-.01	.02	-.02	-.01	.01	-.03	-.01	.02	-.01
Irritability (inf)	-.01	.01	-.02	-.01	.01	-.03	.01	.01	.01	.01	.01	.02	.01	.02	.02
Negative reactivity (late ch)	-.01	.02	-.03	.01	.02	.02	-.01	.02	-.02	.01	.02	.04	-.03	.03	-.05
Approach (late ch)	.01	.01	.02	.05	.02	.1**	.00	.02	.01	-.01	.01	-.03	.02	.02	.03
Persistence (late ch)	.03	.01	.08*	.04	.02	.08*	.00	.02	.01	.01	.01	.03	-.05	.02	-.08*
Social skills															
Responsibility (late ch)	.01	.00	.07	.00	.01	.03	.00	.01	.03	.00	.00	.00	.02	.01	.11**
Self control (late ch)	.01	.00	.14**	.00	.01	.03	.01	.01	.08	.01	.00	.15**	.00	.01	-.02
Academic adjustment															

Variable	1. Social competence			2. Life satisfaction			3. Trust and tolerance of others			4. Trust in authorities and organisations			5. Civic action and engagement		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Academic comp (mid ch)	.02	.01	.08*	-.00	.01	-.01	.03	.01	.09**	.02	.01	.10**	.01	.01	.04
Academic comp (late ch)	.00	.00	.03	-.00	.00	-.03	.00	.00	.06	.00	.00	-.05	.01	.00	.09*
Parent-child relationship															
Adjustment of mother- baby pair (inf)	-.01	.01	-.04	-.02	.01	-.04	-.02	.01	-.04	.00	.01	.00	.02	.02	.04
Rel with parents (late ch)	.05	.02	.09**	.13	.02	.17**	.03	.02	.05	.07	.02	.14**	.03	.03	.04
Peer relationships															
Rel with peers (late ch)	.00	.01	.00	.02	.02	.03	-.03	.02	-.06	.00	.01	-.01	-.07	.02	-.11**
Family Environment															
Mothers age (inf)	.00	.00	.03	-.01	.00	-.06*	.00	.00	.02	.00	.00	-.06	.01	.00	.06
Number of children in family (early ch)	.01	.01	.03	.03	.01	.07*	.00	.01	.00	.03	.01	.09**	.00	.02	-.01
Parental monitoring (late ch)	.01	.02	.02	.01	.02	.02	.03	.02	.04	.02	.02	.03	.01	.03	-.01
Family stress (mid ch)	.01	.01	.03	.00	.01	.01	-.00	.01	-.01	.00	.01	-.01	.02	.01	.05
Variance accounted for															
Step 1	R ² =.07**			R ² =.01**			R ² =.07**			R ² =.05**			R ² =.03**		
Step 2	Δ R ² =.11**			Δ R ² =.08**			Δ R ² =.05**			Δ R ² =.06**			Δ R ² =.04**		

* = $p < .05$, ** = $p < .01$. Note. Comp=Competence, Rel=relationship, Ch=childhood, Inf=infancy.

Early adolescence (12-13 years to 13-14 years). Turning to early adolescent predictors of social competence, SES and gender together explained 6% of the variance (see column 1, Table 3). Once early adolescent predictors were entered in the next step the model as a whole accounted for nearly one fifth (18.6%) of the variance in social competence, which was significant ($F(16, 1141)=16.33, p<.001$). Although socioeconomic status predicted higher social competence in the initial step, it became non-significant once other predictors were taken into account. Young adolescents who were well adjusted to the school setting, had strong family relationships, good control over their emotions, low negative reactivity, and whose parents did not place a strong emphasis on obedience had significantly higher levels of social competence in emerging adulthood.

Table 3

Hierarchical Linear Regression Predicting Positive Development Dimensions in Emerging Adulthood from Early Adolescent Predictors

Variable	1. Social competence			2. Life satisfaction			3. Trust and tolerance of others			4. Trust in authorities and organisations			5. Civic action and engagement			
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	
Step 1																
Gender	.13	.02	.23**	.04	.02	.05	.08	.02	.11**	.09	.02	.19	.10	.03	.12**	
SES	.02	.01	.08**	.00	.01	.01	.05	.01	.19**	.02	.01	.09	.04	.01	.13**	
Step 2																
Gender	.10	.02	.19**	.03	.02	.04	.06	.02	.08**	.08	.02	.17**	.10	.03	.12**	
SES	.00	.01	.01	-.01	.01	-.02	.04	.01	.14**	.01	.01	.06	.04	.01	.11**	
Temperament																
Negative reactivity	-.05	.01	-.11**	-.03	.02	-.05	-.02	.02	-.04	-.02	.01	-.05	-.02	.02	-.03	
Persistence	.03	.01	.07	.02	.02	.03	.03	.02	.06	.01	.01	.04	-.01	.02	-.02	
Approach	.01	.01	.03	.05	.02	.08**	.03	.02	.05	-.01	.01	-.01	.03	.02	.04	
Social skills																
Responsibility	.01	.00	.04	.00	.01	-.01	.01	.01	.05	.01	.00	.04	.00	.01	.01	
Academic adjustment																
School adjustment	.05	.02	.08*	-.01	.03	-.01	.07	.03	.10**	.05	.02	.09*	.02	.03	.03	
Emotional control																
Emotional control	.05	.01	.10**	.03	.02	.05	.04	.02	.06	-.01	.01	-.02	.02	.02	.03	
Family relationships																
Parent warmth	-.02	.02	-.04	-.01	.02	-.02	-.03	.02	-.05	-.02	.02	-.04	-.03	.03	-.03	

Variable	1. Social competence			2. Life satisfaction			3. Trust and tolerance of others			4. Trust in authorities and organisations			5. Civic action and engagement		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Family attachment	.04	.01	.09**	.08	.02	.15**	.02	.02	.04	.05	.01	.14**	.00	.02	.00
Peer relationships															
Peer involvement	.03	.02	.04	.06	.03	.06	-.03	.03	-.03	-.02	.02	-.03	-.01	.04	-.01
Group involvement	.02	.02	.04	.07	.02	.10**	.00	.02	.00	.06	.02	.12**	.03	.03	.04
Family environment															
Physical punishment	-.02	.02	-.03	-.01	.03	-.02	-.02	.03	-.02	-.01	.02	-.02	-.01	.03	-.01
Monitoring	.02	.02	.03	.02	.03	.02	-.03	.03	-.03	-.02	.02	-.03	.03	.04	.02
Obedience orientation	-.02	.01	-.06*	.00	.02	.01	-.05	.02	-.09**	.00	.01	.00	-.02	.02	-.03
Family stress	-.01	.01	-.02	-.04	.02	-.05	-.02	.02	-.03	-.02	.01	-.05	.02	.02	.02
Variance accounted for															
Step 1	R ² =.06**			R ² =.00 (p=.20, n.s.)			R ² =.05**			R ² =.04**			R ² =.03**		
Step 2	Δ R ² =.13**			Δ R ² =.09**			Δ R ² =.06**			Δ R ² =.07**			Δ R ² =.01 (p=.74, n.s.)		

* = $p < .05$, ** = $p < .01$.

Mid/late adolescence (15-16 to 17-18 years). Next, mid/late adolescent variables were examined (see column 1, Table 4). SES and gender explained 6.3% of the variance in social competence. After the next step containing the mid/late adolescent variables was entered, the model as a whole explained a third (33.5%) of the variance ($F(25, 1132)=22.86, p<.001$). As in the early adolescent analysis, SES became non-significant when other factors were taken into account in the second step. Emerging adults who were higher in social competence tended, as mid-late adolescents, to be more conscientious, have good control of their emotions, stronger peer communication, and more feelings of connectedness to school and to the community. They also tended to have higher levels of trust with, as well as individuation from, their parents, and their parents tended to rely less on punishment as a parenting strategy.

Table 4

Hierarchical Linear Regression Predicting Positive Development Dimensions in Emerging Adulthood from Mid/late Adolescent Predictors

Variable	1. Social competence			2. Life satisfaction			3. Trust and tolerance of others			4. Trust in authorities and organisations			5. Civic action and engagement			
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	
Step 1																
Gender	.13	.02	.23**	.04	.02	.05	.08	.02	.12**	.10	.02	.19**	.10	.02	.12**	
SES	.02	.01	.11**	.01	.01	.04	.05	.01	.21**	.02	.02	.09**	.06	.01	.19**	
Step 2																
Gender	.09	.02	.16**	.03	.02	.04	.04	.02	.06	.10	.02	.20**	.05	.03	.06	
SES	.01	.01	.03	.00	.01	.00	.03	.01	.11**	.01	.01	.04	.03	.01	.10**	
Personality																
Extraversion	.00	.01	.00	.04	.02	.07*	-.06	.02	-.11**	-.03	.01	-.07*	-.01	.02	-.01	
Agreeableness	.02	.01	.04	-.02	.02	-.03	-.01	.02	-.02	.02	.01	.05	.03	.02	.05	
Conscientiousness	.03	.01	.07*	.02	.02	.03	-.01	.02	-.03	.01	.01	.02	-.03	.02	-.04	
Neuroticism	.00	.01	-.01	-.05	.02	-.09**	-.04	.02	-.07*	-.01	.01	-.03	-.02	.02	-.03	
Openness	-.01	.01	-.02	-.04	.02	-.07*	.03	.02	.05	-.03	.01	-.07*	.03	.02	.04	
Emotional control																
Emotional control	.10	.01	.22**	.11	.02	.19**	.07	.02	.12**	.04	.01	.09**	.01	.02	.01	
Sensation seeking																
Sensation seeking	.00	.00	.02	.01	.01	.06*	.01	.01	.03	.00	.00	.01	.01	.01	.06	
School competence																
School bonding	.09	.01	.19**	.07	.02	.12**	.08	.02	.13**	.05	.01	.11**	.06	.02	.09**	
School adjustment	.02	.02	.03	.01	.03	.01	.08	.03	.11**	.03	.02	.06	-.03	.03	-.03	
Peer relationships																

Variable	1. Social competence			2. Life satisfaction			3. Trust and tolerance of others			4. Trust in authorities and organisations			5. Civic action and engagement		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Organised peer group activities	.02	.01	.03	.02	.02	.04	.01	.02	.01	.04	.01	.09**	.00	.02	.00
Trust in peers	-.03	.03	-.03	.06	.04	.05	.04	.04	.03	-.01	.03	-.01	-.00	.05	.00
Peer communication	.04	.01	.10**	.04	.02	.06	.02	.02	.04	.00	.01	-.01	-.02	.02	-.03
Peer alienation	-.02	.02	-.03	-.06	.03	-.08*	.03	.03	.04	-.01	.02	-.02	-.01	.03	-.01
Relationship with parents															
Warmth with parents	-.01	.02	-.02	.03	.03	.04	-.01	.03	-.01	-.02	.02	-.05	.04	.03	.06
Trust with parents	.10	.02	.16**	.06	.03	.07	.08	.03	.10*	.07	.02	.12**	.01	.04	.01
Alienation from parents	.05	.02	.11**	-.03	.02	-.05	.01	.02	.02	-.02	.02	-.05	.07	.03	.09*
Family environment															
Parental monitoring	.02	.02	.03	.01	.02	.02	-.01	.02	-.01	.02	.02	.03	.01	.03	.01
Parenting use of punishment	-.03	.01	-.07*	-.01	.02	-.01	-.03	.02	-.04	.00	.01	.01	.01	.02	.01
Family stress	-.01	.01	-.02	-.03	.01	-.05*	-.01	.01	-.02	-.03	.01	-.08**	.01	.02	.02
Community engagement															
Community bonding	.02	.01	.04	.04	.02	.06*	.08	.02	.12**	.05	.01	.12**	.10	.02	.14**
Political awareness	.01	.01	.03	.00	.02	.00	.10	.02	.16**	.00	.01	.00	.09	.02	.13**
Environmental awareness	.00	.01	.00	.00	.02	.01	-.02	.01	-.04	-.02	.01	-.06	.03	.02	.06*
Community orientation	.06	.01	.13**	.03	.02	.04	.07	.02	.12**	.05	.01	.12**	.17	.02	.24**
Variance accounted for															
Step 1	R ² =.07**			R ² =.00 (p=.1, n.s.)			R ² =.05**			R ² =.04**			R ² =.05**		
Step 2	Δ R ² =.27**			Δ R ² =.25**			Δ R ² =.20**			Δ R ² =.17**			Δ R ² =.19**		

* = $p < .05$, ** = $p < .01$.

Overall regression across age periods. In order to examine the relative contributions of predictors of social competence from across the different age periods, a regression was performed including all variables identified as significant predictors in the previous analyses (see Table 5). SES and gender were entered in the first step and explained 7.4% of the variance in social competence, with being female and from a higher SES background predicting higher social competence in this and each of the subsequent steps. The addition of child predictors explained a further 10% of the variance ($F_{change}(4, 1151)=33.46, p<.001$), with all predictors remaining significant. In the third step, early adolescent predictors explained only an additional 3% of variance ($F_{change}(5, 1146)=8.7, p<.001$). All predictors remained significant with the exception of relationships with parents in childhood and authoritative parenting in early adolescence. When mid/late adolescent variables were entered in the final step, a further 15% of variance in social competence was explained ($F_{change}(8, 1138)=32.45, p<.001$). The model as a whole accounted for over one third (34.9%) of the variance in social competence, which was significant ($F(19, 1138)=32.15, p<.001$). Once all significant predictors were taken into account, self control was the only childhood variable that remained significant and none of the early adolescent variables remained significant. In contrast, all mid/late adolescent variables remained significant, with the exception of parents' use of punishment.

Table 5

Hierarchical Linear Regression Predicting Social Competence in Emerging Adulthood from Significant Predictors at Each Age Period

Variable	B	SE B	β
Step 1			
Gender	.13	.02	.23**
SES	.03	.01	.14**
Step 2			
Gender	.10	.02	.18**
SES	.02	.01	.09**
Persistence (late childhood)	.04	.01	.12**
Self control (late childhood)	.02	.00	.19**
Academic competence (mid childhood)	.02	.01	.08**
Relationship with parents (late childhood)	.05	.02	.08**
Step 3			
Gender	.11	.02	.19**
SES	.02	.01	.07*
Persistence (late childhood)	.03	.01	.07*
Self control (late childhood)	.01	.00	.12**
Academic competence (mid childhood)	.02	.01	.07**
Relationship with parents (late childhood)	.02	.02	.03
Negative reactivity (early adolescence)	-.03	.01	-.07*
School adjustment (early adolescence)	.04	.02	.07*
Emotional control (early adolescence)	.05	.01	.10**
Family attachment (early adolescence)	.03	.01	.08*
Obedience orientation (early adolescence)	-.02	.01	-.05
Step 4			
Gender	.08	.02	.14**
SES	.01	.01	.06*
Persistence (late childhood)	.01	.01	.01
Self control (late childhood)	.01	.00	.08*
Academic competence (mid childhood)	.01	.01	.03
Relationship with parents (late childhood)	.01	.02	.02
Negative reactivity (early adolescence)	-.02	.01	-.05
School adjustment (early adolescence)	.03	.02	.05
Emotional control (early adolescence)	.02	.01	.04

Variable	<i>B</i>	<i>SE B</i>	β
Family attachment (early adolescence)	-.01	.01	-.02
Obedience orientation (early adolescence)	-.01	.01	-.03
Conscientiousness (mid/late adolescence)	.03	.01	.06*
Emotional control (mid/late adolescence)	.09	.01	.20**
School bonding (mid/late adolescence)	.09	.01	.18**
Trust in peers (mid/late adolescence)	.05	.01	.11**
Trust with parents (mid/late adolescence)	.09	.02	.15**
Alienation from parents (mid/late adolescence)	.05	.02	.10**
Parenting use of punishment (mid/late adolescence)	-.02	.01	-.04
Community orientation (mid/late adolescence)	.07	.01	.14**

$R^2 = .07$ for Step 1 ($p < .001$); $\Delta R^2 = .1$ for Step 2 ($p < .001$); $\Delta R^2 = .03$ for Step 3 ($p < .001$); $\Delta R^2 = .15$ for Step 4 ($p < .001$). * = $p < .05$, ** = $p < .01$.

4.2.2 Life satisfaction

Gender and socioeconomic status were not significant antecedents of life satisfaction in any of the analyses and together explained less than 1% of the variance in life satisfaction.

Childhood (4-8 months to 11-12 years). The hierarchical regression analysis with life satisfaction as the dependent variable and childhood factors as the independent variables (see column 2, Table 2) explained 8.6% of the variance in life satisfaction, which was significant ($F(19, 1138) = 5.65, p < .001$). Having an approaching and persistent temperament style, strong family relationships, and more siblings in childhood significantly predicted higher life satisfaction in emerging adulthood. In contrast, children who were born to older mothers tended to have lower life satisfaction.

Early adolescence (12-13 years to 13-14 years). Looking at early adolescent predictors (see column 2, Table 3), the model as a whole explained 9.3% of the variance in life satisfaction, which was again significant ($F(16, 1141) = 7.27, p < .001$).

As in childhood, a more approaching temperament and strong family relationships in early adolescence were related to higher levels of life satisfaction. Participation in groups also significantly predicted later life satisfaction.

Mid/late adolescence (15-16 to 17-18 years). Mid to late adolescent factors explained over one quarter (25.7%) of the variance in life satisfaction during the transition to adulthood (see column 2, Table 4; $F(25, 1132)=15.7, p<.001$). Emerging adults who were high in life satisfaction tended to be more extraverted but less neurotic and open/unconventional in late adolescence. They also tended to have good control of their emotions, enjoy seeking out novel situations, and feel connected to their school and community. Participants who had higher levels of family stress and were alienated from their peers during mid/late adolescence tended to have lower life satisfaction in emerging adulthood.

Overall regression across age periods. Variables identified as significant predictors of life satisfaction in the previous analyses were entered into an overall regression analysis (see Table 6). Gender and SES were non-significant in the first and subsequent steps, with the exception of the final step where being female was associated with higher life satisfaction. The child predictors explained an additional 8% of the variance in life satisfaction beyond the first step ($F_{change}(5, 1150)=18.75, p<.001$), with all predictors apart from mother's age remaining significant. Early adolescent variables explained only a further 2% of the variance ($F_{change}(3, 1147)=9.97, p<.001$). When early adolescent predictors were added to the model, strong relationships with parents and the number of children in the family were the only two childhood factors that continued to predict higher levels of life satisfaction. Family attachment and group involvement in early adolescence also predicted later life satisfaction, although the temperament dimension of approach was no longer

significant. When entered in the final step, mid/late adolescent variables accounted for a further 14% of variance in life satisfaction ($F_{change}(9, 1138)=23.2, p<.001$), with the model as a whole accounting for a significant 24.3% of variance in life satisfaction ($F(19, 1138)=19.22, p<.001$).

When all previously identified significant predictors were taken into account, the child's relationship with their parents was the only childhood variable to significantly predict life satisfaction and no early adolescent variables remained significant. All mid/late adolescent variables previously identified as significant remained significant predictors of life satisfaction, with the exceptions of sensation seeking and family stress.

Table 6

*Hierarchical Linear Regression Predicting Life Satisfaction in Emerging Adulthood
from Significant Predictors at Each Age Period*

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Gender	.04	.02	.05
SES	.02	.01	.06
Step 2			
Gender	.01	.02	.02
SES	.02	.01	.06
Approach (late childhood)	.06	.02	.11**
Persistence (late childhood)	.04	.02	.08*
Relationship with parents (late childhood)	.14	.02	.19**
Mothers age (infancy)	-.01	.00	-.05
Number of children in the family (early childhood)	.03	.01	.07*
Step 3			
Gender	.03	.02	.04
SES	.02	.01	.05
Approach (late childhood)	.03	.02	.06
Persistence (late childhood)	.02	.02	.04
Relationship with parents (late childhood)	.09	.02	.13**
Mothers age (infancy)	-.01	.00	-.06
Number of children in the family (early childhood)	.03	.01	.07*
Approach/sociability (early adolescence)	.03	.02	.05
Family attachment (early adolescence)	.07	.02	.12**
Group involvement (early adolescence)	.07	.02	.10**
Step 4			
Gender	.06	.02	.08**
SES	.01	.01	.03
Approach (late childhood)	.02	.02	.04
Persistence (late childhood)	-.01	.02	-.01
Relationship with parents (late childhood)	.06	.02	.08**
Mothers age (infancy)	.00	.00	-.03
Number of children in the family (early childhood)	.02	.01	.04
Approach/sociability (early adolescence)	-.01	.02	-.01
Family attachment (early adolescence)	.02	.02	.03
Group involvement (early adolescence)	.02	.02	.03
Extraversion (mid/late adolescence)	.06	.02	.10**

Variable	<i>B</i>	<i>SE B</i>	β
Neuroticism (mid/late adolescence)	-.04	.02	-.07*
Openness (mid/late adolescence)	-.04	.02	-.07*
Emotional control (mid/late adolescence)	.12	.02	.19**
Sensation seeking (mid/late adolescence)	.01	.01	.05
School bonding (mid/late adolescence)	.10	.02	.16**
Peer alienation (mid/late adolescence)	-.10	.02	-.13**
Family stress (mid/late adolescence)	-.03	.01	-.05
Community bonding (mid/late adolescence)	.06	.02	.09**

$R^2 = .01$ for Step 1 ($p < .001$); $\Delta R^2 = .08$ for Step 2 ($p < .001$); $\Delta R^2 = .02$ for Step 3 ($p < .001$); $\Delta R^2 = .14$ for Step 4 ($p < .001$). * = $p < .05$, ** = $p < .01$.

4.2.3 Trust and tolerance of others

Being female and from a higher SES background were predictive of higher trust and tolerance of others throughout the analyses.

Childhood (4-8 months to 11-12 years). SES and gender together explained 6.9% of the variance in trust and tolerance of others (see column 3, Table 2). After the next step containing the childhood variables was entered, the model as a whole explained a significant 11.6% of the variance ($F(19, 1138) = 7.84, p < .001$). Academic competence in mid-childhood was the only significant predictor.

Early adolescence (12-13 years to 13-14 years). For early adolescent predictors of trust and tolerance of others (see column 3, Table 3), SES and gender together explained 4.7% of the variance. After the second step, the model as a whole explained 10.6% of the variance ($F(16, 1141) = 8.45, p < .001$). As in the childhood analysis, school adjustment emerged as a significant antecedent of higher trust and tolerance of others. Adolescents whose parents had a strong focus on obedience tended to have lower trust and tolerance of others during the transition to adulthood.

Mid/late adolescence (15-16 to 17-18 years). Mid to late adolescent predictors were next examined (see column 3, Table 4). SES and gender were again significant

predictors, explaining 5.4% of the variance in trust and tolerance of others. When mid/late adolescent variables were entered, the model accounted for a significant 25.2% of the variance ($F(25, 1132)=15.25, p<.001$). Having better control of emotions, being better adjusted to the school context, and having a more trusting relationship with parents during mid/late adolescence were associated with higher levels of trust and tolerance of others. Connections to the community also emerged as important for later trust and tolerance of others, with school bonding, community bonding, political awareness, and community orientation all predicting higher levels of trust. In contrast, participants who were rated as more extraverted and neurotic in mid/late adolescence tended to have lower levels of trust and tolerance of others in emerging adulthood.

Overall regression across age periods. All variables identified as significant predictors of trust and tolerance of others in the separate age group analyses were then entered in a single hierarchical multiple regression (see Table 7). SES and gender together explained 6.9% of the variance and were significant predictors in each of the subsequent steps. After the next step containing academic competence in childhood, the model explained 8.6% of the variance ($F_{change}(1, 1154)=21.43, p<.001$). Academic competence in childhood continued to be a significant predictor in each of the subsequent steps. Early adolescent variables were entered in the next step, with the variance explained increasing to 11.1% ($F_{change}(2, 1152)=15.6, p<.001$). School adjustment and a parenting style characterised by an emphasis on obedience in early adolescence were significant, although school adjustment fell out of significance when mid/late adolescent predictors were entered in the next step. Following the addition of mid/late adolescent variables, the model as a whole explained 26.2% of the variance in trust and tolerance in others ($F_{change}(9, 1143)=26.03, p<.001$), which

was significant ($F(14, 1143)=28.95, p<.001$). All mid/late adolescent predictors remained significant, with the exception of school adjustment.

Table 7

Hierarchical Linear Regression Predicting Trust and Tolerance of Others in Emerging Adulthood from Significant Predictors at Each Age Period

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Gender	.08	.02	.12**
SES	.07	.01	.24**
Step 2			
Gender	.08	.02	.11**
SES	.07	.01	.22**
Academic competence (mid childhood)	.04	.01	.13**
Step 3			
Gender	.07	.02	.09**
SES	.06	.01	.19**
Academic competence (mid childhood)	.03	.01	.11**
School adjustment (early adolescence)	.11	.02	.14**
Obedience orientation (early adolescence)	-.04	.01	-.09**
Step 4			
Gender	.06	.02	.08**
SES	.04	.01	.12**
Academic competence (mid childhood)	.02	.01	.07*
School adjustment (early adolescence)	.03	.03	.04
Obedience orientation (early adolescence)	-.04	.01	-.08**
Extraversion (mid/late adolescence)	-.05	.02	-.08**
Neuroticism (mid/late adolescence)	-.04	.02	-.08*
Emotional control (mid/late adolescence)	.07	.02	.12**
School bonding (mid/late adolescence)	.08	.02	.12**
School adjustment (mid/late adolescence)	.04	.03	.06
Trust with parents (mid/late adolescence)	.06	.02	.07**
Community bonding (mid/late adolescence)	.08	.02	.12**
Political awareness (mid/late adolescence)	.09	.02	.15**
Community orientation (mid/late adolescence)	.07	.02	.12**

$R^2 = .07$ for Step 1 ($p < .001$); $\Delta R^2 = .02$ for Step 2 ($p < .001$); $\Delta R^2 = .03$ for Step 3 ($p < .001$); $\Delta R^2 = .14$ for Step 4 ($p < .001$).

* = $p < .05$, ** = $p < .01$.

4.2.4 Trust in authorities and organisations

Childhood (4-8 months to 11-12 years). SES and gender were entered in the first step of the analysis and explained 4.9% of the variance (see column 4, Table 2). After the next step containing the childhood predictors was entered, the model as a whole explained a significant 11.1% of variance ($F(19, 1138)=7.44, p<.001$). Being female, from a higher socioeconomic background, having good self control and being academically competent were significantly related to higher levels of trust in authorities and organisations. Aspects of family environments were also important for later trust in authorities and organisations, with strong family relationships and more children in the family predicting higher levels of trust.

Early adolescence (12-13 years to 13-14 years). When early adolescent predictors were examined (see column 4, Table 3), SES and gender explained 4.3% of the variance. Early adolescent variables contributed to an overall explanation of 11.6% of the variance ($F(16, 1141)=9.32, p<.001$). Participants who were female and well adjusted to their school environments in early adolescence tended to have higher levels of trust in authorities and organisations in emerging adulthood. Having strong family relationships in early adolescence and participating in organised group activities also predicted higher levels of trust in authorities and organisations.

Mid/late adolescence (15-16 to 17-18 years). Looking at the relationship between mid/late adolescent factors and trust (see column 4, Table 4), SES and gender explained 4.3% of the variance. After the next step containing the mid/late adolescence variables was entered, the model as a whole explained a significant 21% of the variance ($F(25, 1132)=12.04, p<.001$). Having good control of emotions, a trusting relationship with parents, and participating in organised peer group activities predicted higher trust in authorities and organisations. The community level factors of

school bonding, community bonding, and community orientation also emerged as significant antecedents. In contrast, higher levels of extraversion, openness to experience, and family stress predicted lower trust in authorities.

Overall regression across age periods. SES and gender, entered in the first step of the overall regression analysis (see Table 8), explained 4.9% of the variance in trust in authorities and organisations. Being female and from a higher SES background predicted higher levels of trust in each step. After the child variables were entered, the model explained 10.3% of the variance ($F_{change}(4, 1151)=17.3, p<.001$). All childhood predictors, including self control, academic competence, strong family relationships, and more children in the family, continued to significantly predict trust in authorities and organisations. Early adolescent variables were then entered, adding a small but significant 2.7% to the explanation of trust ($F_{change}(3, 1148)=11.82, p<.001$). All childhood and early adolescent predictors remained significant, with school adjustment, family attachment, and involvement in groups in early adolescence all predicting higher levels of trust. When mid/late adolescent variables were entered in the final step, the model as a whole explained 21.6% of the variance ($F_{change}(9, 1139)=13.88, p<.001$), which was significant ($F(18, 1139)=17.44, p<.001$). Once all variables were taken into account in the final step, self control and the number of children in the family in childhood continued to be significantly predictive, whereas all other childhood and early adolescence factors fell out of significance. All mid/late adolescent variables continued to significantly predict trust in authorities and organisations, with the exception of group involvement.

Table 8

Hierarchical Linear Regression Predicting Trust in Authorities and Organisations In Emerging Adulthood From Significant Predictors at Each Age Period

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Gender	.09	.01	.19**
SES	.03	.01	.12**
Step 2			
Gender	.08	.01	.17**
SES	.02	.01	.10**
Self control (late childhood)	.01	.00	.12**
Academic competence (mid childhood)	.02	.01	.08**
Relationship with parents (late childhood)	.07	.02	.14**
Number of children in the family (early childhood)	.02	.01	.08**
Step 3			
Gender	.08	.01	.16**
SES	.02	.01	.08**
Self control (late childhood)	.01	.00	.08*
Academic competence (mid childhood)	.01	.01	.07*
Relationship with parents (late childhood)	.04	.02	.08*
Number of children in the family (early childhood)	.02	.01	.07*
School adjustment (early adolescence)	.05	.02	.09**
Family attachment (early adolescence)	.03	.01	.09**
Group involvement (early adolescence)	.05	.01	.10**
Step 4			
Gender	.09	.01	.18**
SES	.01	.01	.06*
Self control (late childhood)	.01	.00	.06*
Academic competence (mid childhood)	.01	.00	.05
Relationship with parents (late childhood)	.03	.02	.05
Number of children in the family (early childhood)	.02	.01	.06*
School adjustment (early adolescence)	.03	.01	.06
Family attachment (early adolescence)	.00	.01	.01
Group involvement (early adolescence)	.02	.02	.04
Extraversion (mid/late adolescence)	-.03	.01	-.07*
Openness (mid/late adolescence)	-.03	.01	-.08*
Emotional control (mid/late adolescence)	.04	.01	.09**
School bonding (mid/late adolescence)	.05	.01	.11**

Variable	<i>B</i>	<i>SE B</i>	β
Organised peer group activities (mid/late adolescence)	.03	.02	.06
Trust with parents (mid/late adolescence)	.06	.02	.10**
Family stress (mid/late adolescence)	-.03	.01	-.08**
Community bonding (mid/late adolescence)	.06	.01	.12**
Community orientation (mid/late adolescence)	.04	.01	.09**

$R^2 = .05$ for Step 1 ($p < .001$); $\Delta R^2 = .05$ for Step 2 ($p < .001$); $\Delta R^2 = .03$ for Step 3 ($p < .001$); $\Delta R^2 = .09$ for Step 4 ($p < .001$).

* = $p < .05$, ** = $p < .01$.

4.2.5 Civic action and engagement

Female gender and high socioeconomic background predicted higher civic action and engagement in each of the regressions.

Childhood (4-8 months to 11-12 years). SES and gender explained 3.3% of the variance (see column 5, Table 2). After the childhood variables were entered, the model as a whole explained 7.2% of the variance ($F(19, 1138) = 4.7, p < .001$). Higher responsibility and academic competence predicted civic action and engagement. In contrast, higher levels of persistence and having a good self concept about relationships with peers predicted *lower* civic engagement. However, it should be noted that these factors only accounted for a very small proportion of variance in civic action and engagement.

Early adolescence (12-13 years to 13-14 years). SES and gender accounted for 3.1% of the variance in the dependent variable (see column 5, Table 3). Entering the early adolescent variables into the model did not significantly contribute to the explanation of civic action and engagement beyond the initial step ($R^2 \Delta = .01, F_{change}(14, 1141) = .73, p = .74, n.s.$).

Mid/late adolescence (15-16 to 17-18 years). In contrast to early adolescent factors, a number of mid/late adolescent variables were identified as significant antecedents of civic action and engagement (see column 5, Table 4). SES and gender explained 4.8% of the variance. After variables from mid/late adolescence were entered, the model as a whole explained a substantial 21.8% of the variance in civic action and engagement ($F(25, 1132)=13.93, p<.001$). Adolescents who felt connected to their school and their community, were oriented towards working for their community in the future, and who were more aware of political and environmental issues, were more likely to be active and engaged with civic life as they moved into adulthood. Higher levels of individuation from parents during mid/late adolescence were also associated with higher civic action and engagement. Gender fell out of significance in this step.

Overall regression across age periods. In the overall model (see Table 9), SES and gender were entered in the first step and explained 3.3% of the variance in civic action and engagement. Being female and from a higher SES background were significant predictors of civic action and engagement in the first and second step, but fell out of significance in the final step. After the next step containing the child variables was entered, the model explained 6.1% of the variance ($F_{change}(4, 1151)=8.32, p<.000$). The temperament dimension of persistence fell out of significance, whereas responsibility, academic competence, and a poorer self concept about relationships with peers remained significant in this and the final step. When mid/late adolescent variables were entered in the final step, the model as a whole explained a significant 23.1% of the variance ($F_{change}(6, 1145)=42.14, p<.001$; $F(12, 1144)=28.58, p<.001$). All mid/late adolescent predictors, with the exception of individuation from parents, continued to predict civic action and engagement.

Table 9

Hierarchical Linear Regression Predicting Civic Action and Engagement in Emerging Adulthood from Significant Predictors at Each Age Period

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Gender	.10	.03	.12**
SES	.05	.01	.14**
Step 2			
Gender	.10	.03	.12**
SES	.04	.01	.11**
Persistence (late childhood)	-.03	.02	-.06
Responsibility (late childhood)	.02	.01	.13**
Academic competence (late childhood)	.01	.00	.10**
Relationship with peers (late childhood)	-.06	.02	-.10**
Step 3			
Gender	.04	.02	.04
SES	.02	.01	.05
Persistence (late childhood)	-.03	.02	-.05
Responsibility (late childhood)	.02	.00	.09**
Academic competence (late childhood)	.00	.00	.07*
Relationship with peers (late childhood)	-.06	.02	-.09**
School bonding (mid/late adolescence)	.05	.02	.07*
Alienation from parents (mid/late adolescence)	.02	.02	.03
Community bonding (mid/late adolescence)	.12	.02	.15**
Political awareness (mid/late adolescence)	.09	.02	.13**
Environmental awareness (mid/late adolescence)	.04	.02	.07*
Community orientation (mid/late adolescence)	.17	.02	.23**

$R^2 = .03$ for Step 1 ($p < .001$); $\Delta R^2 = .03$ for Step 2 ($p < .001$); $\Delta R^2 = .17$ for Step 3 ($p < .001$).

* = $p < .05$, ** = $p < .01$.

4.3 Summary

Levels of the positive development dimensions were relatively high in this sample, with the exception that fewer participants were actively engaged in civic life.

For each dimension of positive development there was significant and substantial prediction from multiple domains, including both individual characteristics and environmental factors such as the family setting. A number of child and early adolescent factors were significant predictors, although, as expected, those factors more proximal in time to the outcome (that is, from the mid/late adolescent period) were relatively more influential. Notably, some factors – such as positive ties to the school setting and emotional control – were predictive of all or almost all five dimensions, whereas other factors, such as personality characteristics, were only significant for some dimensions.

CHAPTER 5: DISCUSSION OF STUDY 1 RESULTS

Study 1 examined antecedents of the five dimensions of positive development in emerging adulthood, attempting to identify common themes and areas of divergence in antecedents across the dimensions, and to compare these to predictors of the overall multidimensional positive development construct.

As summarised in section 4.2, levels of positive development dimensions, with the exception of civic engagement, were relatively high and hence young people in the sample on average appeared to be doing well. The results further revealed a range of significant antecedents for each dimension of positive development (see Appendix E for a summary of the Study 1 findings). The findings offer insights into antecedents that are influential across multiple aspects of positive development, and suggest possible mechanisms through which predictors of the multidimensional construct may operate. First, factors identified as significant predictors across positive development dimensions are discussed in section 5.1. Next, their relationship to antecedents of multidimensional positive development is considered (section 5.2). Section 5.3 then presents the strengths and limitations of Study 1, and section 5.4 considers the implications for intervention that can be drawn from the findings. Methodological and theoretical implications and broader limitations will be considered in the general discussion (Chapter 10).

5.1 Predictors of positive development dimensions

A wide range of predictors of positive development dimensions were identified and there was substantial commonality in predictors across the five dimensions. These included individual characteristics, relationship factors, features of the family environment, and aspects of community engagement, which together accounted for a significant proportion of the variance (on average, a quarter) in the

positive development dimensions. This supports an ecological understanding of the influences on positive development, with development influenced by multiple systems and settings (Bronfenbrenner & Morris, 2006). This section discusses predictors at each of these levels (individual, relational, family environment, and community) in turn.

5.1.1 Individual characteristics

A number of individual characteristics predicted multiple dimensions of positive development. Self regulatory characteristics, particularly emotional control in mid/late adolescence, emerged as one of the strongest and most consistent of these. The importance of self-regulation for positive adaptation has also been emphasised in the positive youth development literature (Crockett, Raffaelli, & Shen, 2006; Gestsdóttir & Lerner, 2007; Lerner, Dowling, & Anderson, 2003) and observed in a number of studies using the 4-H data (e.g., Zimmerman, Phelps, & Lerner, 2008). There are likely to be multiple avenues through which the ability to self regulate impacts on dimensions of positive development. For example, the ability to self regulate appears to promote social competence by enhancing the ability to focus on the needs of others (John & Gross, 2004), and prosocial behaviour (Fabes et al., 1994). Adolescents with good control over their emotions may be less easily swayed by emotionally laden stereotypes and messages in the media and other sources, and thus develop higher trust and tolerance of others. Furthermore, those who are better able to manage their behaviours and emotions are less likely to experience externalising problems (Moffitt, 1993), and hence may experience fewer negative encounters with authorities such as the police and courts, resulting in more positive attitudes towards these authorities.

Dimensions of temperament and personality over childhood and early adolescence were predictive of all five positive development dimensions, although each dimension generally predicted only one or two aspects of positive development and the strength of these relationships tended to be weak. Headey and Wearing's (1992) Dynamic Equilibrium Model suggests that temperament and personality factors increase the likelihood that individuals will experience certain events, such as gaining a high-status job, which then impacts on their well-being (Diener, Oishi, & Lucas, 2003). Personality may also impact the processing of information with emotional content (Derryberry & Reed, 1994; Rusting, 1998). For example, those high in neuroticism may be more responsive to information about how threatening unpopular groups are, resulting in decreased trust (Margus, Sullivan, Theis-Morse, & Wood, 1995). Although the relevance of later temperament measures to healthy development was evident, it is also noteworthy that no temperament dimensions in infancy significantly predicted positive development dimensions. Temperament in infancy appears to provide a 'starting point' for the developmental process, whereas characteristics in later childhood reflect the effects of interactions with social environments (Shiner & Caspi, 2003). Such interactions between temperament and the environment may be more closely related to positive outcomes than temperament in isolation, as any temperament characteristic can be more or less adaptive depending on the demands of the context (Chess & Thomas, 1999).

Academic competence in childhood made a small but unique contribution to all positive development dimensions, with the exception of life satisfaction. Academic skills learned at school may be important for healthy development beyond the school years in the context of a 'knowledge economy', where opportunities for employment and further education require increasing levels of competency (Lewis, White, &

Chandler, 2009). Looking at the results overall, however, achievement *per se* appeared to be less relevant to positive development than young people's feelings towards school and relationships within this setting (see section 5.1.2).

Finally, female gender was a strong predictor of all five dimensions of positive development, with girls tending to have higher levels than boys. Girls have generally been observed in previous research to experience higher levels and more favourable trajectories of positive development. For example, Phelps et al. (2007) examined trajectories of positive youth development over Grades 5 to 7 and found that girls were more likely to be in the high or medium trajectories. This is also consistent with the observation that girls are generally higher in developmental assets (that is, factors that promote healthy adaptation, see section 1.2; Scales, et al., 2000).

5.1.2 Relationships

A wide range of relationship factors over childhood and adolescence predicted dimensions of positive development. This accords with a wealth of previous literature describing social connectedness as a basic human need that is essential for well-being (Adler, 1950; Ansbacher, 1991; Baumeister & Leary, 1995; Ryan & Deci, 2001), and contributes to this literature by demonstrating the protective role of early relationships to much later positive outcomes.

At least some characteristics of peer and parent relationships made a unique and substantial contribution to all five positive development dimensions. Hence, the findings strongly support Zarrett and Eccles' (2006) observation that 'relationships are primary supports that help youth navigate adolescence and the transition to adulthood' (p. 24). Attachment theory suggests that positive, supportive relationships provide young people with a secure and consistent support system from which they can develop their identity, develop trusting relationships with others and with the

wider community, and explore their environment (Bretherton & Munholland, 1999). Relationships with parents appeared to be relatively more influential than relationships with peers, consistent with other empirical findings comparing their contribution to well-being over the transition to adulthood (e.g., van Wel, et al., 2002). Hence, even though qualitative changes in the nature of family relationships may occur during adolescence, such as a reduction in the amount of time spent with parents (Larson & Verma, 1999), these relationships appear to remain salient for healthy development into adulthood.

Bonding to school was another key antecedent, strongly predicting all five dimensions of positive development in emerging adulthood. This strengthens the findings of previous cross-sectional and short-term longitudinal research, such as McGraw et al.'s (2008) study linking school connectedness and well-being one year following high school, or Frydenberg et al.'s (2009) finding that emotional well-being was concurrently associated with school connectedness in adolescence. According to control theory, young people who feel connected to school are more likely to adopt prosocial norms about appropriate behaviour, which can help them to avoid risky behaviours like substance use (Maddox & Prinz, 2003). Although control theory has focused on the avoidance of problem behaviours, the current results suggest that the adoption of prosocial norms may also be salient to positive functioning.

5.1.3 Family environment

Features of the family environment were generally relatively weak predictors of later dimensions of positive development. One exception to this was family socioeconomic status, which emerged as a consistent and strong predictor of four of the five dimensions of positive development in emerging adulthood (life satisfaction being the exception). This finding accords with previous research suggesting that

children who live in poorly resourced environments experience substantial developmental deficits (Korenman, Miller, & Sjaastad, 1995). Children growing up in higher socioeconomic status families are likely to have greater access to neighbourhood resources, such as sporting and other extracurricular groups with positive adult mentors (Benson, et al., 1998). It is notable that even socioeconomic status in infancy was predictive of these four dimensions nearly two decades later, suggesting the future implications of early experiences.

Other family environment characteristics made small but unique contributions to some positive development dimensions. Harsh punitive parenting styles in early adolescence were related to lower social competence and trust and tolerance of others. The use of more inductive parenting approaches and less use of severe punishment has been associated with the development of social competencies as well as a range of other positive outcomes such as academic achievement (Lamborn, Mounts, Steinberg, & Dornbusch, 1991).

Family stress (defined as losses, changes, or problems in the past year which had a negative impact on the family) in mid/late adolescence was predictive of lower life satisfaction and trust in authorities and organisations in emerging adulthood. Stress in the family system during adolescence may render caregivers less available as a source of social support (DuBois & Felner, 1992). However, it is noteworthy that family stress in earlier periods did not predict positive functioning, suggesting that its effects may be relatively short-lived.

Participants who were born to older mothers tended to have slightly lower life satisfaction in emerging adulthood, perhaps because older mothers have more career commitments and longer hours of work, which is associated with, for example, fewer positive mother-child encounters (Nomaguchi, 2006). Those with more siblings

tended to have higher life satisfaction and trust in authorities and organisations, consistent with the observation that siblings provide additional opportunities for social development (Brody, 2004).

5.1.4 Community engagement

The results revealed the relevance of community engagement during mid to late adolescence for later adaptation, with community bonding or orientation strongly predicting all five dimensions of positive development in emerging adulthood. This finding supports the theoretical proposition that adolescents need to develop an understanding of their roles and connections to the broader society for healthy psychosocial development and identity formation in emerging adulthood (Erikson, 1968; C Flanagan & Sherrod, 1998). Civic mindedness has also been theorized to reflect an individual's developing capacity to empathize with and be responsible towards others (e.g., Maslow, 1972). Those who are more engaged and active in the community are likely to have more opportunities to interact with individuals from different groups, facilitating the development of tolerance (Pettigrew & Tropp, 2000), and may also encounter novel experiences that facilitate their social skill development (S. Hamilton & Mickey, 1988). Furthermore, connections to the community may provide opportunities to develop strong bonds with adults and increase feelings of self-efficacy (Paxton, Valois, Huebner, & Drane, 2006), as well as contribute to the development of a positive self-concept (Eccles, Barber, Stone, & Hunt, 2003).

5.1.5 Proximal versus distal predictors

As expected, in general, factors more proximal in time were the strongest predictors of positive development dimensions in emerging adulthood: when influences in later adolescence were taken into account in the omnibus analyses (Tables 5-9, Chapter 4), fewer predictors from earlier time periods retained

significance. Positive adaptation reflects strong person by context interactions (Larson, 2000), that can shift over time according to changes in the individual, the context, and their interaction (Cicchetti & Rogosch, 2002; Sameroff, 2000; Schulenberg, Sameroff, et al., 2004). Hence, good early experiences neither ensure future positive adaptation nor inoculate against problems in later adaptation (Curtis & Cicchetti, 2003). Rather, while early experiences may be critical, their influences on later functioning are likely to be mediated and sometimes even reversed by later experiences (Schulenberg, Sameroff, et al., 2004).

However, it should also be noted that a number of early factors, such as family relationships in childhood, were predictive of later outcomes, which is significant given that the outcomes were measured nearly two decades later. Furthermore, some of these factors, such as self control, retained their unique predictive value in the omnibus models for some of the positive development dimensions. Moreover, when childhood factors were initially predictive but became non-significant when adolescent variables were entered into the model, this suggests their importance as precursors of the adolescent predictors.

5.1.6 Areas of divergence

A noteworthy area of divergence between civic engagement and the other positive development dimensions is that levels of civic involvement were comparatively low (see section 4.2). This is consistent with US research demonstrating declining levels of civic engagement in emerging adults compared to young people in previous generations (Carpini, 2000; Jennings & Stoker, 2004). Such findings have sparked considerable concern because behaviour during this period is important for the development of 'civic habits' that carry implications through adulthood (Andolina, Jenkins, Zukin, & Keeter, 2003). These considerations highlight

the importance of understanding the factors that promote greater civic involvement in young people.

As well as lower levels of civic engagement compared to other dimensions, there was also an interesting area of divergence in its predictors: the antecedents of civic action and engagement included two factors generally considered to be detrimental to healthy development. Higher civic involvement was strongly predicted by *poorer* relationships with peers in late childhood (at 11-12 years), and this effect remained significant even in the omnibus analysis. Eccles and Barber (1999) suggest that adolescents may join civic groups in order to gain an identity and peer group, thereby fulfilling their need for social relatedness. Hence, one possibility is that for young people moving into adolescence who are struggling in their peer relationships, civic involvement may be an attractive opportunity to gain a positive group identity and connection, and this involvement may continue into emerging adulthood.

The other factor to predict civic engagement in the opposite direction to that expected was persistence in late childhood, which has typically been associated with positive behaviours such as industriousness and perseverance (Cloninger & Svrakic, 2008). Although this effect was significant, it was very weak and fell out of significance when other factors were accounted for in the omnibus analysis. Hence, this latter finding requires further investigation (see section 5.3).

5.1.7 Summary

The strongest and most consistent predictors of the five dimensions were socioeconomic background in childhood, strong family relationships over childhood and adolescence, and emotional regulation, bonding to school, and community orientation in mid/late adolescence. These predictors were able to explain around a quarter of the variance in the positive development dimensions, which is substantial.

Most significant predictors were from later adolescence, although a few childhood antecedents were able to predict positive development outcomes nearly two decades later. Overall, there was more commonality than divergence in the predictors across dimensions, although there were two interesting exceptions in the case of the civic action dimension.

5.2 Relationship to predictors of multidimensional positive development construct

The antecedents of the separate dimensions of positive development identified in this study are generally consistent with the predictors of the multidimensional positive development construct identified by O'Connor et al. (in press) and discussed in section 2.1. Some areas of divergence between predictors of the overall construct and the separate dimensions were also observed. This section addresses both commonalities and areas of divergence, in order to provide insight into the processes and avenues through which factors over childhood and adolescence influence later positive development.

Factors that were previously identified as strong predictors of the multidimensional construct (including positive family relationships, self regulation, and connections to the community; see section 2.1) tended to be associated with all or the majority of positive development dimensions. Hence, it appears that these antecedents exert their influence on overall positive development through their relevance to a range of indicators of positive functioning, rather than through very strong relationships to just one or two specific dimensions. For example, one of the three most consistent significant predictors of the multidimensional construct was self-regulatory characteristics, particularly good control of emotions, and emotional control was identified in the current study as a significant antecedent of all positive

development dimensions except civic action and engagement. Another important factor, family relationships, was predictive across all five dimensions. Similarly, the third important factor of community orientation was significantly associated with all dimensions except life satisfaction. This pattern of findings is consistent with literature suggesting that positive development is best promoted through broad interventions that aim to enhance a range of positive outcomes (Masten, 2001).

However, an area of slight divergence between predictors of the multidimensional construct and the separate dimensions was the relevance of relationships to the school system during adolescence. In the previous study, school bonding in adolescence was a strong predictor for females but was only marginally significant for males (see Appendix B), whereas strong relationships to the school system strongly predicted all five dimensions of positive development in the current study. This somewhat surprising finding is likely to reflect the differential treatment of gender across the sets of analyses: whereas gender-segregated analyses were performed to examine predictors of the multidimensional construct, gender was included as a covariate when examining predictors of the dimensions. As a result, the male-only analysis examining predictors of the multidimensional construct had less than half of the sample size of the current study, and hence less power to detect significant effects. O'Connor, Sanson, and Frydenberg (in press) investigated the more interesting possibility of whether gender may moderate the relationship between school bonding and positive development, but did not observe a significant interaction. Hence, it is likely that school bonding is important for both young men and young women.

5.3 Limitations and future research

Certain limitations of the present research merit consideration, including a number of methodological factors. As always, the results would benefit from replication in other samples. Nevertheless, the findings provide an important first step towards identifying factors that promote positive development dimensions, with a number of implications for intervention development. Limitations specific to Study 1 will be considered here, and broader limitations relevant to both studies will be considered in Chapter 10.

Previous research suggested a large number of potential antecedents of positive development dimensions, and hence a wide range of predictors were included in the regression models. Since the study was partially exploratory in this approach, it is associated with an increase in the possibility of a Type 1 error, or obtaining significant results by chance alone (Ioannidis, 2005). Hence, the results should be interpreted with some caution, particularly when the probability values are marginal. However, the comprehensiveness of the set of predictors examined was also a major strength of the study. Studies that only examine a few predictors may erroneously identify them as critical factors; indeed, it is noteworthy how many factors identified as important for positive development in previous studies were non-significant in the current multivariate analyses. Nevertheless, the exploratory nature of this study means that replication in other samples in future research will be important (J. Cohen, Cohen, West, & Aiken, 2003).

Time is a difficult variable to conceptualise in developmental research and almost always poses a challenge for developmental researchers (Lerner, Schwartz, & Phelps, 2009). Longitudinal research designs are critical for the study of change over time (Singer & Willet, 2003), and the current study drew on comprehensive

longitudinal data spanning two decades. In relation to the statistical treatment of time, the current study controlled for time in two ways: by examining predictors separately during different developmental periods (childhood, early adolescence, and mid/late adolescence), and secondly, by performing omnibus hierarchical analyses with factors identified as significant predictors, in order to evaluate the contributions of the later predictors beyond those from earlier developmental periods. However, further analyses may be needed to investigate across-time effects in greater depth. For example, path analysis would allow the continuity of the predictor constructs to be taken into account (Byrne, 2001). Path analysis was not practicable in the current study as it was unlikely that acceptable model fit would be achieved with such a large number of predictor variables, particularly as the many interrelationships between the predictors themselves would also need to be specified; rather, the current results provide a starting point for the development of more refined models in future research.

A third significant limitation of Study 1 was that, as the analyses were constrained by the data available, it was not possible to control for levels of positive development and the predictor variables at all time points. Hence, an alternative explanation of the current results may be that some significant predictors are themselves products of earlier positive development. As a result, inferences about causation can only be made tentatively, and the direction of effects is particularly at issue. For example, does early positive development facilitate the development of emotional control, or does emotional control facilitate later positive development, or a combination of both (that is, bi-directional influences)? This limitation highlights the need for longitudinal data on positive development, discussed further in section 10.2.1.

Finally, the current variable centred analysis provided insights into average level trends across the sample. However, it did not provide insight into whether the relationships between the predictors and positive development dimensions are stronger for certain groups of young people, such as those who are very low in positive development. This question has implications for interventions, including whether universal or targeted intervention strategies are likely to be most effective. Further research using person centred analytic methods that can account for inter-individual differences is needed to address this question.

5.4 Implications for intervention

The findings suggest a number of possible targets for intervention to promote positive development. Since the overall models accounted for over a quarter of the variance in the positive development dimensions, interventions that promote these antecedents are likely to have a valuable impact on positive development. It appears beneficial to promote all five of the dimensions of positive development in young people, and the most effective way to do so would appear to be by emphasising those antecedents that build all or most of them. Furthermore, the identification of early precursors (particularly family relationships) suggests the importance of early interventions to facilitate pathways towards positive development. The following section discusses the implications of the Study 1 findings for intervention, while methodological and theoretical implications are considered in Chapter 10.

As a result of this study's long term longitudinal design, it has been able to identify developmental precursors to positive development, suggesting that interventions that begin before the emerging adulthood period are likely to be effective in facilitating healthy development over this transition. The identification of unique contributions by early factors, which then often disappeared when later

predictors were included in the model, suggests that their influence was mediated by later age variables, and therefore that early interventions focused on some attributes (such as strong relationships with parents) beginning in childhood would be worthwhile. For those factors that did not emerge as significant predictors until adolescence (such as school bonding), later interventions may be more productive.

All contexts in which children and young people develop, including the family, school, and community systems, are possible sites for such interventions. Schools can provide a particularly valuable context for some interventions because they are accessible and relatively stable sites (Bond et al., 2007), and represent a common setting for children and adolescents, thus facilitating universal promotion-based interventions (Short & Talley, 1997; Zins, Bloodworth, Weissberg, & Walberg, 2007). Hence, this discussion has an emphasis on school based interventions.

The evidence here suggests that interventions that promote good relationships with parents and peers are likely to benefit young people's positive development, and are likely to benefit from earlier intervention. Programs that support the development of social competence in children and young people facilitate their positive relationships with both peers and parents (Bierman & Erath, 2004). Successful school-based interventions to promote social competence integrate social and emotional learning as an ongoing part of the curriculum (encompassing skills for application to daily life such as self and social awareness, decision making, and self management), and promote positive and inclusive school environments that provide opportunities to develop and practice these skills, as part of a unified whole school framework (Zins, et al., 2007). Among a number of programs which incorporate these ingredients, an example is the PATHS (Promoting Alternative Thinking Strategies) program, which particularly emphasises social problem-solving abilities, and has shown positive

results in randomised control trials (Domitrovich, Greenberg, Kusche, & Cortes, 1999). Looking specifically at parent-child relationships, parent training that enhances parents' understanding of child development, provides skills for enhancing development, and strategies for behavioural management, is another effective means of promoting positive connectedness (Regalado & Halfon, 2001). The Triple P Positive Parenting Program provides a good example of an evidence-based parent training program that can be based in a range of contexts (Bor, Sanders, & Markie-Dadds, 2002; C. Roberts, Mazzucchelli, Studman, & Sanders, 2006).

Interventions that help children to develop the ability to self regulate are also likely to benefit young people's positive development, and may be particularly effective when beginning in childhood. Key components of such interventions include promoting understanding of the relationships between feelings, cognitions, and behaviours, and developing effective coping strategies for dealing with strong emotions (Friedberg & McClure, 2002). Interventions to promote self regulation are often embedded within broader social and emotional learning initiatives, such as the PATHS program described above, whose curriculum covers understanding and regulating emotions and behaviour, and has been found to promote young people's emotional regulation abilities (Kam, Greenberg, & Kusche, 2004; Kam, Greenberg, & Walls, 2003).

The results further suggest the potential efficacy of facilitating school and community connectedness in adolescence as a means to promote positive development during the transition to adulthood. School and community connectedness is a potentially malleable target for intervention that can be facilitated by promoting opportunities and skills for school involvement (Maddox & Prinz, 2003). KidsMatter (www.kidsmatter.edu.au) is an example of an evidence-based, whole-school initiative

aimed at promoting feelings of belonging in Australian school communities through social and emotional learning for students, parent support and education, early intervention for students experiencing mental health problems, and the promotion of inclusive school communities. Efforts to specifically target community engagement can include, for example, enhancing positive relationships with adult mentors and giving students experience in community volunteering (Lawford, 2005; Rosenthal, et al., 1998). Interestingly, half of the ATP sample indicated in mid adolescence that they would participate more in volunteer work or political activities if more opportunities existed, suggesting the importance of also providing appropriate opportunities for involvement (Da Silva, et al., 2004).

5.5 Conclusions

Study 1 provided a rare opportunity to examine the contributions of individual, relationship, family environment, and community level factors from infancy to late adolescence to dimensions of positive development in emerging adulthood. It employed an empirically tested, multi-dimensional construct of positive development in emerging adulthood, rather than a single facet of this construct as in most previous research. The multi-wave longitudinal data set allowed this question to be investigated over a 20 year period of time using data from multiple informants. The findings demonstrate that positive development is most strongly predicted by the capacity for effective self regulation, strong relationships with others and important institutions such as school, and connections to the community. These domains represent promising targets for interventions to promote positive development in emerging adulthood. However, an important unanswered question is how this positive development construct relates to poor developmental outcomes such as psychopathology. Addressing this question would build on Study 1 findings by

providing an indication of whether interventions should focus solely on promoting positive development, or on the reduction of problem outcomes, or a combination of these two approaches. Study 2 addresses these issues and is presented in Chapters 6 to 9.

CHAPTER 6: POSITIVE DEVELOPMENT AND PSYCHOPATHOLOGY

6.1 Importance of understanding this relationship

As described in section 1.1, there have been calls, most recently and vocally from Seligman's positive psychology movement, to look beyond psychological deficits to the positive aspects of individuals and their lives. Life, it is argued, encompasses difficulties such as mental illness, but also includes happiness, optimism, and adaptation. How do these aspects of functioning relate to one another? The answer to this question remains unclear. This ambiguity centres on two important questions: 1) Are positive development and poor outcomes separate constructs or dimensions of a single construct? and 2) If positive development and poor outcomes are separate constructs, what is the nature and strength of the relationship between them?

The outcome of these two questions has important implications for model development. Researchers have been inconsistent in how they have conceptualised problem outcomes in models of positive development and its antecedents. Whereas some studies have modelled poor outcomes (such as substance abuse) as predictors of positive development (as described in Chapter 2), others have included poor outcomes as negatively loading dimensions of positive development (see section 6.1.1).

Understanding the relationship between positive functioning and negative outcomes is also important for theory development. Lazarus (2003b) observed that if a model of positive psychological functioning does not include some reference to the negative aspects of life, it invites the same criticism as that levelled against traditional, deficit based psychological theory. That is, that by focusing solely on the positive it presents a distorted view of what life is like for most people: 'One should not deny that calamity and death are always present even if one avoids thinking about them.

Life is always a diverse mixture of emotions, both positive and negative, rather than a never-ending delight' (Lazarus, 2003b: p. 184). Hence, models and theories of positive functioning need to incorporate an indication of how positive functioning relates to poor functioning.

Looking at the implications for policy and intervention, this question has important repercussions for whether separate interventions are necessary to promote positive development on the one hand and reduce the incidence of negative outcomes on the other. For example, if positive development and negative functioning reflect a single underlying dimension, efforts to reduce negative outcomes should coincidentally promote positive functioning, and vice versa such that those intervention targets identified in Chapter 5 to promote positive development should also decrease negative outcomes. In contrast, if positive development and negative outcomes are related but independent constructs, then distinct intervention strategies may be needed to reduce negative outcomes and facilitate positive outcomes (Jelicic, Bobek, Phelps, Lerner, & Lerner, 2007).

A number of hypotheses have emerged from the literature about the relationship between positive and negative outcomes. Some of these have been theory driven and explicitly described in the literature. Others have been implied by the way the relationship has been modelled in empirical studies, without explanation of the authors' assumptions about the nature of the relationship. The four main hypotheses in the literature suggest that positive development and poor outcomes: 1) form a single construct; 2) are relatively independent constructs; 3) are separate but inversely related constructs; or 4) have variable relationships depending on the specific dimensions of functioning examined. This chapter reviews the empirical evidence for each of these hypotheses in turn, and then compares the evidence across the

hypotheses. Given that very few studies have focused on the emerging adulthood period, this review will also include studies from the adolescence and adulthood literature.

6.1.1 Hypothesis 1: A single construct

The medical model implicitly assumes that aspects of positive and negative development (specifically focusing on psychopathology) reflect a single dimension of functioning (Keyes, 2005). As Keyes describes, the medical model suggests that ‘The absence of mental illness is the presence of mental health. Put in psychometric terminology...measures of mental illness and measures of mental health belong to a single, bipolar latent continuum’ (Keyes, 2007: p. 95). This assumption has been carried forward in a number of empirical models of positive development. Hence, the first hypothesis examined is that positive development is a single bipolar construct that encompasses both high levels of positive functioning and low levels of negative outcomes.

A number of empirical models include both positive and negative outcomes as dimensions of positive adaptation. For example, Gambone et al.’s (2002) model of positive functioning includes the absence of a range of negative outcomes (such as not being a drug user), in addition to the presence of numerous positive dimensions of functioning (such as being in employment), as dimensions of positive development. Looking at emerging adults’ progress towards meeting developmental tasks, Schulenberg, Bryant et al. (2004) examined positive outcomes such as being involved with a peer group, as well as avoidance of negative outcomes, such as substance use. Similarly, Masten et al.’s (1995) model of a construct they labelled ‘competence’ includes the presence of positive outcomes such as academic achievement, close

friendships, and acceptance by chosen peers, as well as the absence of antisocial behaviour (see Section 1.5 for further details on these models).

Of these studies, Masten et al. (1995) is the only one to provide a rationale for including poor outcomes as dimensions of positive development. These authors suggested that low levels of antisocial behaviour can be considered to reflect competence (which they defined as ‘a pattern of effective performance in the environment’; p. 1636) because the focus is on the negative pole of what they assume to be a continuous dimension of conduct. Although they did not specifically test the bipolarity of this conduct dimension, they did examine the fit of the model overall using structural equation modelling, and found it to represent their data well. However, this was the only study of those identified that provides justification or empirical evidence to support the inclusion of a low level of problem behaviours as an indicator of positive functioning.

6.1.2 Hypothesis 2: Separate, inversely related constructs

According to the positive youth development framework, positive development and negative outcomes reflect distinct dimensions with a strong inverse relationship. This has led proponents to conclude that interventions should focus on promoting positive development, which will simultaneously reduce the incidence of negative outcomes and the need to invest in problem-based interventions (Silbereisen & Lerner, 2007). Like hypothesis 1, this view suggests an either/or relationship between positive development and negative outcomes, where individuals who are high on positive development are relatively problem free, whereas those who are high in problem outcomes are low in positive development and are unable to interact in positive ways with their environment (Jelicic, et al., 2007).

Explicitly seeking to test this hypothesis, Theokas and Lerner (2006) drew on a subsample of grade 5 children ($n=646$, mean age 11) selected to be diverse in environmental characteristics. They looked at the relationships between aspects of positive and negative functioning – including positive youth development and contribution (see section 1.3.1), depression, and risky behaviours (delinquency and substance abuse) – and environmental assets, including human and physical resources, and availability of adults to youth. Four multiple regression analyses were performed with each of the aspects of positive and negative functioning as independent variables, and environmental assets as the predictor variables. Similar environmental assets were significant predictors across the analyses, positively predicting positive youth development and contribution, and negatively predicting depression and risky behaviours.

J. Hawkins, Catalano, Kosterman, Abbott, and Hill (1999) also found support for this hypothesis by demonstrating an inverted relationship of positive and negative outcomes with a third variable. The authors examined the effects of a multi-level intervention in a large sample of primary school students living in high risk Seattle neighbourhoods. They found that the intervention both promoted positive outcomes at age 18, including school bonding and academic achievement, and reduced the likelihood of risk behaviours and problem outcomes, such as heavy drinking and violent delinquent behaviour. Similarly, Sin and Lyubomirsky (2009) conducted a meta-analysis of the effects of positive psychology interventions (aimed at cultivating positive feelings, behaviours, and cognitions) in adults and found that the interventions both increased well-being and decreased depression. These findings support the capacity of promotion-based interventions to concurrently decrease problem outcomes.

Drawing on an adult sample, Keyes (2005) examined the relationship between psychopathology (assessed using DSM diagnostic criteria) and mental health (including life satisfaction, positive affect, self acceptance, personal growth, and positive relationships with close others). He used confirmatory factor analysis to compare three different models of the relationship between mental health and mental illness, including models in which mental health and mental illness were 1) independent and uncorrelated, 2) independent and correlated, or 3) caused by a single bipolar latent dimension. He found that the best fitting model was when mental health and mental illness were modelled as independent but correlated factors (with $r=.5$). Hence, he concluded that there are two separate continua, one of mental illness and the other of mental health or 'flourishing', and that these continua are inversely related.

Oesterle, Hill, Hawkins, and Abbott (2008) found a slightly more complex picture amongst participants from the Seattle Social Development Project (see section 1.5). They examined the longitudinal relationship between alcohol use and positive functioning in emerging adulthood to determine whether the promotion of positive development could be a viable strategy for reducing alcohol misuse during this time. Alcohol use and positive functioning were assessed at four time points between the ages of 15 and 27. Using path analysis, they found cross-time effects from positive functioning to alcohol-use disorders but not the reverse. That is, positive functioning in adolescence significantly decreased the likelihood of later alcohol use disorders at ages 21 and 24, independently of adolescent binge drinking, prior diagnosis of alcohol abuse, and demographic factors. However, the reverse was not true: alcohol abuse at the previous time point did not predict lower positive functioning at the subsequent time point.

Hence, a number of studies appear to support the hypothesis that positive development and problem outcomes reflect separate but inversely related constructs. However, although results have been taken to support the view that positive and negative outcomes are inversely related, the strength of this relationship has generally been modest to moderate (with correlation coefficients between positive development and problem outcomes typically ranging from around .3 to .5), rather than very strong as suggested by the positive youth development framework.

6.1.3 Hypothesis 3: Independent constructs

Like the positive youth development framework, the positive psychology literature suggests that positive and negative functioning reflect distinct underlying constructs. However, whereas positive youth development theory emphasises the strength of the relationship between these dimensions of functioning, positive psychology theory emphasises their independence, suggesting that knowledge of an individual's level of maladaptation does not provide a good indication of their level of successful functioning (Joseph & Linley, 2006b). Hence, it is argued that investigations are needed into aspects of both maladaptation and adaptation in order to understand the full range of human functioning (Joseph & Linley, 2006b; Sheldon & King, 2001).

J. Hawkins, Kosterman, Catalano, Hill, and Abbott (2005) drew on data from the Seattle Social Development Project (see section 1.5) to further examine the long term effects of the Grade 5 intervention on indicators of young people's positive functioning (in school or work, and emotional well-being) and poor functioning (crime and substance use) at 21 years. They found that the intervention significantly promoted positive outcomes in emerging adulthood, but was ineffective in reducing the incidence of problem outcomes. Hence, the intervention had differential effects on

positive and negative outcomes (and not simply inverse effects), thus supporting the independence of these dimensions of functioning and challenging the positive youth development assumption that the promotion of positive outcomes will simultaneously reduce the incidence of problem outcomes. These findings were in contrast to those of the earlier study by J. Hawkins et al. (1999) described in section 6.1.2 which drew on data from the same sample but examined outcomes at age 18 rather than 21, and found evidence for an inverse relationship between positive and negative outcomes. Taken together, these findings might alternately suggest that the intervention shared a stronger and more persistent relationship with positive outcomes than negative outcomes, rather than no relationship with negative outcomes as suggested by J. Hawkins et al.'s (2005) findings when taken in isolation.

Boles, Biglan, and Smolkowski (2006) drew on short-term longitudinal data from a large school-based sample of US adolescents in Years 8 and 11. They examined interrelations between a wide range of positive behaviours (e.g., volunteering, academic achievement, sports participation) and negative behaviours (e.g., smoking, binge drinking, extreme dieting). They found that the negative behaviours were highly interrelated, with participation in one negative behaviour significantly increasing the risk for others. In contrast, positive behaviours were less interrelated. Furthermore, positive behaviours were 'not as strongly associated with engaging in fewer problem behaviours as one might have hoped' (p. 49), with some significant but very modest effects observed. Hence, like J. Hawkins et al. (2005), they concluded that efforts to promote positive youth development, although clearly worthwhile, may have a limited impact in preventing problem behaviours.

As described in section 6.1.2, Keyes' (2005) US study into the relationship between mental health and mental illness suggested that these indicators are best

represented as distinct dimensions with a moderately strong negative relationship. However, in further analyses, Keyes identified a small group of individuals who were both 'flourishing' and met criteria for a DSM diagnosis, thus supporting a more independent conceptualisation of these constructs. Keyes concluded that these results indicate the need for two distinct policy initiatives, one aimed at reducing mental illness and the other at promoting flourishing (Keyes, 2007). While there was already a policy program aimed at reducing mental illness, Keyes (2007) suggested the need for 'the adoption of a second, complementary national strategy: the promotion and maintenance of genuine mental health' (Keyes, 2007: p. 95).

Altruism has been conceptualised as a dimension of positive development in some models, and antisocial behaviour has been taken to indicate the negative pole of this construct (e.g., Masten, et al., 1995, see section 1.5). However, Krueger et al. (2001) convincingly argued that prosocial behaviour (altruism) and antisocial behaviour are uncorrelated tendencies with different personality correlates and aetiologies. Drawing on data from a large sample of adult twins located through the Minnesota Twin Registry, they found that the correlation between altruism and antisocial behaviour was non-significant ($r = -.08$) (which was confirmed in a confirmatory factor analysis). Prosocial and antisocial behaviour also appeared to have different aetiologies, with individual differences in antisocial behaviour linked to genes and nonshared environments, and individual differences in altruism linked to shared and nonshared environments. Differential personality correlates were also observed, with positive emotionality associated with altruism, and negative emotionality and lack of constraint associated with antisocial behaviour. The authors concluded that strategies aimed at diminishing antisocial behaviour will not necessarily result in more prosocial behaviour, and vice versa, and that, consistent

with Keyes' (2005) findings, desirable and undesirable behaviours can co-exist in the same person.

Similarly, a relatively large body of research suggests that optimism and pessimism are relatively independent constructs, rather than poles of a single underlying dimension. For example, Robinson-Whelen, Kim, MacCallum, and Kiecolt-Glaser (1997) examined the relationship between optimism and pessimism in a sample of middle aged and older, predominantly female, caregivers and non-caregivers of relatives, over 4 years. Using confirmatory factor analysis, they found that optimism and pessimism were best represented as two distinct factors that were moderately correlated among the caregivers, but were only weakly correlated among the non-caregivers (who presumably experienced less stress). Furthermore, whereas pessimism significantly predicted anxiety, perceived stress, and self-rated health at a one-year follow up, optimism did not predict any of these outcomes. These findings are consistent with a wider body of literature on the relationship between optimism and pessimism across a range of samples (for example, Lai, 1994; Marshall, Wortman, Kusulas, Hervig, & Vickers, 1992; Mroczek, Spiro, Aldwin, Ozer, & Bosse, 1993).

Hence, a number of studies support the hypothesis that positive and negative functioning reflect relatively independent constructs. These studies challenge the positive youth development tenet that interventions aimed at promoting successful functioning will also be effective in reducing the incidence of problem outcomes. However, a number of these studies have only examined a single aspect of positive and problematic functioning (such as altruism and antisocial behaviour), and hence do not provide an indication of the relationship between the broader constructs of positive development and maladaptation. Adding to this complexity, findings from

studies such as Keyes' (2005) appear to support multiple conceptualisations of the relationship between positive functioning and psychopathology.

6.1.4 Hypothesis 4: Complex and variable relationship

Arising from empirical findings rather than a theoretical base, the final hypothesis examined postulates that positive development and negative outcomes do not share a consistent overarching relationship. Rather, dimensions of successful and poor functioning are related in complex and varied ways, with some facets of positive development related to negative outcomes and others independent of negative outcomes (Kosterman, et al., 2005). Hence, estimates of the strength of the relationship between broad positive development and maladaptation constructs may simply reflect the dimensions used to operationalise these factors, thus accounting for the apparently contradictory findings in the literature.

Again drawing on data from the Seattle Social Development Project, Kosterman (2005) examined bivariate correlations between problem outcomes (crime and substance use) and dimensions of positive functioning (volunteerism, group involvement, neighbourliness, interpersonal connection, constructive engagement, financial responsibility, and honesty) at age 21. The observed correlations were highly variable: whereas honesty, financial responsibility, and constructive use of time were consistently negatively related to crime and substance use measures, neighbourliness and group involvement were virtually unrelated to these problem outcomes. Hence, these aspects of positive and negative functioning shared a complex relationship that was for the most part defined by the specific dimensions of functioning under examination.

Operating within the positive youth development framework, Phelps et al. (2007) initially hypothesised an inverse relationship between positive youth

development and problem outcomes. Drawing on data from the 4-H sample over Grades 5, 6, and 7, the authors identified different trajectories of positive youth development, internalising problems, and externalising behaviours. They then examined the probability of membership in the internalising and externalising trajectory groups based on the participant's positive youth development trajectory. Participants in the increasing, decreasing, and moderate positive development trajectory groups showed substantial variability in their externalising and internalising trajectories. Indeed, no pairing of trajectories of positive youth development and problem behaviours characterised even as much as one quarter of the participants. They concluded that the 'nature of the relationship is more complex than current theoretical discussions of the development of positive youth development or resilience would accommodate' (Phelps, et al., 2007: p. 493), and called for the development of more nuanced theory in this area. Zimmerman, Phelps, and Lerner (2008) similarly drew on the 4-H data to examine positive and negative developmental trajectories, and again found that although an inverse relationship was observed for most participants, it did not hold across the entire sample. They concluded that 'such diversity of developmental trajectories necessitates that we abandon the notion that development in adolescence generally involves an inverse relationship between positive and problematic behaviours' (p. 162).

Also drawing on the 4-H data set, Jelicic et al. (2007) predicted positive ('contribution' to self, family and community; see section 1.3.1) and negative (risk behaviours and depression) outcomes in Grade 6 from participants' positive youth development levels in Grade 5. Positive youth development at Grade 5 significantly predicted contribution, risk behaviours, and depression in the expected directions. However, the effects were very modest, suggesting that the relationship between these

outcomes over time may be weak. To investigate this further, the authors developed a structural equation model that included contribution, depression and risk behaviours in Grade 6 as outcomes of positive youth development in Grade 5, and found that this was a good fit for the data. However, the amount of variance accounted for was again very small, and the authors concluded that positive and negative outcomes do not develop along trajectories that are merely ‘mirror images’ of each other, and that the relationship is more complex than positive youth development theory suggests.

Hence, a limited number of studies suggest that the relationship between positive and problem outcomes is more complex than proposed by the three previously examined hypotheses. These studies have employed sophisticated data analytic techniques, such as trajectory analysis and structural equation modelling. However, this hypothesis currently lacks a theoretical basis, and has little explanatory power because it does not propose any causal relationships that account for these apparently inconsistent relationships. It also lacks predictive power because it generates few testable hypotheses.

6.2 Comparison of support for hypotheses

All four hypotheses examined have both strengths and weaknesses. The ‘single construct’ hypothesis reflects a mostly atheoretical, untested assumption in empirical models of positive development. Similarly, the ‘complex relationship’ hypothesis has developed purely out of empirical findings. While the ‘independent constructs’ and ‘inverse relationship’ hypotheses are both grounded in theory, they are theoretically thin, with little discussion of the underlying processes that might account for the relationships between outcomes. Hence, an overarching issue is the lack of theory in this area.

Methodologically, there has been a lack of systematic comparison of the competing hypotheses within the same studies and samples (Keyes (2005) being a notable exception). Model comparison is a strong analytic approach for these types of research questions because the identification of a good fitting model does not preclude the existence of other, better fitting models (MacCallum & Austin, 2000). As a consequence of the failure to consider other conceptualisations of the relationship, similar results have been interpreted as support for different hypotheses depending on the theoretical orientation of the researcher. For example, weak but statistically significant correlations between positive and negative outcomes have been interpreted as supporting both the independence and inverse relationship hypotheses.

Another methodological issue is that almost all studies have exclusively relied on variable centred analytic methods. Variable centred analyses seek to describe associations among variables and identify processes found to a similar degree in all members of a group. Hence, this approach assumes homogeneity over the population in how variables relate to one another. In contrast, the person centred approach is concerned with the identification of groups or types of individuals who share particular attributes or relations among attributes, and emphasises diversity rather than central tendency (Magnusson, 2003; Rapkin & Luke, 1993). Variable and person centred approaches represent complimentary analytic methods, and the integration of both approaches contributes to a fuller understanding of development (Laursen & Hoff, 2006). This issue is particularly relevant to the current research question, as variable centred methods may indicate a misleadingly weak relationship between positive development and problem outcomes if they reflect the average of a range of different relationships between the variables (Phelps, et al., 2007).

Finally, very few studies examining this relationship have focused on the emerging adulthood period, with most studies drawing on data from adolescent or adult samples. However, the relationship between positive and negative outcomes might be expected to differ during emerging adulthood. For example, emerging adulthood is a period of significant instability and experimentation, and it is thus more plausible that negative outcomes, such as high levels of substance use, could coexist with positive outcomes, such as identity development (Arnett, 2005). In contrast, there are greater constraints on behaviour in earlier developmental periods and responsibilities are greater in later developmental periods, and hence positive functioning may be less likely to coexist with problem outcomes.

6.3 Aims and research questions

Study 2 aimed to investigate the relationship between positive development and negative outcomes, and how this relationship should be conceptualised theoretically and empirically in further research. Using M. Hawkins et al.'s (2009) robust and empirically tested model of positive development in emerging adulthood, this study compared five different hypotheses about this relationship. It incorporated both variable centred and person centred analytic methods, to allow both average trends and inter-individual differences in experiences of positive development and psychopathology to be examined. Given the conflicting findings of previous research, with apparent support for each of these hypotheses, the analyses were again somewhat exploratory. The research questions therefore included:

1. How do negative outcomes such as psychopathology relate to positive development?
2. How should this relationship be conceptualised in models and theories of positive development?

3. Are interventions aimed at reducing psychopathology likely to promote positive development and vice versa?

CHAPTER 7: STUDY 2 METHOD

The participants and positive development measures used were identical to those presented in Study 1 (see section 3.1), with the addition of psychopathology measures at 19-20 years. These psychopathology measures are described below and presented in full in Appendix C.

7.1 Psychopathology at 19-20 years

7.1.1 *Internalising problems*

Internalising problems at 19-20 years were measured according to self-reports on Lovibond and Lovibond's (1995) Depression Anxiety Stress (DAS) scale, which shows convergent validity with the Beck Depression and Anxiety Inventories (P. Lovibond & S. Lovibond, 1995). The DAS assessed the subscales of *Depression* (e.g., 'I felt that I had nothing to look forward to'; $\alpha=.89$), *Anxiety* (e.g., 'I felt scared without any good reason'; $\alpha=.77$), and *Stress* (e.g., 'I found it hard to wind down'; $\alpha=.83$). Each subscale comprised 7 items rated on a 4-point Likert scale from 'did not apply' to 'applied very much/most of the time' over the past month.

7.1.2 *Externalising problems*

Antisocial behaviour was measured according to self-reports at 19-20 years on the frequency of engaging in 19 antisocial acts, with items taken from Elliot and Ageton (1980) (e.g., 'Get into physical fights with other people'). Items were rated according to the number of times the individual engaged in the behaviour over the last year, where 1=never, and 6=10+ times ($\alpha=.70$).

At 19-20 years, self reported frequency of harms associated with alcohol use was used to assess *Alcohol problems* (10 items, e.g., 'Get so drunk you were sick or passed out'). These items were rated according to frequency over the past year, where 0=never, 1=once or twice, and 2=more often ($\alpha=.79$). Young people who had not

consumed any alcohol in the past month did not complete this question and were coded as not experiencing any harms associated with alcohol use.

Marijuana problems at 19-20 years were measured according to self reports on 5 items relating to harms associated with marijuana use over the past year (e.g., 'Felt irritable or depressed when it wasn't available'). These items were rated according to 0=never, 1=once or twice, and 2=more often ($\alpha=.79$). As for alcohol problems, young people who had not consumed any marijuana in the past month did not complete this question and were coded as not experiencing any harms associated with marijuana use.

CHAPTER 8: STUDY 2 RESULTS

Study 2 examined the relationship between positive development and psychopathology. As noted in section 6.2, variable and person centred analyses provide complimentary ways of examining development: whereas variable centred approaches offer a mean level characterisation of a sample, person centred findings provide insight into inter-individual differences (Magnusson, 2003). Hence, Study 2 includes both variable centred (Study 2a, section 8.1) and person centred (Study 2b, section 8.2) analyses.

Descriptive statistics and intercorrelations for the variables used in Study 2 are presented in Appendix F. Overall, the young people in this sample appeared to be faring well. As observed previously in Chapter 4, levels of positive development dimensions were relatively high although young people were less involved in civic life compared to other dimensions of positive development. On indicators of internalising problems, scores on the depression, anxiety, and stress scales were generally low although stress was a slightly more common experience in this sample. In regards to externalising problems, most participants reported participating in no antisocial behaviours over the past year or experiencing problems associated with marijuana use, but many had experienced at least one problem associated with alcohol use.

8.1 Study 2a: Variable centred results

Taking a variable centred approach, Study 2a compared four structural equation models reflecting the main hypotheses in the literature regarding the relationship between positive development and problem outcomes. As described in section 6.1, the four competing hypotheses suggest that positive development and poor outcomes 1) form a single construct, 2) are independent constructs, 3) are

separate but inversely related constructs, or 4) have variable relationships depending on the specific dimensions of functioning examined.

Structural equation modelling (SEM) provides several advantages over related statistical techniques, such as multiple regression, for looking at interrelationships between multiple constructs. The relationships between latent constructs can be estimated using constructs that are corrected for biases attributable to random error and construct-irrelevant variance (Tomarken & Waller, 2005). Furthermore, models can be tested overall rather than according to their individual coefficients, and the fit of rival models can be tested to assess relative model fit (MacCallum & Austin, 2000).

A large number of measures are available to assess the fit between the model and data, and there is a lack of consensus in the literature regarding which of these fit statistics should be examined. Hence, it is generally accepted that multiple fit statistics should be consulted (Hu & Bentler, 1998; Schermelleh-Engel, Moosbrugger, & Muller, 2003). The following study employs the set of fit measures suggested by Zubrick and Lawrence (2006), including Chi-square (χ^2), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Root Mean Square Residual (RMR), and the Root Mean Square Error of Approximation (RMSEA). When assessing relative model fit, the Akaike Information Criterion (AIC) and chi-square difference test were also examined.

Chi-square is the most commonly reported fit statistic and is a 'badness of fit' measure: significant chi-square values suggest that the sample correlation matrix and the model correlated matrix are significantly different (Schermelleh-Engel, et al., 2003). However, large sample sizes (over 200) tend to increase chi-square (Hair, Anderson, Tatham, & Black, 1998), so that significant differences become very

common, and thus it is reported only as a matter of convention in the current study. The Goodness of Fit Index (GFI) is a measure of overall model fit, and provides the proportion of variance that is explained by the model. The Adjusted Goodness of Fit Index (AGFI) is the GFI adjusted for the degrees of freedom. GFI values greater than 0.95 and AGFI values greater than .80 are taken to reflect acceptable fit (Hair, et al., 1998; Schermelleh-Engel, et al., 2003). The Root Mean Square Residual (RMR) measures the average of the fitted residuals, and provides the proportion of variance in the data accounted for by the model. Values below .05 indicate a very good fit (Hair, et al., 1998). The Root Mean Square Error of Approximation (RMSEA) is based on the non-centrality parameter, and takes particular account of the error of approximation (Zubrick & Lawrence, 2006). Brown and Cudeck (1993) suggest that a value below .05 indicates a very good fit, and values up to .08 indicate acceptable fit. The Akaike Information Criterion (AIC) rewards model parsimony and is used to compare the relative fit of models, including those that are not nested. The absolute value of the AIC is not interpretable; rather, relatively lower values reflect better fit (Schermelleh-Engel, et al., 2003). The chi-square difference test is another popular means of comparing model fit that can be used to compare nested models (Bentler & Chou, 1987; Byrne, 2001). These measures are summarised in Table 10 and described in more detail in Appendix G.

Table 10

Fit Statistics to Be Examined and Values That Reflect Acceptable Fit

Fit statistic	Acceptable fit	Source
RMSEA	< 0.08	Brown & Cudeck (1993)
GFI	> 0.95	Schermelleh-Engel et al. (2003)
AGFI	> 0.80	Hair et al. (1998)
RMR	< 0.05	Hair et al. (1998)
Chi Square	$p < .01$	Schermelleh-Engel et al. (2003)
AIC	Relatively lower values	Schermelleh-Engel et al. (2003)

All SEM analyses was performed using AMOS 16.0.1 software (Arbuckle, 2007). The sample size exceeded the suggested ratio of 10 participants per estimated parameter in the models (Schreiber, Stage, King, Nora, & Barlow, 2006). Model estimations were based on a covariance matrix and used maximum likelihood estimates, which works well with large sample sizes (Tabachnick & Fidell, 2001). One path loading was set at 1.00 for each of the measurement models, in order to assign a metric to each latent factor. All models presented in this Chapter were identified and the estimation process converged in each analysis. All parameter estimates were within the range of permissible values. The final model diagrams show standardised parameter estimates.

8.1.1 Structure of psychopathology

Initially, a model of psychopathology in emerging adulthood was developed. Previous studies have examined the underlying structure of psychopathology and support a two factor solution reflecting internalising and externalising problems. For example, Krueger, Caspi, Moffitt, and Silva (1998) examined the underlying structure of high prevalence psychological disorders in a large sample of 21 year olds using SEM, and found that a two factor model (representing internalising and externalising

problems) was the best fit for the data. This model has also been replicated in adult samples (Krueger, 1999; Vollebergh et al., 2001). Hence, the current study attempted to replicate Krueger et al.'s (1998) two-factor psychopathology model using data available in the ATP. Depression, anxiety, and stress were used as indicators of internalising problems (P. Lovibond & S. Lovibond, 1995). Externalising problems were indicated by antisocial behaviour and substance use problems. Substance use was measured according to harmful effects of alcohol and marijuana use, which provide good indications of clinically significant problems (Krueger et al., 2004).

The hypothesised replication model is presented in Figure 2. Circles represent latent variables, and rectangles represent measured variables. Absence of a line connecting variables implies no hypothesised direct effect. Internalising problems was a latent variable with three indicators, including depression, anxiety, and stress. Externalising problems was a latent variable with three indicators, including antisocial behaviour, alcohol problems, and marijuana problems. It was hypothesised that internalising and externalising problems would covary.

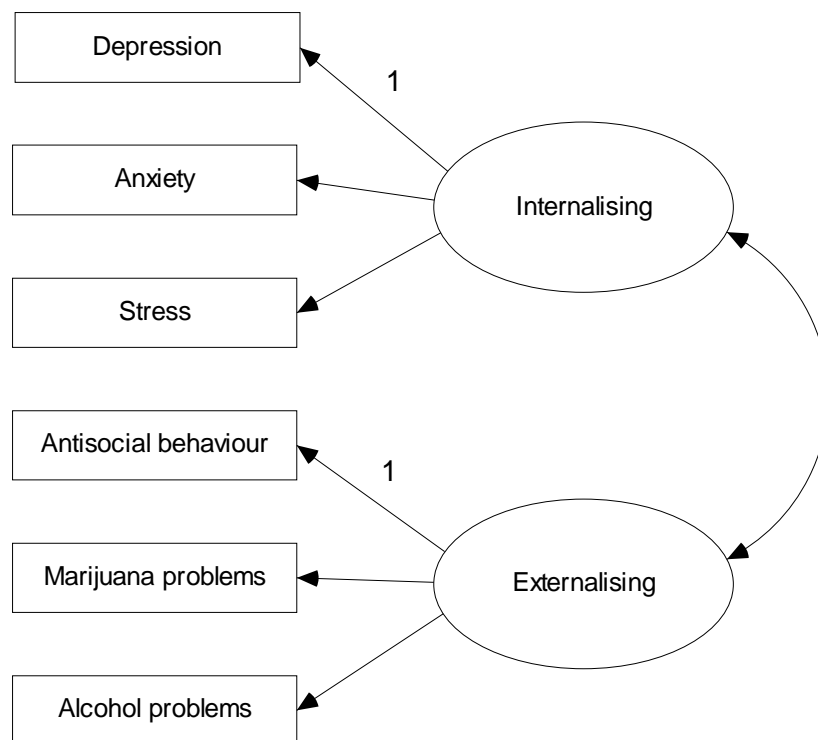


Figure 2. Hypothesised structure of psychopathology in emerging adulthood.

The means, standard deviations, and correlations between the indicator variables are presented in Appendix F. The correlations indicate a clustering of measures within the same latent construct. The correlations between the hypothesised indicators of the internalising construct were particularly high, ranging from .63 to .71. Correlations between the externalising indicators ranged from .22 to .38. All correlations between indicators of internalising and externalising problems (including those across the domains) were significant at the $p < .05$ level.

Strong support was found for the hypothesised model, (see Figure 3) with a good fit for the data indicated by all measures examined (RMSEA=.04; $\chi^2=20.44$, $p=.01$; GFI=.99; AGFI=.99, RMR=.00) and therefore no post-hoc modifications were made. All standardised loadings were significant at the $p < .001$ level and, because all were over .20, they were considered meaningful (Chin, 1998). Standardised loadings

for the six manifest variables ranged from .43 to .86. The internalising latent construct accounted for 66% of the variance in its three indicators. The externalising latent construct accounted for 32.1% of the variance in its three indicators. The final model is presented in Figure 3. It should be noted that inclusion of a second-order general psychopathology factor was trialled, although this was a deviation from Krueger et al.'s (1998) model. However, this provided a poor fit, consistent with the weak-moderate correlation between these constructs. Hence, the subsequent analyses tested the relationships of these two aspects of psychopathology to positive development.

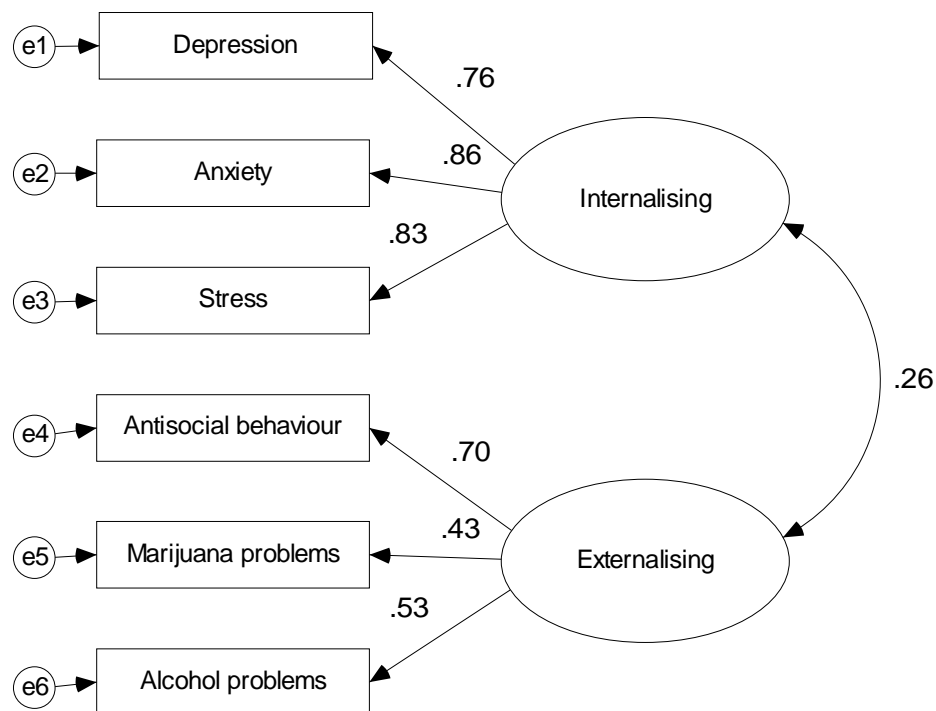


Figure 3. Final two factor solution of psychopathology during emerging adulthood.

To test whether the items comprising the internalising and externalising latent constructs and the relationship between these latent factors were similar for young men and women, the invariance of the model was examined using the method

outlined by Byrne (2001). This method utilises the chi-square difference test to examine whether increasingly restrictive models significantly differ from a baseline model in which parameters for males and females are allowed to be freely estimated. However, the chi-square difference test ($\Delta\chi^2$) is known to be overly sensitive to small differences when the sample size is large (Schumacker & Lomax, 2004). Consistent with this, although some statistically significant differences were observed, the magnitude of these differences was very small.

Initially, the psychopathology model was examined separately for each gender simultaneously providing the baseline χ^2 of 32.95 ($df=18$), against which subsequent tests for invariance were compared. Next, the most restrictive model with all parameters set as equal was tested. Model comparison showed that the constraints did not hold for the two genders ($\Delta\chi_{(5)}^2=47.66$, $p<.001$). As suggested by Byrne (2001), in order to identify parameters that differed according to gender, a series of increasingly restrictive models were then tested: beginning with the measurement model, each parameter was tested for invariance and then proven group-invariance measures were constrained as equal while subsequent tests of parameter invariance were conducted. The chi-square difference test ($\Delta\chi^2$) was used to assess invariance at each step.

All factor loadings on the internalising factor were gender invariant ($\Delta\chi_{(1)}^2=3.2$, $p=.07$, n.s.). Parameters that were non-invariant, as indicated by a significant $\Delta\chi^2$, were the loadings of marijuana problems (.51 for females, .38 for males; $\Delta\chi_{(1)}^2=14.12$, $p<.001$), and alcohol problems (.47 for females, .51 for males; $\Delta\chi_{(1)}^2=4.75$, $p=.03$), on the externalising factor. The covariance between internalising and externalising problems was also significantly different (.28 for females, .29 for males; $\Delta\chi_{(1)}^2=5.22$, $p=.02$). However, the magnitude of these differences was very small. Hence, data from males and females were analysed simultaneously in the subsequent analyses.

8.1.2 Models of alternative hypotheses

Four different SEM models were developed to represent the competing hypotheses regarding the relationship between positive development and psychopathology. The positive development component of the models was adapted from M. Hawkins et al.'s (2009) model of positive development in emerging adulthood which included five first order constructs that loaded on a single second order latent factor of positive development. As described in sections 1.5.1 and 3.2.1, the first order constructs included social competence (indicated by responsibility, self control, and empathy), life satisfaction (satisfaction with achievement and direction and with their personal life), trust and tolerance of others (trust in people in their neighbourhood and Australians generally, and tolerance of ethnic diversity), trust in authorities and organisations (trust in organisations, the police, and the courts), and civic action and engagement (indicated by group participation, group donations, and civic action). Two error covariances were included in M. Hawkins et al.'s (2009) model, from group participation to group donation, and from responsibility to satisfaction with achievement/direction. These error covariances were retained in the current models where they were significant. The psychopathology component of the models was adapted from the two-factor psychopathology model identified in section 8.1.1, with two covaried latent factors of internalising problems (indicated by depression, anxiety, and stress) and externalising problems (indicated by antisocial behaviour, marijuana problems, and alcohol problems). Intercorrelations between the positive development dimensions and psychopathology indicators, which tended to be weak to moderate in strength, are presented in Appendix F. The four models are described below in turn, and their fit is then compared.

Model 1: Single latent factor. The first model examined the hypothesis that positive development and psychopathology are dimensions of one second-order latent factor. The hypothesised model is presented in Figure 4, where all seven first order latent variables were hypothesised to contribute to a single second order factor.

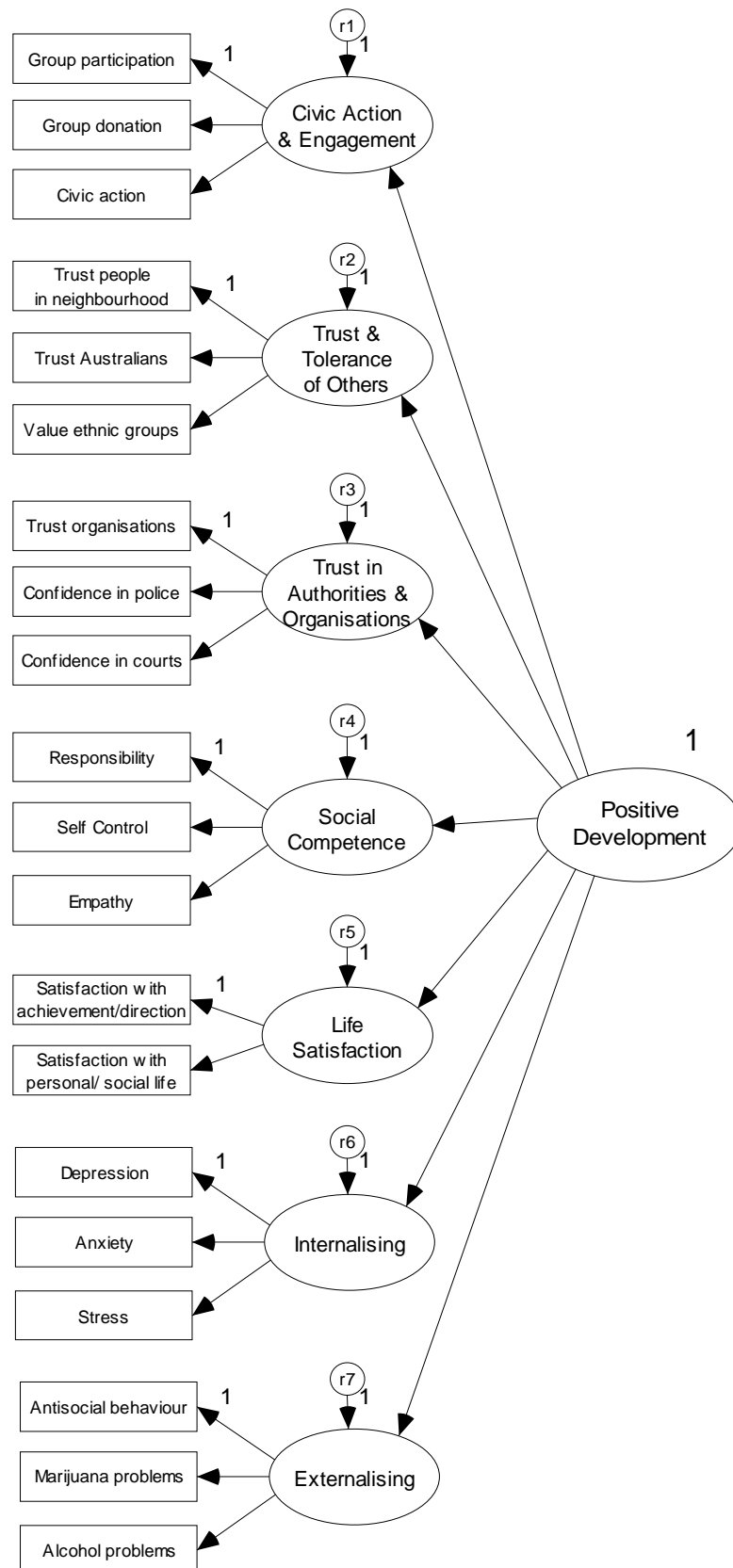


Figure 4. Hypothesised Model 1 reflecting the single factor hypothesis.

Model 1 was a moderately good fit for the data according to the RMSEA value, although the GFI value was somewhat low (RMSEA=.06; $\chi^2=907.70$, $p<.001$; GFI=.93; AGFI=.91, RMR=.03; AIC=1003.70). Examination of the modification indices indicated that model fit would be substantially improved by the inclusion of a direct path from depression to life satisfaction. However, this path was not considered conceptually coherent with this hypothesis according to which the higher order latent factor would be assumed to account for the relationship between these two observed variables. The modification indices further suggested that the measurement error associated with the depression and life satisfaction measures were related. Both the life satisfaction and depression scales used in the current study involved global evaluations of the individual and their life, and individuals differ in the extent to which they tend to endorse global appraisals (David, Lynn, & Ellis, 2010). For example, life satisfaction items in the current study included asking participants how satisfied they were with their 'life as a whole' (Sweet & Bumpass, 2002), and the depression measure included global evaluations such as 'I felt I wasn't much as a person' (S. Lovibond & P. Lovibond, 1995). These covariances related to the error variance rather than the substance of the constructs, and were not considered incompatible with any of the hypothesised relationships between the latent constructs. Hence, these error covariances were considered justifiable and included in this and the following models where significant.

Following these modifications, model fit was significantly improved ($\Delta\chi^2=208.55$, $p<.001$; RMSEA=.05; $\chi^2=699.15$, $p<.001$; GFI=.94; AGFI=.93, RMR=.02; AIC=799.15). All standardised loadings were significant at the $p<.001$ level and were over .20, with the exception of the loading of civic action and engagement on the positive development factor (standardised loading = .17), which

was no longer considered meaningful (Chin, 1998). The final model is presented in Figure 5.

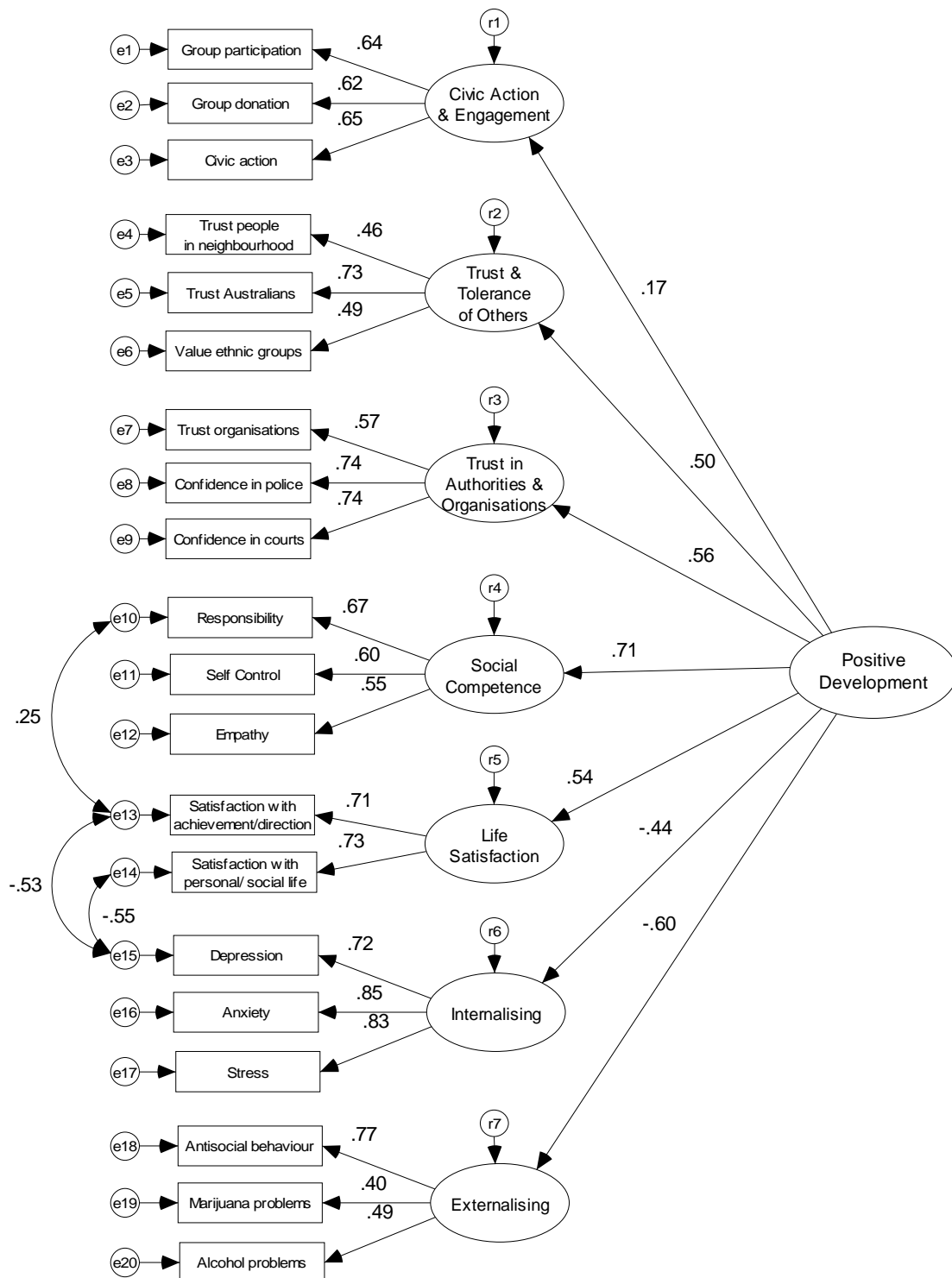


Figure 5. Final Model 1, of a single second-order positive development construct with internalising and externalising problems as negatively loading dimensions.

Model 2: Separate and uncorrelated factors. Model 2 examined the hypothesis that positive development and psychopathology represent separate and uncorrelated factors. The hypothesised model is presented in Figure 6, in which positive development dimensions are posited to contribute to a second order positive development latent construct, and internalising and externalising problems were two latent factors that were allowed to freely covary. As for Model 1, the error terms for depression and life satisfaction were also allowed to covary.

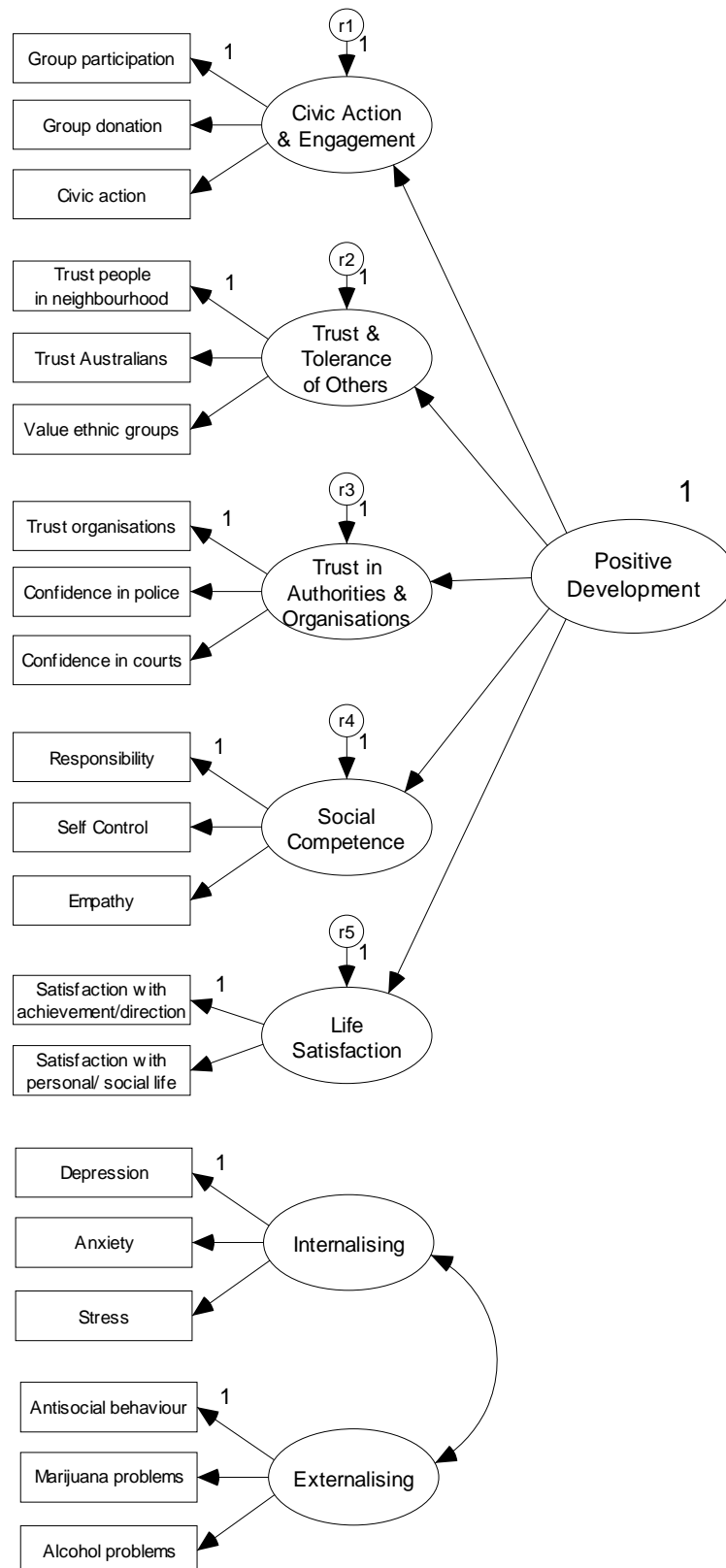


Figure 6. Hypothesised Model 2, in which positive development and psychopathology are separate and uncorrelated factors.

Model 2 was a satisfactory fit according to the RMSEA value, but the GFI fit measure was somewhat low (RMSEA=.06; $\chi^2=918.08$, $p<001$; GFI=.93; AGFI=.91, RMR=.03; AIC=1016.08; see Figure 7). The modification indices suggested a number of changes to the model to improve model fit (e.g., the addition of a covariance between the internalising and life satisfaction constructs), but none of these was conceptually consistent with the hypothesised independence of the positive development and psychopathology constructs. Hence, no post hoc modifications were made. All standardised loadings were significant at the $p<.001$ level and, because all were over .20, they were considered meaningful (Chin, 1998).

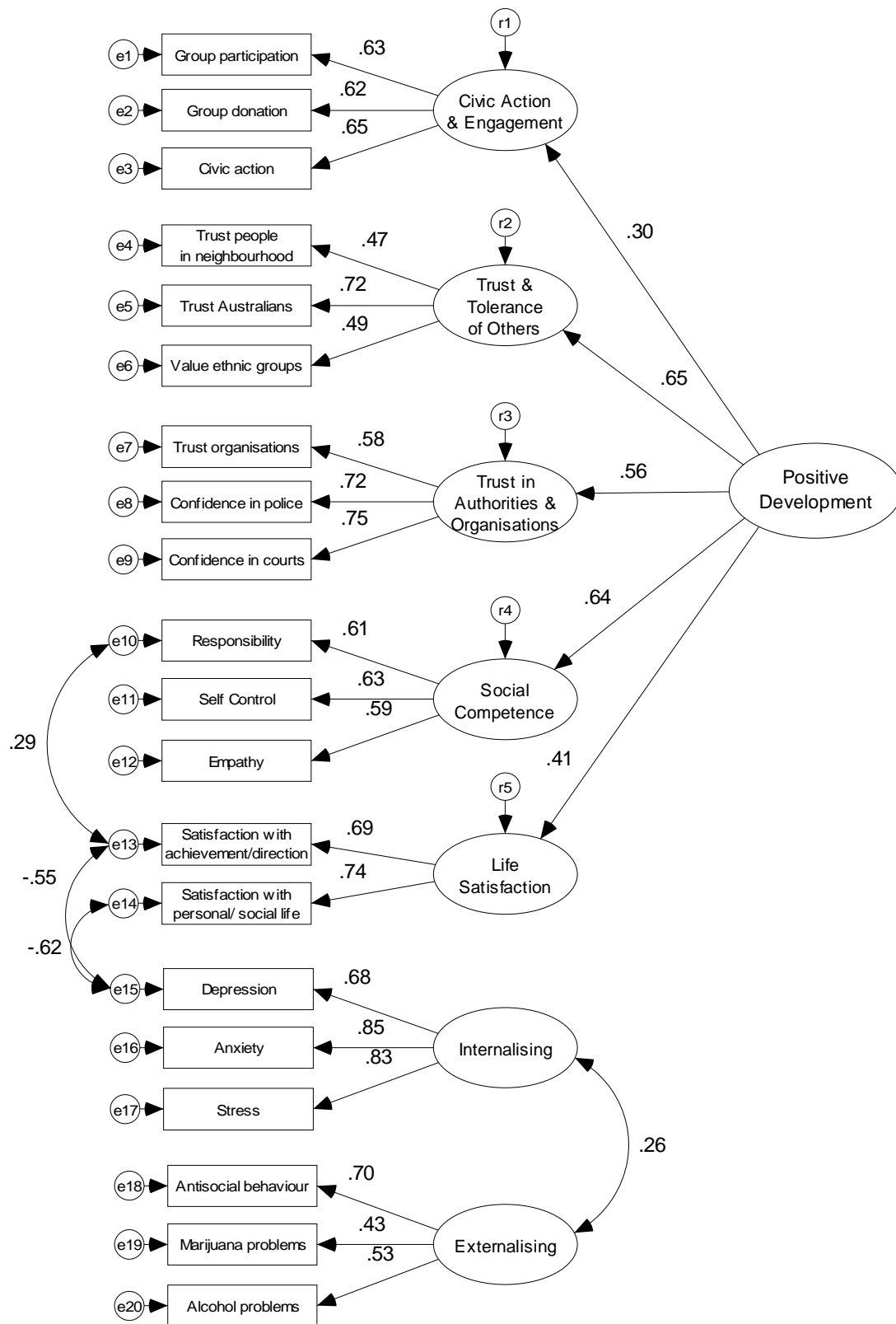


Figure 7. Final Model 2, for the independence hypothesis where positive development and psychology are separate and uncorrelated factors.

Model 3: Inversely related factors. The third model examined the hypothesis that positive development and psychopathology represent distinct but correlated factors. The hypothesised model is presented in Figure 8. The second order positive development latent construct was hypothesised to covary with internalising and externalising problems, which were allowed to covary with one another. The error terms of depression and life satisfaction were also allowed to covary.

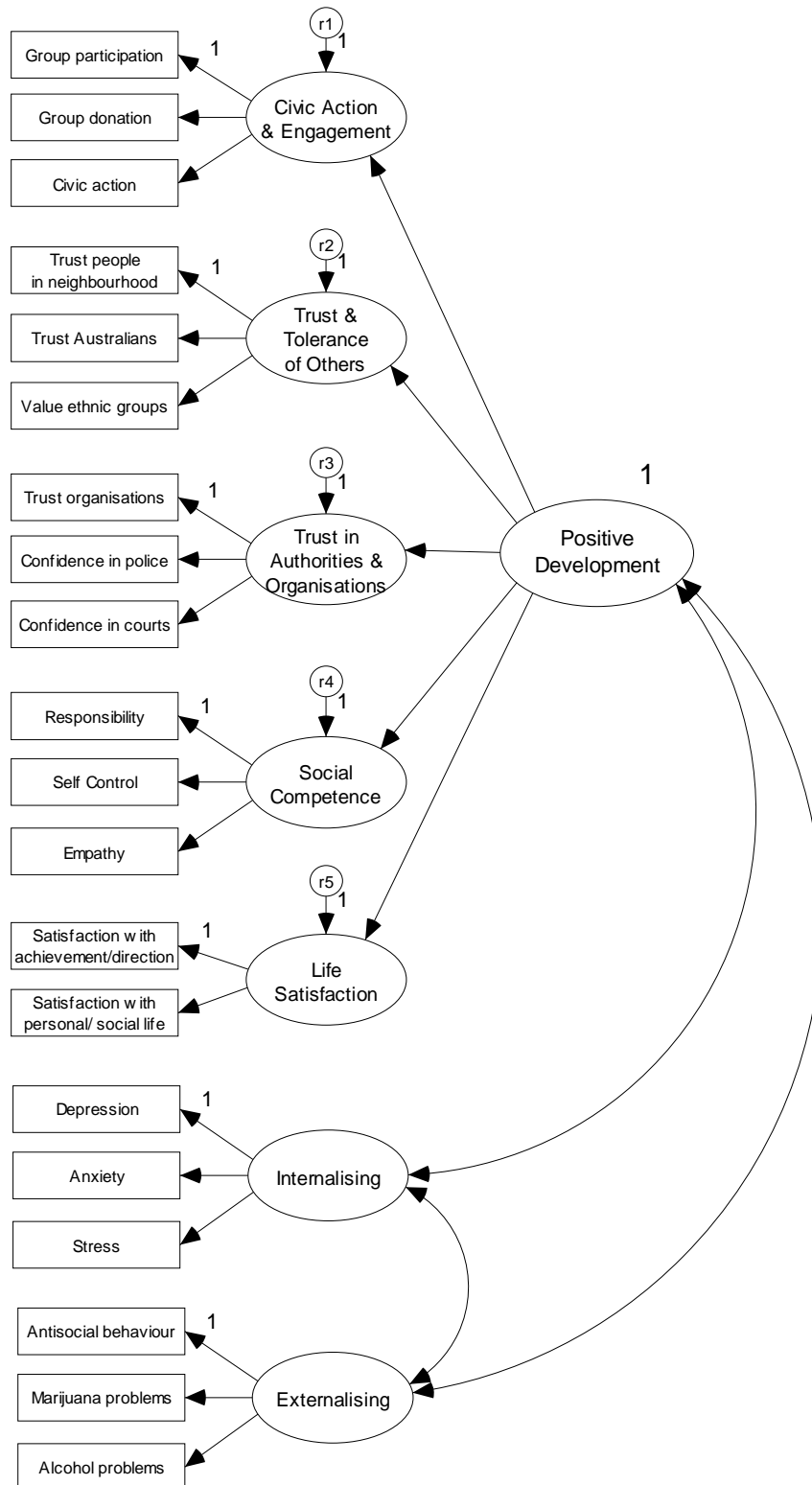


Figure 8. Hypothesised Model 3, of positive development and psychopathology as separate and correlated latent constructs.

This model was a good fit for the data (RMSEA=.05; $\chi^2=699.12$, $p<.001$; GFI=.94; AGFI=.93, RMR=.2; AIC=801.12). Examination of the modification indices suggested that a direct path from depression to life satisfaction would substantially improve the fit of the model. This was considered conceptually coherent with this hypothesis, since it posits a general inverse relationship but does not preclude the possibility that some dimensions will be more strongly interrelated than others. It was also considered to be theoretically meaningful, because anhedonia, or the inability to experience satisfaction and pleasure, is a key symptom of depression (American Psychiatric Association, 2000). Further, a large number of studies demonstrate that depression tends to reduce life satisfaction, and recovery from depression is associated with improved life satisfaction (e.g., Agosti, Stewart, & Quitkin, 1991; Koivumaa-Honkanen et al., 2001; Vuorenmaa, Nordling, Riihikangas, Hintikka, & Viinamaki, 1999). An alternative way of modelling this relationship would be to include depression as an indicator of life satisfaction; however, this would be in error as these constructs do not appear to conform to a single bipolar dimension (Headey, Kelley, & Wearing, 1993). Hence, a path from depression to life satisfaction was included in the model. With the addition of this path the covariance between the error terms of depression and satisfaction with personal/social life was no longer significant, and hence was removed from the model.

Following these modifications, the model was significantly improved ($\Delta\chi^2_{(1)}=103.27$, $p<.001$), and was an excellent fit according to all fit measures examined (RMSEA=.05; $\chi^2=597.45$, $p<.001$; GFI=.95; AGFI=.94, RMR=.02; AIC=699.85). All standardised loadings and covariances were significant at the $p<.001$ level. A stronger latent correlation was observed between externalising problems and positive development (-.60) than between internalising problem and

positive development (-.28), which is likely to at least in part reflect the addition of a direct path from depression to life satisfaction, which also showed a strong negative effect. The final model is presented in Figure 9.

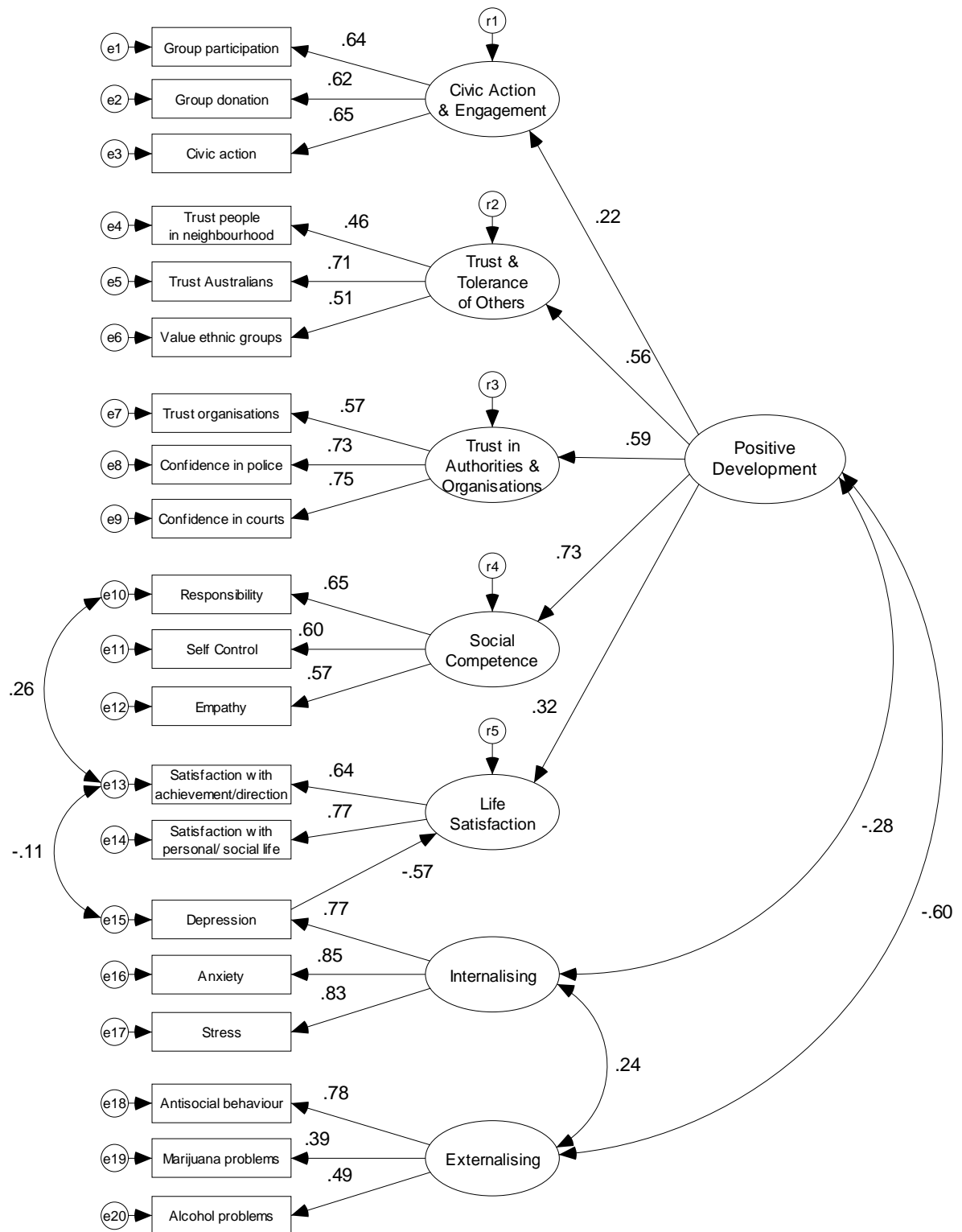


Figure 9. Final Model 3, of positive development and psychopathology as separate but correlated latent constructs.

Model 4: Complex and variable relationship. Model 4 examined the hypothesis that dimensions of positive development and internalising and externalising problems are best represented as first-order constructs that are related in variable ways. In order to develop a hypothesised model, relationships were proposed between constructs on the basis of theory and findings of previous research. It should be noted that Model 4 was thus somewhat more exploratory, which is problematic when using the SEM analytic approach (see section 9.2 for further discussion of this issue). M. Hawkins et al. (2009) conceptualised positive development as interrelated aspects of positive functioning, but some dimensions were expected to share stronger relationships than others. Hence, to reduce the exploratory element of the model, only those relationships expected to be moderate to strong were specified. Trust and tolerance of others, trust in authorities and organisations, and civic action and engagement are all considered important components of social capital (Putnam, 1995a), and thus strong relationships between these factors was hypothesised. Life satisfaction is strongly related to social functioning (Gilman, 2001), and hence was expected to be related to social competence. The capacity to trust others in the social environment and tolerate differences has also been theorised to be integral to successful social functioning (Putnam, 1995b), and thus was also hypothesised to covary with social competence. Internalising and externalising problems show high comorbidity during the transition to adulthood and hence were also assumed to covary (D. L. Newman et al., 1996). Internalising problems have also been found to relate to life satisfaction (e.g., Koivumaa-Honkanen, et al., 2001), and both externalising and internalising problems have been linked to lower social competence (Asarnow, 1988; Fredric, 1974). Given that the measures used to assess trust in authorities and organisations included confidence in the police and courts, it was also expected that it

would covary with externalising problems, which included antisocial behaviours such as breaking the law. The hypothesised model is presented in Figure 10.

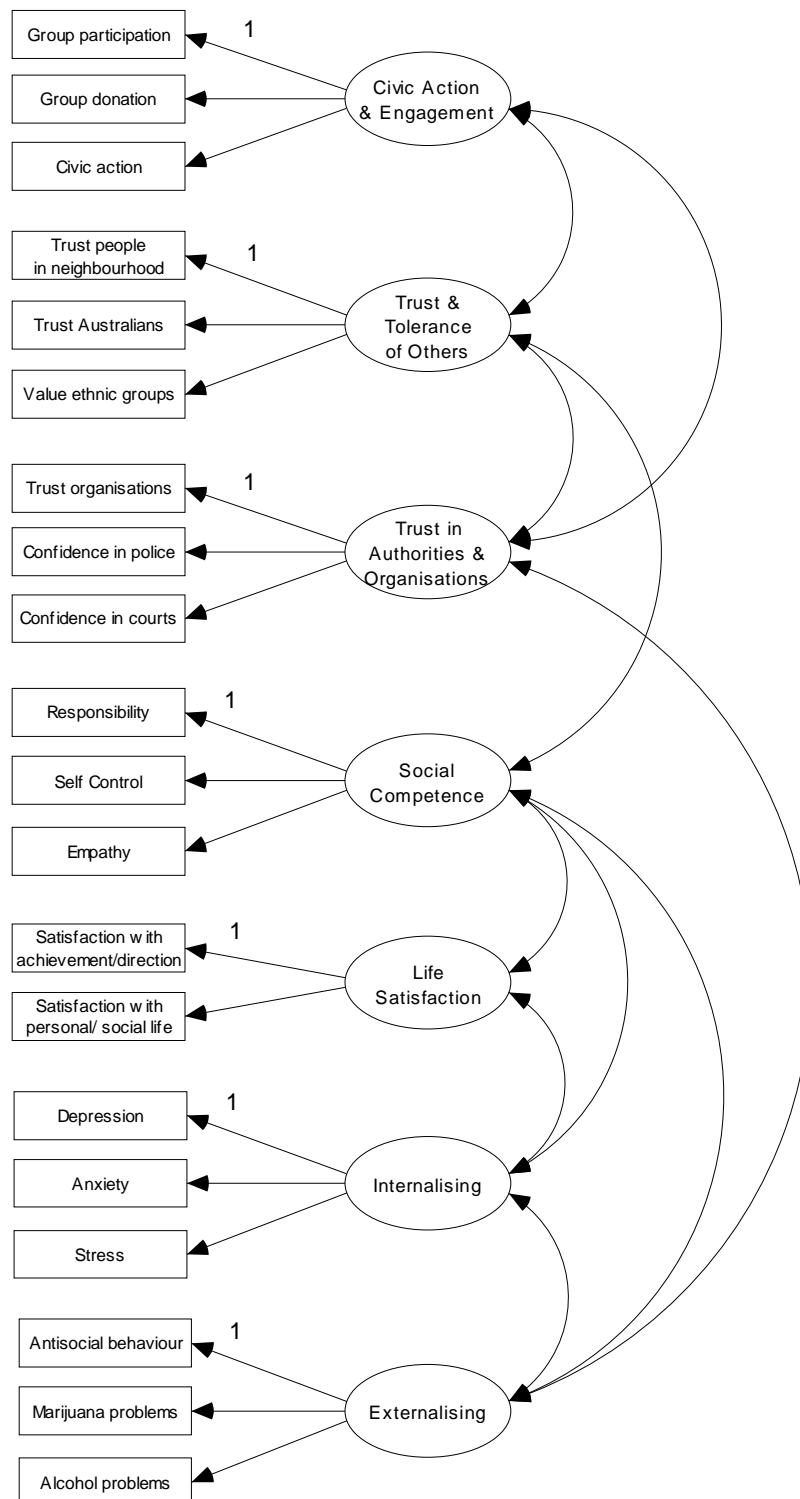


Figure 10. Hypothesised Model 4 of relationships between some first order positive development and psychopathology constructs.

The final Model 4 (see Figure 11) was an acceptable fit (RMSEA=.05; $\chi^2=631.25$, $p<.001$; GFI=.95; AGFI=.93, RMR=.03; AIC=737.25). The modification indices did not suggest any further changes that would substantially improve model fit. Given that the modification indices did not indicate a direct relationship between depression and life satisfaction, the covariance between internalising problems and life satisfaction appeared to adequately account for this relationship. All covariances were significant at the $p<.01$ level. The strength of the relationships between the first order variables ranged from .10 between civic action and engagement and trust in authorities and organisations to -.46 between life satisfaction and internalising problems.

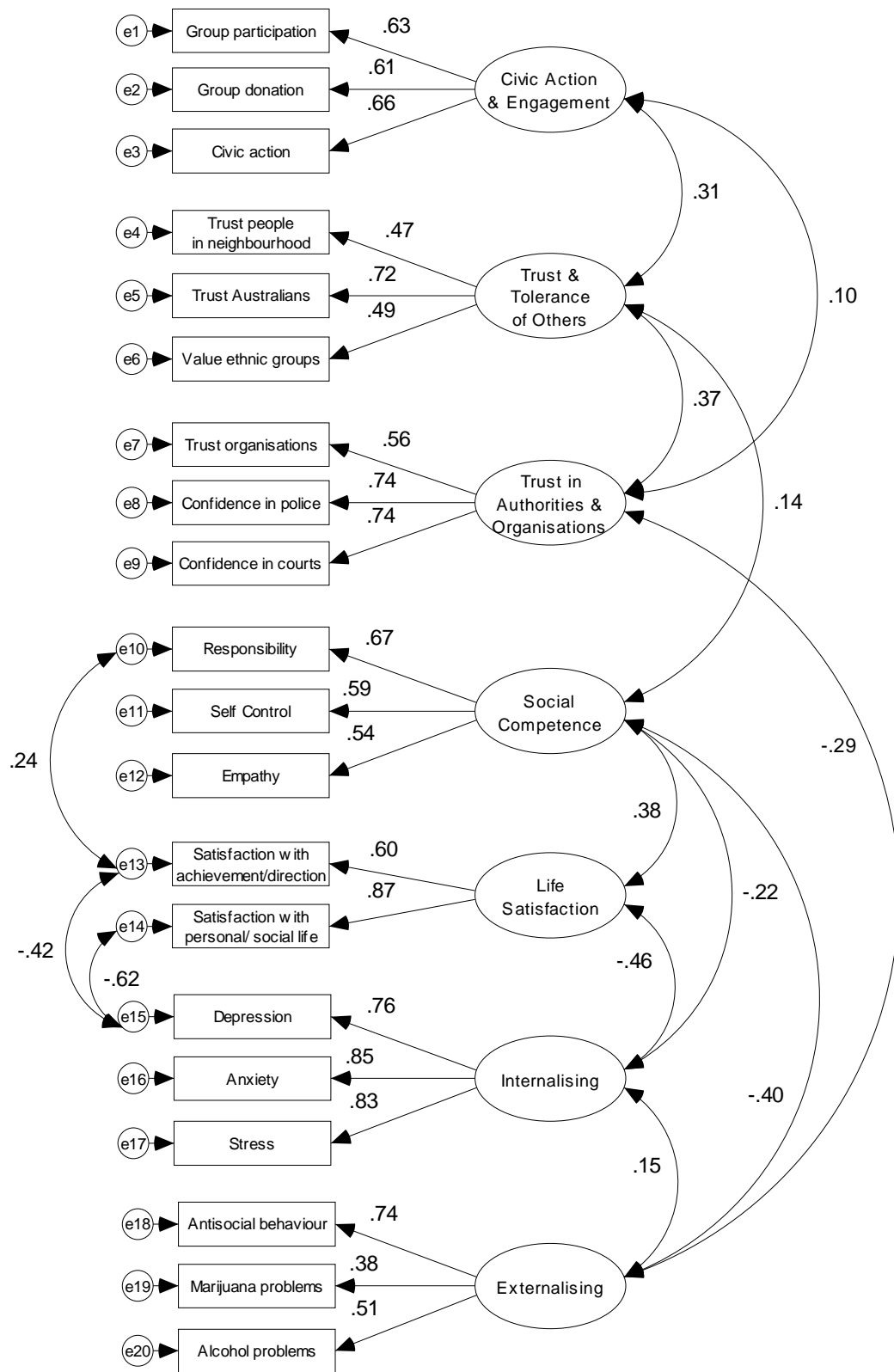


Figure 11. Final Model 4, of the hypothesised relationship between some first order positive development and psychopathology constructs.

8.1.3 Comparison of models

The AIC fit measure can be used to compare models that contain the same observed data and was used to assess the relative fit of the four final models. Lower AIC values indicate relatively better fit. Table 11 presents the fit measures for each model, from the worst fitting model to the best fitting model according to the AIC. The chi-square difference test is another popular means of comparing relative model fit, and Table 11 shows that the improvement to chi-square by each subsequently better fitting model was statistically significant.

Table 11

Comparison of Model Fit across the Four Hypothesised Models

Model	χ^2	<i>df</i>	RMSEA	GFI	AGFI	RMR	AIC	$\chi^2\Delta(df\Delta)$
Model 2: Uncorrelated constructs	918.08	161	.06	.93	.91	.03	1016.08	-
Model 1: Single latent construct	699.15	160	.05	.94	.93	.02	799.15	218.93(1)**
Model 4: Complex relationship	631.25	157	.05	.95	.93	.03	737.25	67.90(3)**
Model 3: Inversely related constructs	597.45	159	.05	.95	.94	.02	699.85	33.80(2)**

**= $p < .01$.

Note. RMSEA=The Root Mean Square Error of Approximation; GFI=Goodness of Fit Index; AGFI=Adjusted Goodness of Fit Index; RMR=Root Mean Square Residual; AIC=Akaike Information Criterion; $\chi^2\Delta$ =Chi-square difference.

When positive development and psychopathology were hypothesised to be separate and uncorrelated constructs (Model 2), the model was a relatively poor fit for the data. Although RMSEA was acceptable, the GFI value did not meet the

recommended cut-off value, and this model had the highest AIC value. The one factor model (Model 1), where positive development and psychopathology were modelled as dimensions of a single latent factor, showed a better fit according to the RMSEA and AIC values. However, the GFI value was still below the acceptable threshold. The complex model (Model 4) was an acceptable fit according to the RMSEA, GFI, AGFI, and RMR values, and had a lower AIC value. However, the third model, where positive development and psychopathology formed separate but covaried latent constructs (Model 3), demonstrated the best fit. This model reached the GFI threshold for acceptable fit, and had the lowest AIC value. The RMSEA value indicates an excellent overall fit of this model to the data. Hence, Model 3 was considered the final best fitting model of the relationship between positive development and psychopathology over the transition to adulthood.

8.1.4 Gender invariance test of final model

The gender invariance of Model 3 was next examined using Byrne's (2001) method to test whether the items comprising the positive development, internalising, and externalising latent factors and the relationships between these latent factors were similar for young men and women. It should be noted that the chi-square difference test is known to be overly sensitive to small differences when sample size is large (Schumacker & Lomax, 2004), and most of the statistically significant differences observed were trivial in magnitude.

Initially, the model was examined separately for each group simultaneously, providing the baseline chi-square value of 744.13 ($df=316$) against which subsequent tests for invariance were compared. Model comparison showed that the constraints did not hold for the two genders ($\Delta\chi_{(6)}=31.87, p<.001$). Further analysis revealed that all factor loadings on the first order latent factors ($\Delta\chi_{(1)}=0.03, p=.86, n.s.$), and on the

second-order positive development factor ($\Delta\chi_{(1)}=0.03$, $p=.86$, n.s.) were gender invariant. However, there was a substantial difference in the path from depression to life satisfaction, which was significantly stronger for young men (-.63) than young women (-.42; $\Delta\chi_{(1)}=7.87$, $p=.01$). Gender invariance also did not hold over the covariances between the latent factors ($\Delta\chi_{(3)}=22.37$, $p<.001$): the covariance between externalising problems and positive development was marginally stronger for males (-.53) than for females (-.51; $\Delta\chi_{(2)}=19.27$, $p<.001$), whereas the covariance between internalising problems and positive development was substantially stronger for females (-.38) than for males (-.25; $\Delta\chi_{(1)}=8.77$, $p=.003$). Hence, the consequences of internalising problems may be more pervasive for young women's positive development, whereas the consequences of depression for young men may be more contained to the domain of satisfaction with life. This is likely to be attributable to the tendency for girls to experience an earlier onset of depression and other internalising problems than boys (Piccinelli & Wilkinson, 2000), as young women therefore tend to have more prolonged experiences of internalising psychopathology, accounting for the more pervasive effects of these problems on their capacity for successful functioning.

8.1.5 Summary

The best fitting model for the data appeared to be one in which positive development and psychopathology were modelled as separate constructs that were allowed to freely covary. The strength of the relationship between positive development and internalising and externalising problems was moderate to strong. Some dimension-specific variability in this relationship was also observed, with a moderate to strong direct relationship between depression and life satisfaction.

8.2 Study 2b: Person centred results

The relationship between positive development and psychopathology was next examined using a person centred analytic approach, in order to identify groups of individuals with similar profiles of scores on positive development and psychopathology dimensions (Bergman & Magnusson, 1997). To this end, a cluster analysis was conducted, by case. This type of cluster analysis identifies cases in a sample with similar scores on a set of variables, and then groups these cases together to form clusters. The resulting clusters are characterised by their pattern of mean scores on each variable (Rapkin & Luke, 1993).

The variables used in the current cluster analysis were scores on the five positive development dimensions (including social competence, life satisfaction, trust and tolerance of others, trust in authorities and organisations, and civic action and engagement), and the two psychopathology dimensions (including internalising and externalising problems). Scores on the internalising and externalising dimensions were imputed using model-based imputation in AMOS from the internalising and externalising latent constructs in the final psychopathology model (see Figure 3 in section 8.1.1), in the same way as described in relation to the imputation of the five positive development dimensions (see section 3.2.1).

The cluster analysis was performed in two stages. Firstly, a hierarchical cluster analysis using Ward's (1963) method was performed with squared Euclidean distances, in order to inform the decision of the number of clusters to extract from the data (Rapkin & Luke, 1993). Ward's method combines cases into clusters based on minimising within-cluster variability (Ward, 1963). The dendrogram showed four main groupings, suggesting that a 4-cluster solution was the most appropriate way of grouping the cases.

In the next stage of the cluster analysis, a second, k-means cluster analysis was performed, with a 4-cluster solution specified. The k-means clustering method begins with a user-specified number of clusters. Cases are then allocated to clusters and reallocated in successive iterations until the within-cluster sums of squares are minimised (Beauchaine & Beauchaine, 2002).

The quality of a cluster solution may be judged by its capacity to reliably classify the majority of the cases, and by the interpretability of the average profile of scores for each cluster (Rapkin & Luke, 1993). In the current 4-cluster solution each cluster group contained a substantial number of cases (>160), and the groups were interpretable based on their mean levels of variables included in the cluster analysis. To further examine the robustness of the solution, the same analysis was performed on a randomly selected two thirds of the sample (Bergman, 2003). All full-sample clusters had a closely matched twin cluster that emerged in the random two thirds sample. Furthermore, 97.27% of cases were assigned to the same cluster during the 2/3 sample analysis. Hence, the solution is likely to be replicable at the population level (Bergman, 2003).

8.2.1 Interpretation of cluster groups

The mean scores of each cluster group on the dimensions of positive development and psychopathology were used to interpret the cluster groupings (see Table 12 and Figure 12). Scores on all variables were converted to standardised values to aid interpretation. Looking at the mean scores, participants in the first cluster group were high in all dimensions of positive development, including civic engagement, and lower than average in psychopathology, and hence could be described as *thriving* (N=178, 15%). The second cluster group was similar to the first, with higher than average levels on all positive development dimensions except civic

engagement, and low psychopathology, and could be described as *well-adjusted* (N=411, 35%). The third group could be described as *idling* (N=409, 35%): they were no higher than average in their levels of psychopathology, yet they had lower than average levels on all positive development dimensions. The fourth group had markedly higher levels of internalising and externalising problems (examination of the original scores confirmed that many young people in this group had internalising problems within the clinically significant range), as well as lower than average levels of all five positive development dimensions, particularly in relation to their life satisfaction, and hence could be described as *distressed* (N=160, 14%).

Table 12

Means and Standard Deviations of Positive Development and Psychopathology Dimensions According to Cluster Group

Variable	Cluster group			
	Thriving	Well-adjusted	Idling	Distressed
Positive development				
Social competence	.56(.80)	.59(.66)	-.62(.85)	-.55(1.02)
Life satisfaction	.42(.81)	.62(.68)	-.37(.75)	-1.13(1.05)
Trust and tolerance	.73(.77)	.56 (.66)	-.70(.81)	-.45(.97)
Trust in authorities	.35(.89)	.50(.83)	-.48(.89)	-.46(1.00)
Civic engagement	1.76(.92)	-.21(.48)	-.53(.53)	-.08(.86)
Psychopathology				
Externalising	-.19(.70)	-.25(.62)	.11(1.12)	.58(1.40)
Internalising	-.18(.69)	-.46(.55)	-.19(.58)	1.87(.94)

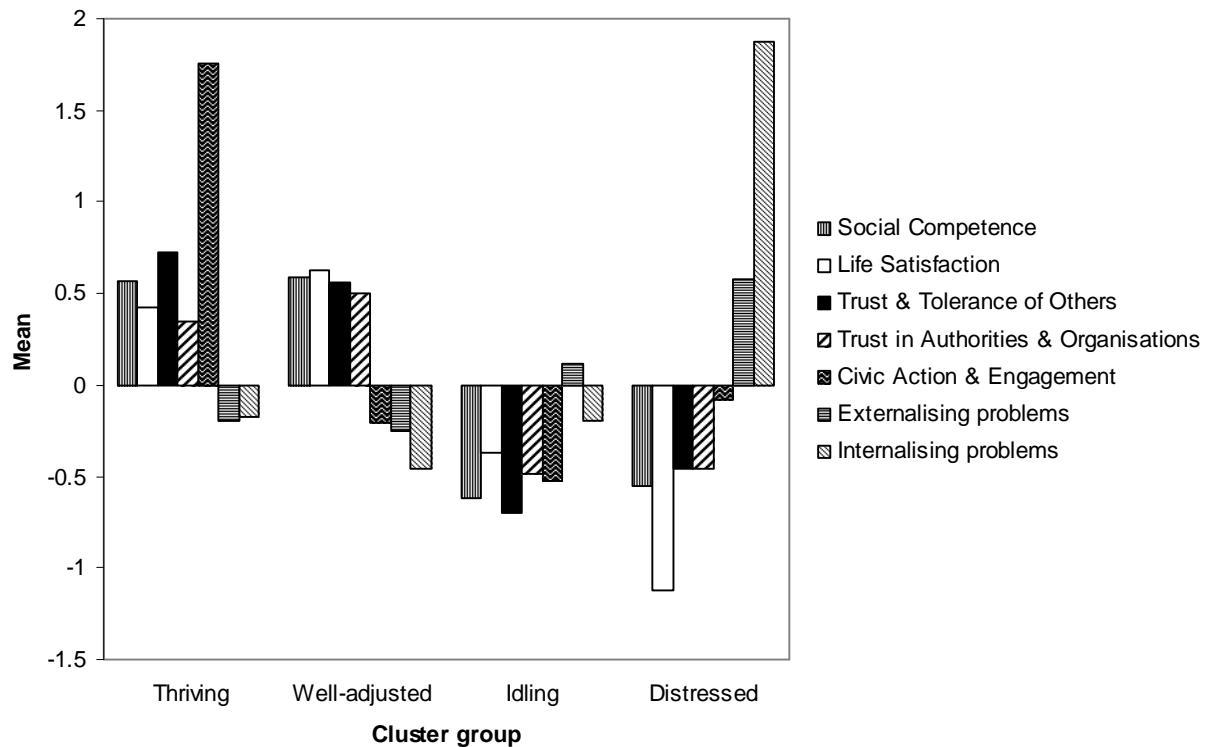


Figure 12. Levels of positive development and psychopathology dimensions according to cluster group.

To further aid interpretation of the cluster groups, a multivariate analysis of variance (MANOVA) was performed to examine whether the differences between clusters on the positive development and psychopathology variables were statistically significant (Rapkin & Luke, 1993). The analysis yielded a significant multivariate effect for cluster membership ($F(7, 1150)=348.92, p<.001$). Univariate effects were then examined with Bonferroni adjustment of the critical p value to control the risk of Type 1 error. The results revealed significant univariate effects for all dimensions of positive development and psychopathology, including social competence ($F(3, 1154)=209.8, p<.001$), life satisfaction ($F(3, 1154)=245.32, p<.001$), trust and tolerance of others ($F(3, 1154)=250.68, p<.001$), trust in authorities and organisations ($F(3, 1154)=108.06, p<.001$), civic action and engagement ($F(3, 1154)=554.78,$

$p < .001$), internalising problems ($F(3, 1154) = 529.42, p < .001$), and externalising problems ($F(3, 1154) = 33.1, p < .001$).

Post-hoc comparisons were conducted using the Tukey HSD test. Looking firstly at differences across the clusters in their levels of positive development dimensions, the results revealed that the well-adjusted and thriving groups had significantly higher levels of social competence than the idling and distressed groups. All groups were significantly different in their levels of life satisfaction: the well-adjusted group had the highest level, followed by the thriving and idling groups, with the distressed group reporting the lowest levels of life satisfaction. All groups were also significantly different in their levels of trust and tolerance of others, with the exception that the well-adjusted and thriving groups did not significantly differ. The well-adjusted and thriving group reported the highest levels of trust and tolerance of others, followed by the distressed cluster, and finally the idling group. In relation to trust in authorities and organisations, the well-adjusted and thriving groups had significantly higher levels than the idling and distressed groups. The thriving group had significantly higher levels of civic action and engagement than all other groups, and the well-adjusted and distressed groups were significantly higher in civic action and engagement than the idling group.

Turning to examination of group differences in levels of psychopathology, the results revealed that the thriving and well-adjusted participants had significantly lower levels of externalising problems than the idling and distressed groups, and that the distressed group had significantly higher levels than those categorised as idling. All groups were significantly different in their levels of internalising problems, with the somewhat surprising exception that the thriving group was not significantly different from the idling group. The well-adjusted group had the lowest levels of internalising

problems, followed by the thriving and idling groups. The distressed group had markedly higher levels of internalising problems than all other groups. It should be noted that some statistically significant differences were very small in magnitude. A descriptive summary of the characteristics of each cluster is provided in Table 13.

Table 13

Summary Descriptions of Cluster Groups

Cluster	Description
Thriving (N=178, 15%)	High on all dimension of positive development, including civic engagement, and low in psychopathology
Well-adjusted (N=411, 35%)	High on all dimensions of positive development except civic engagement, and low in psychopathology
Idling (N=409, 35%)	Low on all dimensions of positive development, and average in levels of psychopathology
Distressed (N=160, 14%)	Low on all dimensions of positive development, with particularly low life satisfaction, and high levels of psychopathology, especially in relation to internalising problems

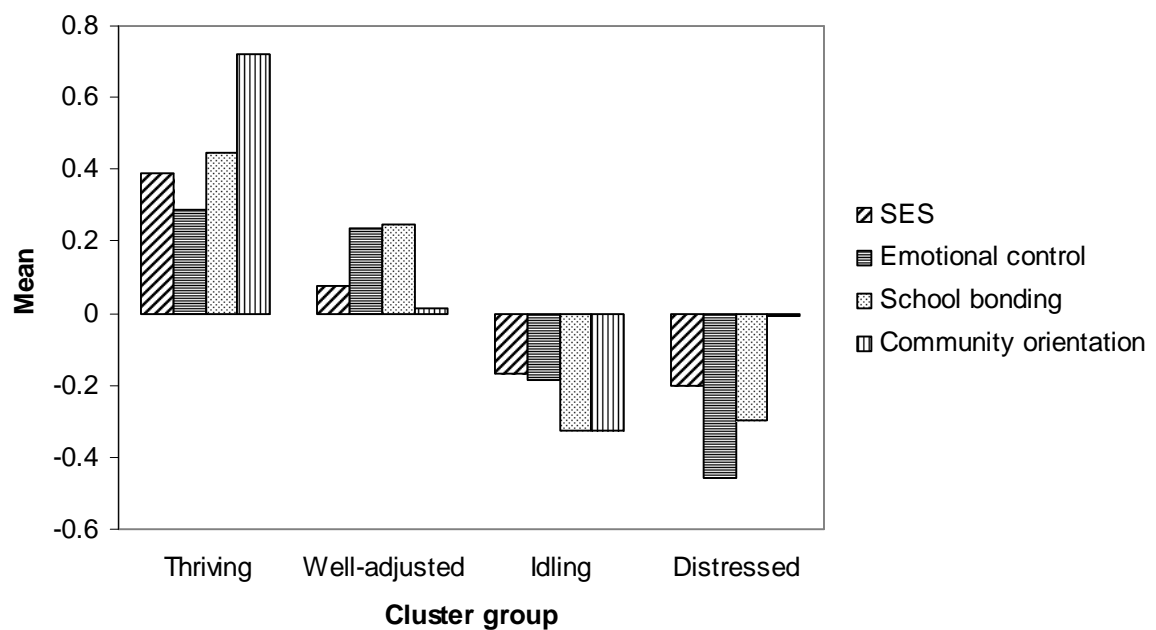
8.2.2 Comparison of clusters on key predictors

Next, the relationships between the cluster groups and the most salient predictors of positive development dimensions identified in Study 1 (see Chapter 4) were examined. These key predictors included gender, socioeconomic status (hereafter SES) in childhood, and emotional control, school bonding, and community orientation in adolescence. Levels of these key predictors according to the cluster groupings are summarised in Table 14 and Figure 13.

Table 14

Means and Standard Deviations of Key Predictors According to Cluster Group

Variable	Cluster			
	Thriving	Well-adjusted	Idling	Distressed
SES	.39(.97)	.08(1.00)	-.17(.98)	-.20(.94)
Emotional control	.29(.98)	.24(.98)	-.18(.91)	-.46(1.04)
School bonding	.45(.94)	.25(.91)	-.33(.94)	-.30(1.06)
Community orientation	.72(1.07)	.01(.91)	-.32(.88)	.00(1.03)

*Figure 13.* Levels of key predictors according to cluster group.

A MANOVA was performed with these five key predictors as dependent variables, and cluster membership as the independent variable. The analysis yielded a significant multivariate effect for cluster membership ($F(5, 1152)=60.82, p<.001$). Univariate effects were then examined with Bonferroni adjustment of the critical p value to control the risk of Type 1 error. The results revealed significant univariate effects for all variables included in the model: gender ($F(3, 1154)=7.48, p<.001$), SES

($F(3, 1154)=16.48, p<.001$), emotional control ($F(3, 1154)=30.29, p<.001$), school bonding ($F(3, 1154)=43.81, p<.001$), and community orientation ($F(3, 1154)=51.10, p<.001$). Hence, early precursors were able to differentiate between the cluster groups.

Post-hoc comparisons were then conducted using the Tukey HSD test to identify which clusters were significantly different from one another on these factors. The results revealed that the idling group had significantly more males than the thriving and well-adjusted groups (see Table 15). Looking at SES, the thriving group had the highest SES levels, followed in turn by the well-adjusted, idling, and distressed groups, with all group differences statistically significant except for the difference between the idling and distressed groups. All groups were significantly different in their levels of emotional control, with the exception that the well-adjusted and thriving groups did not significantly differ. The thriving and well-adjusted groups had the highest levels of emotional control, followed by the idling group, with the distressed group reporting the lowest levels of emotional control. Looking at school bonding, the thriving and well-adjusted groups had significantly higher levels than the idling and distressed groups. The thriving group had significantly higher levels of community orientation than all other groups, and the idling group had significantly lower levels than the other groups. The well-adjusted and distressed groups were average in the degree to which they were oriented towards the community, and did not differ significantly from one another in that regard.

Table 15

Proportion of Males and Females According to Cluster Group Expressed as a Proportion of Males and Females in the Sample

	Males	Females
Thriving	12.1%	17.9%
Well-adjusted	31.9%	38.3%
Idling	42.3%	29.8%
Distressed	13.7%	13.9%

8.2.3 Summary

The person centred analyses revealed a degree of heterogeneity in the sample in how positive development and psychopathology were related. Four main groups emerged from the data. Those who were *thriving* showed high levels of positive development, average levels of psychopathology, and were highly engaged with their communities. They tended to come from higher SES backgrounds, have good control of their emotions, and feel connected to their school and community in adolescence. *Well-adjusted* participants were doing well and had low levels of psychopathology, although they were less engaged with the community. These participants also had good control over their emotions, but were less bonded to their schools and communities in adolescence. The third group, *idling*, were low in positive development, but were average in their levels of psychopathology. Hence, they did not appear to be succeeding, but neither were they suffering. Males were overrepresented in this group, and this group appeared to have particularly low feelings of connection to the wider community during adolescence. The fourth group, *distressed*, were experiencing the greatest difficulty during this time. They were low in positive development and particularly dissatisfied with their lives, and were

experiencing a high level of internalising and externalising problems. This group was characterised by particularly poor control of their emotions in adolescence.

8.3 Overall summary

Overall, young people in this sample appeared to be faring well, with high levels of positive adaptation and low levels of mental health problems, although stress and problems associated with alcohol use were more common than the other aspects of psychopathology examined. Study 2a tested competing models of the relationship between positive development and psychopathology, and found that the best fitting model was one in which these constructs were conceptualised as distinct but inversely related phenomena. Study 2b extended and refined this picture to document substantial within-sample variability in young people's experiences of these positive and problem outcomes.

CHAPTER 9: DISCUSSION OF STUDY 2 RESULTS

Study 2 examined the relationship of positive development to psychopathology. This question has important implications for theory, including theoretical accounts of the nature of positive development, and for interventions, such as whether focusing on reducing psychopathology is likely to promote positive development, and whether interventions focused at targets like those identified in Study 1 are likely to reduce psychopathology. Study 2 took first a variable centred and then a person centred approach to exploring the four hypotheses of the nature of this relationship described in section 6.1. This chapter first examines the evidence for each of these hypotheses. Next, the limitations specific to Study 2 and implications of these findings are examined in sections 9.2 and 9.3.

On average, participants were faring well. As discussed in section 4.2, participants showed relatively high levels of positive development, and as illustrated in Chapter 8 the sample as a whole demonstrated low levels of internalising or externalising symptoms (although experiences of stress and problems associated with alcohol use were more common). However, as demonstrated by the identification of the ‘distressed’ group in the person centred analysis, clinically significant levels of mental health problems were evident for a minority of young people.

9.1 Comparison of evidence across hypotheses

This section examines the evidence for each of the four hypotheses described in section 6.1, ordered from the least supported to the most strongly supported, and integrating both the variable and person centred findings. Overall, the evidence supports the conceptualisation of positive development and psychopathology as distinct constructs that share a moderately strong inverse relationship, although there are significant exceptions to this trend.

9.1.1 Independent constructs

The results of both Study 2a and 2b clearly indicate that there is some relationship between positive development and psychopathology. Indeed, the model representing these constructs as independent of one another was the worst fit for the data of all the models examined. This finding challenges the hypothesis that these are largely independent constructs, a view that has been implicit in some positive psychology literature (Joseph & Linley, 2006b; Sheldon & King, 2001). A likely reason for this divergence in results is that much of this literature has focused on specific indicators of positive functioning, such as altruism (Krueger, et al., 2001) or optimism (Robinson-Whelen, et al., 1997). In contrast, the current findings consider a multidimensional positive development construct and take into account both internalising and externalising pathology.

9.1.2 A single construct

Looking at the hypothesis that positive development and psychopathology reflect dimensions of a single construct, findings from both the variable and person centred analyses strongly challenge this position. Although the single construct structural equation model was judged an adequate fit for the data when examined in isolation, fit was stronger for the differentiated model. Furthermore, over one third of the sample was characterised as ‘idling’ (with both low positive development and low psychopathology) in Study 2b, suggesting that low psychopathology does not indicate the presence of high positive development for a significant proportion of young people. This calls into question the practice of including dimensions of psychopathology as negatively loading indicators in models of positive development (e.g., Masten, et al., 1995). It also strongly points to the importance of comparing a number of plausible solutions when developing models of positive development and

its correlates, as a good fit does not preclude the possibility of other better fitting models (see section 9.3; MacCallum & Austin, 2000).

9.1.3 Complex and variable relationship

The hypothesis predicting a complex and variable relationship between indicators of positive and problem functioning was the most difficult hypothesis to operationalise and test. Nevertheless, the results offer significant disconfirming evidence for this hypothesis. The SEM results demonstrated that a model reflecting this hypothesis was a relatively poorer fit for the data, although there were limitations to this particular analysis (see section 9.2). Furthermore, this model was less conceptually meaningful, with civic action and engagement no longer substantially contributing to the positive development construct.

The person centred analysis similarly provided negative evidence for this hypothesis. Contrary to Kosterman et al.'s (2005) findings, stronger development on one dimension of positive development tended to co-occur with stronger development on others, and vice versa; and similarly the two psychopathology dimensions tended to co-occur. An exception was civic action and engagement, which appeared to show a somewhat different relationship to psychopathology than the other aspects of positive development: for example, thriving participants had both higher levels of civic engagement and slightly higher levels of internalising symptoms than the well-adjusted group. Both of these group differences were statistically significant. Although causation cannot be inferred from this association, it would seem to be consistent with previous research suggesting that civic engagement is associated with some psychological strain. For example, Zarrett et al. (2009) identified clusters of adolescents with different patterns of group participation and found that highly engaged young people had higher levels of depression than some less engaged youth.

Another exception was the particularly strong negative association observed between life satisfaction, a dimension of positive development, and depression, a dimension of internalising problems, in the final structural equation model. Numerous other studies have also observed a strong inverse relationship between these variables (e.g., Agosti, et al., 1991; Koivumaa-Honkanen, et al., 2001). In the current model, the relationship between depression and life satisfaction was better represented as a direct path rather than as a component of the broader association between the internalising problems and positive development constructs. Depression and life satisfaction probably have such a strong relationship because they are measured according to similar global cognitions about oneself and one's life (David, et al., 2010). Furthermore, anhedonia, or the inability to experience satisfaction and pleasure, is a key symptom of depression (American Psychiatric Association, 2000). However, given that the relationship between life satisfaction and depression was the only association that was not adequately accounted for by the associations between the higher level constructs, there was general disconfirmation of the hypothesis that no meaningful overarching relationship could be discerned. This suggests that examination of these higher-order relationships is of value.

9.1.4 Separate, inversely related constructs

The positive youth development view that positive development and psychopathology reflect distinct dimensions that share a strong inverse relationship was the most strongly supported of the four hypotheses, although aspects of this hypothesis need to be tempered. In the variable centred analysis, a model reflecting this hypothesis was found to be the best fitting model for the data. This agrees with J. Hawkins et al.'s (1999) finding that the same intervention could both reduce problem outcomes and promote positive outcomes (although the effects appeared to be longer

lasting for positive outcomes; J. Hawkins, et al., 2005), and Oesterle et al.'s (2008) demonstration of the negative association over time between positive functioning and problematic alcohol use. It also extends upon these studies by providing support for both studies' initial assumption that positive development and psychopathology during emerging adulthood represent distinct phenomena rather than poles of a single dimension (an alternative explanation for their findings). In this regard the current findings replicate those of Keyes (2005), who found that for a sample of adults aged 25-74 years, mental health and mental illness were best represented as separate, inversely correlated constructs rather than as a single dimension.

The strength of the association observed between positive development and externalising problems in the final SEM model was also consistent with the positive youth development hypothesis. This relationship was somewhat stronger than that found in previous studies of adolescents. For example, the concurrent correlation between positive youth development and externalising problems observed by Phelps et al. (2007) when participants were in Grade 7 was $-.41$, compared to a latent correlation of $-.60$ in the current study. This is likely to be at least partly due to the SEM methodology, which removes error from relationships. However, Jellicic et al. (2007) also used SEM and similarly found that the relationship between positive development in Grade 5 (mean age 11) and risk taking behaviours (indicated by substance use and delinquency) one year later was weak to moderate (path loading of $-.35$). In early adolescence, support from family and school may provide some buffering of the effects of externalising behaviours on an individual's capacity for successful functioning. In contrast, emerging adulthood is characterised by little institutional support and young people are heavily reliant on their own resources and capacity to cope with the challenges of this time as self-sufficient individuals (Arnett,

2006; Cote, 2006). Hence, externalising behaviours may be less reconcilable with positive development during this time, particularly for those young people with fewer personal and environmental resources. The relationship between positive development and internalising problems was somewhat weaker although still moderately strong; see section 9.1.3 for further discussion.

Although still generally consistent with this hypothesis, the person centred findings present a somewhat more complex picture. The patterns of high positive development/low psychopathology, and vice versa, characterised around half the sample (the thriving and distressed groups). The other groups had mixed patterns; for example, the idling group, who were low in positive development, had similar levels of internalising problems as young people in the thriving group which had uniformly high levels of positive development. It is important to note these exceptions to the general trend for young people who were high in positive development to have lower psychopathology, and vice versa. The current findings are consistent with some drawing on adolescent samples (e.g., Phelps, et al., 2007; Zimmerman, et al., 2008) that have recently led Lerner and colleagues to suggest that for a minority of adolescents high positive development may not coincide with low problem outcomes, and vice versa (Lerner, 2009). It is notable that in the current sample, the proportion of young people whose experiences fell outside the general trend was quite substantial.

Finally, the person centred findings strikingly illustrated the positive youth development tenet that ‘problem free is not fully prepared’ (Pittman & Fleming, 1991: p. 3). Young people in the idling group were relatively untroubled by psychopathology, yet they were unsatisfied with their lives, low in social competencies, and poorly adjusted to authority. Keyes (2005) identified a similar

group in an adult sample who did not meet criteria for a mental illness but were low in emotional, psychological, and social well-being. Like Keyes, this finding is compelling in suggesting that the absence of mental illness does not ensure the presence of mental health and well-being, and reiterates the importance of moving beyond a purely deficit-based view of what constitutes ‘good’ development (Moore, Lippman, & Brown, 2004). Given that the idling group constituted a significant proportion of the sample, it may also lend weight to critiques of Arnett’s (2000) model of emerging adulthood, which challenge how positively this period has been presented in his work (see section 1.4.1).

9.2 Limitations and future research

In this research, positive development and psychopathology were measured at a single time point (at 19-20 years), a first important step in understanding their relationship. However, this cross-sectional modelling is a notable limitation of the current study. Longitudinal analyses would allow previous experiences of psychopathology and positive development to be controlled for, thus providing an indication of the likely direction of effects (that is, whether positive development protects against psychopathology or psychopathology impedes positive development, or a combination of both). See section 10.2.1 for further discussion of this issue.

The current study was able to go some way towards evaluating the ‘complex and variable’ relationship hypothesis, although it necessarily involved a substantial exploratory element. Structural equation modelling can capitalise on random fluctuations in data and hence is not recommended for exploratory research (Byrne, 2001). Therefore, the results in relation to this model should be interpreted with caution. However, the person centred analysis was able to examine this hypothesis in

more depth, and its findings were concordant with the variable centred results in that little evidence for this hypothesis was found.

An enduring issue in this area is the need for better developed theory. There has been little theoretical discussion of the underlying processes that might account for observed relationships between positive and negative outcomes, with the majority of previous research either making implicit assumptions about this relationship or taking the positive youth development standpoint that positive and negative outcomes are inversely related, which is theoretically somewhat thin and does not provide much direction for intervention. Hence, the current research helps to advance theoretical conceptualisation of the nature of this relationship, although more explicit and nuanced discussion of these issues is needed (Phelps, et al., 2007), particularly in relation to the underlying processes that account for this relationship.

9.3 Implications

The findings have important implications for the development of theories, models, and interventions. In regard to how the relationship between positive development and psychopathology should be conceptualised the findings strongly suggest that models of positive development should not include indicators of psychopathology as dimensions of positive development. Nevertheless, the clear relationship between positive development and psychopathology also suggests that positive development research would benefit from extending models to include separate but related psychopathology constructs, as measuring only positive development will not provide a complete picture of how an individual is faring.

An important message from this research is that empirical model development (not only in the area of positive development) should as a matter of course compare a number of plausible models, as the current findings clearly demonstrate that it is

relatively easy to achieve adequate model fit but that this does not necessarily correspond to the best possible model. Only model comparison can indicate this (although obviously still constrained by the adequacy of the models tested; Burnham & Anderson, 2002; MacCallum & Austin, 2000). Given that most previous literature has either not empirically tested their conceptual model at all, or examined only a single model, it is not surprising that there has been so much disagreement in the literature.

Turning to implications for intervention, a central research question was whether the evidence suggested that interventions aimed at reducing psychopathology are likely to promote positive development and vice versa. Given the moderate strength of the associations observed between positive development and aspects of psychopathology, the current findings suggest that development in one domain is likely to influence the other, but that there is also variability in the extent to which higher positive development is associated with lower psychopathology. This variability was particularly evident in the person centred analyses; for example, for those young people in the idling group, intervention to reduce mental health problems is likely to be ineffective in promoting their positive development. Therefore, some distinct and specific developmental pathways may also be influencing positive and problem outcomes (Lerner, 2009). Hence, the findings support Keyes's (2007) conclusion that as well as initiatives to address mental illness, a complementary strategy of the promotion and maintenance of well-being is needed. The current findings also support Zimmerman et al.'s (2008) warning against a 'cookie cutter' or generic intervention approach, given the diversity of experiences identified by the person centred analyses.

9.4 Summary

This study investigated the relationship between positive development and psychopathology using both variable and person centred analyses. Study 2a, comparing four models of the relationship between positive development and psychopathology, found that they were best represented as separate constructs with a moderately strong inverse relationship. The person centred approach in Study 2b identified a number of underlying groups with different experiences of positive and problem outcomes, and for a substantial proportion of young people, lower psychopathology did not correspond to higher positive development. Overall, the evidence supports the conceptualisation of positive development and psychopathology as distinct constructs that share a moderately strong inverse relationship, although there are many exceptions to this trend.

CHAPTER 10: GENERAL DISCUSSION

As discussed in Chapter 1, the transition to adulthood is a time of great potential for positive change in life course trajectories (Masten, et al., 2006), as well as a period in which the incidence of problem outcomes is relatively high (Smart & Sanson, 2005). This observation was reflected in the current research where levels of positive development were generally high, and although levels of mental health problems were on average low, a number of young people showed clinically significant symptomatology. As Masten et al. (2004) observe, ‘intervening to foster the conditions for positive change during the transition to adulthood requires a more solid base of knowledge than presently exists’ (p. 1092). Hence, this thesis aimed to contribute to understanding of the nature of positive development and how the potential for healthy development can be promoted in young people.

To this end, Study 1 examined the unique capacity of a diverse range of individual, relationship, family environment, and community engagement factors over childhood and adolescence to account for an empirically validated measure of positive development. The identification of antecedent factors for the five dimensions of successful development during emerging adulthood (social competence, life satisfaction, trust and tolerance of others, trust in authorities and organisations, and civic action and engagement) indicates a number of potential intervention targets to promote healthy adaptation over this period. These predictors were similar to those for the overall positive development construct, lending weight to this conceptualisation of healthy development.

A greater understanding of the relationship between positive development and psychopathology, including the degree to which identical or separate developmental pathways are at play, is critical to the development of theory and successful

interventions. Study 2 avoided the confirmation bias of previous research by comparing four competing conceptualisations of this relationship. The results indicated that experiences of psychopathology are generally detrimental to positive development. However, person centred analysis revealed that this average level trend needs to be qualified, as many young people experienced aspects of successful adaptation in the context of some psychopathology, and others showed low positive development in the absence of psychopathology. Hence, interventions aimed at reducing psychopathology are likely to have some benefits to positive adaptation, but not to be sufficient in isolation. The intervention targets identified in Study 1 are likely to be effective in promoting these specific positive developmental pathways.

This chapter starts by examining an important caveat of the research relevant to both studies, and its impact on the conclusions that can be drawn. Section 10.2 then examines methodological and conceptual issues that require investigation in future research in order to advance the field. This is followed by a discussion of the broader implications of this research in section 10.3.

10.1 Limitations

While this research has a number of strengths including its large community based sample with data spanning over two decades and the use of an empirically tested measure of positive development, it has a number of limitations. Those specific to Study 1 and Study 2 have been discussed in Chapters 5 and 9. To reiterate briefly, in relation to Study 1, the lack of data on positive development in earlier developmental periods and hence inability to control for its effects means that the direction of effects is still an issue, and the breadth and exploratory nature of the research means that the risk of identifying a significant effect by chance alone is increased. For Study 2, the cross-sectional design means that the direction of effects is

also unclear, and the exploratory nature of the 'complex and variable' hypothesis made it less amenable to testing through the SEM methodology.

A further limitation impacting on the conclusions that can be drawn from this research is that the attrition rate over the two decades of data collection has been substantial, with the participants at 19-20 years representing three quarters of the remaining sample. Some attrition is expected over such a significant period of time, and this level of attrition is similar to that observed in other large longitudinal studies of young adults (for example, Young, Pwers, & Bell, 2006). However, non-random attrition is more problematic (Eaton, Anthony, Tepper, & Dryman, 1992), and the attrition analysis indicated that the respondents retained in the current sample were somewhat higher in socioeconomic status and less ethnically diverse than the original sample (see section 3.1).

Despite this loss of participants, the retained sample continued to include participants from a wide range of backgrounds and there was considerable diversity in how young people were faring on the positive development and mental illness indicators (see section 4.2 and Chapter 8). Levels and distributions of scores on, for example, the Depression Anxiety Stress (DAS) scales measuring internalising problems were very similar to those in other large non-clinical samples (Crawford & Henry, 2003; Henry & Crawford, 2005). Hence, on average this sample appeared to be functioning slightly better than the population, but continued to include a diverse range of young people whose levels of psychopathology were commensurate with other community samples. Therefore, the possible influence of attrition on the results is likely to be small, but as always the results would benefit from replication.

10.2 Future directions

This research has provided valuable insights into the nature and promotion of positive development, and suggests a number of avenues for further investigation to advance the field. Methodological issues will be considered below, before turning to broader conceptual issues.

10.2.1 Methodological issues for further investigation

The ATP questionnaire at 19-20 years asked young people about numerous facets of their lives using rating scales with conventional Likert scale response options, and this information was used to construct the positive development measure. Hence, participants provided their own perspectives on aspects of their lives, but were constrained by the questions and response formats of the questionnaire. There is an increasing interest in children and young people playing more active roles in research (*Involving children and young people in research*, 2008). It is argued that concerns about the reliability of self report should be balanced with humanistic values that recognise the individual as the expert on their own experience (McLeod, 1999). The inherently subjective nature of most of the dimensions of positive development examined means that young people's experiences and views are particularly relevant (M. Hamilton & Redmond, 2010). More broadly, incorporating young people's voice into social research is important from a rights perspective and can add to a richer and more complex picture of their health and well-being (Grover, 2004). Wyn (2008) reviewed the few Australian studies that have examined young people's perspectives on healthy development using more open-ended or qualitative research methodologies, and found that physical safety, the ability to make decisions, and having a positive sense of self were central dimensions. Hence, it would be valuable for future research to incorporate young people's own perspectives on what

constitutes healthy development for themselves and their peers during this transition period, and to combine these with insights from quantitative methods such as those in the current study. A challenge for this type of work will be how to integrate the qualitative and quantitative information, especially when discrepancies arise.

As discussed in sections 5.3 and 9.2, there is a clear need for longitudinal data on positive development from childhood through to adulthood (Mahoney & Bergman, 2002). Although the ATP has extensive early data on potential precursors, it did not gather data on all positive development dimensions over childhood and adolescence, partly because not all of these dimensions are developmentally appropriate in earlier periods. A complexity in examining positive development longitudinally is that some dimensions are likely to differ in salience over developmental periods (for example, civic action and engagement may be largely irrelevant to childhood and early adolescent conceptions of well-being), whereas other dimensions (such as social competence) may remain salient from childhood through adulthood but have different indicators with increasing age (Waters & Sroufe, 1983). As noted above, the lack of longitudinal data on positive development means that the directionality of effects is still at issue in the current research. Future research could work to overcome these challenges and collect positive development data longitudinally. Such longitudinal data would allow further interesting research questions, building on the current findings, to be addressed, such as identifying predictors of decreasing or increasing trajectories of adaptation over time, which would offer additional insights for intervention development. Ongoing ATP research is examining the nature of positive development as young people move further into adulthood, at 23 to 28 years.

10.2.2 Conceptual issues for further investigation

While not following directly from this thesis, a number of conceptual issues are worth considering in future research. The positive development measure used in this thesis is unique in that it incorporates a number of social capital factors (trust and tolerance of others, trust and authorities and organisations, and civic action and engagement), which reflect healthy relationships between the individual and their social context (M. Hawkins, et al., 2009). These dimensions hung together well when this model was empirically tested (M. Hawkins, et al., 2009). However, at very high levels social capital may reflect less than optimal developmental states (Putzel, 1997). For example, right wing authoritarianism, a personality trait characterised by a high degree of trust in and submissiveness to authorities (Altemeyer, 1996), has been consistently associated with prejudiced attitudes towards outgroups (e.g., Laythe, et al., 2002). Hence, further research is needed to examine possible non-linear relationships with these measures, and scales need to be carefully constructed to detect ‘healthy’ and ‘unhealthy’ social capital.

Another issue particularly relevant to the social capital dimensions is the importance of context when defining and investigating young people’s positive development. Well-being has been described as a relative state of adaptation: ‘it must be remembered that competence is defined and assessed in context’ (Masten, et al., 1995: p. 1655). For example, a certain degree of mistrust may be required and functional in negotiating an environment of high crime and violence (Bradley, 1997), or in some socio-political contexts where authorities have a high level of corruption and leaders repeatedly demonstrate immoral behaviour (Rotter, 1980). Some level of mistrust may also be adaptive on a societal level. Chanley, Rudolph, and Rahn (2000), for example, argue that scepticism about the government’s actions ‘is undoubtedly

healthy in a representative democracy' (p. 240). Hence, further research is needed to more fully investigate the role of context in positive adaptation over the transition to adulthood. For example, although levels of corruption in Australia are generally low and hence authorities can be expected to act in a consistent manner, it would be interesting to examine the relationship between trust and well-being in Anglo-Australian youth compared with Indigenous youth, who suffer the effects of covert racism and tend to have more negative experiences with authorities such as the police (Cunneen, 2001). A significant challenge for future research will be how to operationalise and incorporate person by context interactions in the measurement of positive development (Lerner, 2006), which will again require careful question construction and subgroup analyses.

Civic action and engagement were assessed in the current study using traditional indicators such as participation in formal community organisations, and levels of these aspects of civic involvement were low in this sample. Harris, Wyn, and Younes (2007) argue that young people's civic engagement increasingly takes the form of everyday reflection on and involvement with political and social issues in informal environments where young people feel comfortable, and feel that they belong and are likely to be heard (for example, in informal peer groups or online chat rooms). While these forms of reflection and discussion within peer groups no doubt are an important part of young people's lives, it is not clear that they equate to civic action or citizenship which involve taking part in organised group action and active contributions to society (Kosterman, et al., 2005). Hence, it would be interesting to establish how these sorts of behaviours relate to more traditional indicators of civic engagement such as involvement in political and community groups and to the broader construct of positive development.

As far back as ancient Greece there has been debate about what constitutes a 'good life', with Epicurus arguing for well-being as physical and psychological pleasure (a hedonic orientation), and Aristotle conceptualising well-being as arising from the expression of 'virtue' and emphasising personal growth and purpose (a eudemonic approach). Modern western society has tended to emphasise hedonic aspects, with relative neglect of eudemonic well-being (Ryan & Deci, 2001). Consistent with other contemporary work, the current model of positive adaptation predominantly (but not exclusively) reflects how young people feel about their life and place in the community, that is, their hedonic well-being. There is increasing interest in eudemonic well-being, with some research suggesting that it is a distinct aspect of positive functioning (Keyes, Shmotkin, & Ryff, 2002) that uniquely contributes to outcomes such as protection from psychopathology (Kashdan, Uswatte, & Julian, 2006). Hence, optimal well-being may incorporate both hedonic and eudemonic dimensions (Deci & Ryan, 2008). There are many opportunities for future research to explore how measures of eudemonic well-being relate to positive development as conceptualised here, to the predictors of well-being such as those identified in Study 1, and to psychopathology. One interesting question is the consequences for healthy development when eudemonic and hedonic well-being diverge, as virtuous actions do not always result in pleasure (whistleblowers being a prime example of this).

10.3 Implications

Notwithstanding the constraints outlined in sections 5.3, 9.2, and 10.1, and the need for further research into a number of methodological and conceptual issues outlined in section 10.2, this research has offered a number of valuable insights. The similarities in predictors of the five dimensions and the overall construct of positive

development adds weight to the validity of M. Hawkins et al.'s (2009) model (Sirkin, 2006). For example, the positive development measure was found to be positively related to indicators of adaptive functioning during previous developmental periods which are considered crucial to healthy development (Eisenberg, 2003). Discriminant validity was also demonstrated through the inverse relationships observed between positive development and measures of poor developmental outcomes. Hence, the results support the use of M. Hawkins et al.'s (2009) model as a measure of positive development over the transition to adulthood in future research, although as described in section 10.2 there may be potential for enriching this measure with more eudemonic dimensions and reflective self report. Valid and reliable indicators of well-being can play an important role in broader debates about the kind of society we wish to live in and what we want for young people, and are also important for monitoring the efficacy of interventions or policy changes (M. Hamilton & Redmond, 2010). Hence, the feasibility of collecting measures of positive development in emerging adulthood on a population level should be examined.

This sample demonstrated a wide range of functioning across positive and problem outcomes, and Study 2 demonstrated that positive outcomes and psychopathology are clearly related. Hence, there is a need for further integration of positive developmental theory and research with traditional deficit-focused literature in order to provide a holistic and balanced perspective on young people's functioning (Linley, Joseph, Harrington, & Wood, 2006). Positive focused research and theory has been critiqued as being a 'fad' (Lazarus, 2003a); it is much more likely to have a lasting impact if it becomes integrated within established psychology infrastructure by becoming routinely included alongside deficit-focused outcomes in research designs, and the goal of increasing positive outcomes is included alongside the goal of

decreasing poor outcomes and distress in clinical practice (Wood & Tarrier, 2010). If positive orientations and deficit-focused research operate in isolation, publishing in different journals and with little cross-fertilisation (as currently appears to be the trend), there would likely be a great deal of redundancy, with knowledge needing to be replicated in both domains. Hence, an ideal outcome might be the weakening or disappearance of the dichotomy between deficit and positive focused psychology, and the emergence of a psychology which encompasses the breadth of human functioning, from disorder to fulfillment and well-being (Linley, et al., 2006).

A similarly balanced agenda that incorporates both promotion-based and problem-focused programs is needed to develop balanced intervention agendas (Held, 2004). A growth in well-being promotion is already becoming evident in the helping professions (Donaldson, Early, & Wang, 2009), and in education-based interventions (e.g., Haraldsson et al., 2008; Ruini et al., 2009). At the policy level, the economic benefits of interventions oriented towards promoting well-being and competencies are also being strongly argued (Zechmeister, Kilian, McDaid, & the MHEEN group, 2008). Further integration of promotion-focused interventions with traditional problem-focused interventions into a balanced agenda could create a wide range of new opportunities for health services and practitioners. Existing services could broaden their orientation to both addressing mental illness and promoting well-being. Some such interventions are already apparent in the Australian context; for example, KidsMatter (see section 5.4) aims to both promote well-being and address mental health problems. Similarly, techniques to promote well-being could become a routine part of clinical practice, even in the context of mental illness (Ingram & Snyder, 2006). As positive and deficit aspects of psychology become more integrated, psychologists can also become more involved and vocal in influencing practices that

impact on well-being at the policy level (Slade, 2010). Hence, psychologists potentially have a challenging new area of expertise and skills to add to their repertoire, alongside their expertise in identifying and treating mental health problems.

10.4 Conclusions

Using data on a large community-based sample spanning two decades, this research examined the nature and antecedents of positive development in emerging adulthood, and the relationship of positive development to psychopathology. Despite some limitations to the conclusions that can be drawn, the findings demonstrate that almost all aspects of positive development are predicted by earlier individual characteristics (capacity for effective self regulation) and strong relationships with individuals and institutions (parents, peers and schools). These domains represent promising targets for interventions to promote positive development in emerging adulthood. Evidence was also gained to suggest that interventions specifically addressing positive development are necessary. Given that positive development and psychopathology are only moderately related and for some young people low positive development can occur even in the absence of psychopathology, interventions aimed only at the reduction of problem outcomes, while likely to be beneficial, are insufficient in and of themselves. The findings open new directions for future research into a range of issues, including how context, eudemonic aspects of well-being, and young people's own perceptions of well-being relate to positive development and can potentially be incorporated into its measurement. This research also points to the value of further integrating positive and traditional deficit-focused perspectives and knowledge, both within the theoretical and research domains, and in the development

of intervention agendas that address the full range of experiences and capacities of young people.

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APPENDICES

Appendix A

Summary of positive development dimensions

Table A1

Summary of Positive Development Dimensions

Dimension	Description	Theoretical basis	Measurement
Social competence	Refers to positive adaptation in the social world, and the ability to make use of environmental and personal resources to achieve a good developmental outcome (Waters & Sroufe, 1983). Underpins successful social relationships (Gresham, et al., 2001)	Psychosocial well-being	Empathy, Responsibility, Self control
Life satisfaction	A sense of contentment and feelings of congruency between wants or needs and accomplishments or resources (Keyes & Waterman, 2003)	Well-being literature, positive psychology	Satisfaction with achievement and life direction, Satisfaction with personal and social life
Trust and tolerance of others	Reflects an individual's attachment to the community and society and their capacity to harmoniously work with people from different backgrounds and cultures (Putnam, 1995b)	Social capital theory	Trust in people in the neighbourhood, Trust in Australians, Tolerance of different ethnic groups
Trust in authorities and organisations	Reflects an individual's adjustment to authority and attachment to the community (Putnam, 1995b)	Social capital theory	Confidence in police, Confidence in the courts, Trust in organizations
Civic action and engagement	Refers to the willingness of an individual to take up the role of being a citizen, is essential for successful democratic society, and is central to political socialization (C Flanagan & Sherrod, 1998; Winter, 2000)	Social capital, citizenship theory	Participation in community activities, Participation in groups, Donations to groups

Appendix B

Prior analyses examining predictors of the multidimensional positive development
construct

Table B1

*Hierarchical Linear Regression Predicting Positive Development in Emerging
Adulthood from Child Predictors by Gender*

Variable	Males (N= 511)			Females (N= 647)		
	B	SE B	β	B	SE B	β
Step 1						
SES	.17	.04	.20**	.14	.03	.19**
Step 2						
SES	.13	.04	.16**	.13	.03	.17**
Temperament characteristics						
Approach	-.04	.06	-.04	-.01	.04	-.01
Adaptability	.14	.07	.12*	-.02	.05	-.02
Persistence	.03	.06	.03	.04	.04	.04
Social skills						
Assertion	.01	.02	.03	-.02	.02	-.07
Responsibility	.02	.02	.07	.02	.01	.08
Self control	.03	.01	.12*	.04	.01	.19**
Academic adjustment						
Academic competence	-.04	.05	-.03	.04	.04	.03
Parent and peer Relationships						
Parent-child relationship	.10	.05	.10*	.01	.03	.02
Self concept about relationship with parents	.16	.07	.11*	.20	.06	.14**
Peer relationships	-.10	.16	-.05	.13	.14	.06
Family environment						
Mothers age	.00	.01	.00	-.00	.01	-.02
Number of children in family	.03	.04	.04	.07	.03	.08*
Family stress	.01	.04	.01	.00	.04	.00
Parental monitoring	.02	.07	.01	.06	.07	.04

For males, $R^2 = .04$ for Step 1 ($p < .001$); $\Delta R^2 = .08$ for Step 2 ($p < .001$). For females, $R^2 = .03$ for Step 1 ($p < .001$); $\Delta R^2 = .10$ for Step 2 ($p < .001$).

* = $p < .05$, ** = $p < .01$.

Table B2

Hierarchical Linear Regression Predicting Positive Development in Emerging Adulthood from Early Adolescent Predictors by Gender

Variable	Males (N = 511)			Females (N = 647)		
	B	SE B	β	B	SE B	β
Step 1						
SES	.12	.04	.14**	.14	.03	.19**
Step 2						
SES	.08	.04	.09*	.09	.03	.11**
Temperament characteristics						
Negative reactivity	-.06	.05	-.06	.00	.04	.00
Persistence	.07	.05	.08	.05	.04	.06
Approach	.05	.05	.05	.02	.04	.03
Social skills						
Assertiveness	-.01	.02	-.06	.01	.02	.05
Responsibility	.00	.02	.00	.03	.02	.07
Self control	.01	.02	.03	.01	.01	.06
Academic adjustment						
School competence	.15	.09	.10	.07	.08	.04
Emotional control						
Emotional control	.18	.05	.18**	.16	.04	.20**
Parent and peer relationships						
Warmth of parent-child relationship	.02	.08	.02	-.08	.06	-.06
Family attachment	.09	.06	.07	.09	.04	.10*
Peer involvement	.02	.12	.01	-.03	.10	-.01
Participation in organised peer group activities	.14	.07	.09	.09	.05	.07
Parenting style						
Inductive reasoning	-.04	.06	-.03	-.08	.05	-.08
Physical punishment	.01	.07	.00	-.13	.07	-.07
Monitoring	-.05	.10	-.03	.03	.08	.02
Obedience orientation	-.06	.05	-.06	-.02	.04	-.02
Family environment						
Family stress	-.02	.04	-.02	-.01	.03	-.01

For males, $R^2 = .02$ for Step 1 ($p < .01$); $\Delta R^2 = .15$ for Step 2 ($p < .001$). For females, $R^2 = .04$ for Step 1 ($p < .001$); $\Delta R^2 = .17$ for Step 2 ($p < .001$).

* = $p < .05$, ** = $p < .01$.

Table B3

Hierarchical Linear Regression Predicting Positive Development in Emerging Adulthood from Mid/Late Adolescent Predictors by Gender

Variable	Males (N = 511)			Females (N = 647)		
	B	SE	β	B	SE	β
Step 1						
SES	.15	.04	.18**	.12	.03	.17**
Step 2						
SES	.08	.03	.10**	.07	.03	.10**
Personality						
Extraversion	-.03	.05	-.02	-.01	.04	-.01
Agreeableness	.10	.05	.11*	-.02	.04	-.03
Conscientiousness	.02	.05	.02	-.00	.04	-.00
Neuroticism	-.08	.05	-.09	-.01	.04	-.01
Openness to experience	-.09	.04	-.10*	-.02	.03	-.02
Emotional control						
Emotional control	.34	.07	.21**	.18	.05	.13**
Sensation seeking						
Sensation seeking	.02	.02	.04	.01	.01	.05
Social skills						
Assertiveness	.04	.09	.02	.06	.07	.04
Self control	-.01	.10	-.01	.19	.08	.10*
Responsibility	.10	.11	.04	-.02	.09	-.01
School adjustment						
School bonding	.12	.07	.09	.18	.05	.15**
Academic adjustment	.03	.04	.04	.03	.04	.04
Peer relationships						
Participation in organised peer group activities	.02	.06	.01	.11	.05	.10**
Peer trust	.04	.12	.01	.02	.11	.01
Peer communication	.03	.06	.02	.13	.05	.11**
Peer alienation	.02	.08	.01	-.06	.07	-.05
Relationship with parents						
Warmth	.10	.08	.07	.00	.06	.00
Trust	.18	.10	.09	.23	.08	.16**
Alienation	-.06	.08	-.04	.11	.06	.10
Parenting style						
Monitoring	-.02	.04	-.02	.03	.04	.03
Harsh punishment	-.01	.04	-.01	-.04	.04	-.05

Variable	Males (<i>N</i> = 511)			Females (<i>N</i> = 647)		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Family environment						
Family stress	-.05	.04	-.05	-.06	.03	-.07
Community engagement						
Community bonding	.20	.06	.13**	.09	.05	.07
Political awareness	.25	.07	.17**	.05	.05	.04
Environmental awareness	-.02	.05	-.02	-.03	.04	-.03
Community orientation	.21	.07	.15**	.16	.05	.13**

For males, $R^2 = .03$ for Step 1 ($p < .001$); $\Delta R^2 = .35$ for Step 2 ($p < .001$). For females,

$R^2 = .03$ for Step 1 ($p < .001$); $\Delta R^2 = .28$ for Step 2 ($p < .001$).

* = $p < .05$, ** = $p < .01$.

Appendix C

Full description of measures used

Full details of the measures used in the analyses are presented in this appendix. Items marked with an asterisk (*) are reverse scored. Subscale names are underlined. For details of the origins of each scale, refer to Chapters 3 and 7.

Measures used in the positive development model

All measures used to assess positive development were assessed at 19-20 years via self report.

Social competence

Social competence items were measured on a 5-point Likert scale where 1=never, 2=seldom, 3=sometimes, 4=often, and 5=always.

Empathy

1. I try to understand how my friends feel when they are angry, upset, or sad
2. I try to be a kind and caring person
3. People come to me to share their problems
4. I feel sorry for others when bad things happen
5. I show my concern for others when they experience difficulties

Responsibility

1. I behave in a responsible way
2. I am punctual in meeting task deadlines set by others
3. I fulfil my obligations
4. I can be relied on to do things right

Self control

1. I can assert my opinion without fighting or arguing
2. I negotiate and compromise with people when we have disagreements

3. I accept constructive criticism

Life satisfaction

All life satisfaction items used the question stem 'Thinking about your life, how satisfied are you with the following aspects?', with ratings made on a 4-point scale from 'very satisfied' to 'not at all satisfied'.

Satisfaction with achievement and direction

1. The work you do (your employment, your education)
2. What you are accomplishing
3. The direction your life is taking

Satisfaction with personal and social life

1. Your personal relationships
2. Your social life
3. Your looks or appearance
4. Your independence – being able to do what you want
5. The way you handle problems that come up

Trust and tolerance of others

Three items were used to assess this dimension, rated on a 5-point scale from 'disagree completely' to 'agree completely'. These items were:

1. Most people in your neighbourhood can be trusted
2. Having people from different ethnic and cultural backgrounds makes Australia a better place
3. Thinking about Australia, most people can be trusted

Trust in authorities and organisations

Three subscales measured this domain. The first two subscales were rated on a 4 point Likert scale where 1=a great deal, 2=some, 3=little, and 4=none at all, and the

third was rated on a Likert scale from 1=not at all confident to 4=very confident. The sentence string is indicated in parentheses for each scale.

Confidence in police (How much confidence do you have in the police to...)

1. Protect you from crime
2. Solve crimes
3. Prevent crime
4. Treat everyone fairly
5. Not use excessive force

Confidence in the courts (How much confidence do you have in the ability of the courts to...)

1. Protect society from crime
2. Discourage crime
3. Impose fair sentences
4. Treat everyone equally
5. Take victims needs seriously

Trust in organisations (How confident are you that the following organisations can be relied on to act in a fair or reasonable manner?)

1. The media
2. The trade unions
3. Large business corporations
4. Local councils
5. State government
6. Federal government
7. The public service
8. Religious organisations

Civic action and engagement

The rating scale for each of the two subscales measuring civic action and engagement is indicated in parentheses.

Participation in community activities (1=not at all, 2=1-2 times, 3=3-4 times, and 4=five times or more)

1. Participated in a public meeting
2. Attended a public meeting
3. Joined with people to resolve a local or neighbourhood problem
4. Undertaken voluntary or charitable work
5. Made a personal effort to care for the environment in your daily life (e.g., recycled waste, reduced energy use)
6. Supported a political or lobby group in an effort to improve the environment (e.g., Landcare, Greenpeace)
7. Taken part in a demonstration or march
8. Signed a petition
9. Contacted the media regarding a problem
10. Contacted a government official regarding a problem

Participation in groups. Participants indicated whether they ‘participated, attended events or meetings’ for the groups below according to ‘yes’ or ‘no’. Donations to groups were measured according to whether participants ‘donated money, time etc’ to the same groups rated according to ‘yes’ or ‘no’. The groups included:

1. Sporting, recreation, or hobby group
2. Trade union, professional or technical association
3. Arts, culture or educational group
4. Self help or support group

5. Church group
6. Environmental group
7. Human rights, community or welfare group
8. Political or public issue group
9. Other

Childhood predictor variables

Temperament

Temperament dimensions at 4-8 months. Parents rated items on a 6–point Likert scale from 1=‘almost never’ to 6=‘almost always’.

Approach

1. The baby accepts straight away any change in place or position of feeding, or person giving the feed*
2. The baby is shy (turns away or clings to mother) on meeting another child for the first time
3. The baby is pleasant (smiles, laughs) when first arriving in unfamiliar places (friend’s house, shop)*
4. For the first few minutes in a new place or situation (new shop or home), the baby is fretful
5. The baby's first reaction (at home) to approach by strangers is acceptance*
6. The baby accepts within a few minutes a change in place of bath or person giving the bath*
7. The baby's first reaction to seeing doctor or infant welfare sister is acceptance (smiles, coos)*

Activity

1. The baby moves about a lot (kicks, grabs, squirms) during nappy changing and dressing
2. The baby moves a lot (squirms, bounces, kicks) while lying awake in cot
3. The baby keeps trying to get a desired toy which is out of reach, for 2 minutes or more
4. The baby greets a new toy with a loud voice and much expression of feeling (whether positive or negative)
5. The baby displays much feeling (strong laugh or cry) during changing or dressing
6. The baby reacts strongly to strangers, laughing or crying

Irritability

1. The baby is fretful on waking up and/or going to sleep (frowns, cries)
2. The baby amuses self for 1/2 hour or more in cot or playpen (looking at mobile, playing with toy, etc)*
3. The baby continues to cry in spite of several minutes of soothing
4. The baby cries when left to play alone
5. The baby is irritable or moody throughout a cold or stomach virus

Temperament at 11-12 years. Parents rated items on a 5-point scale from

1=never/almost never to 5=always/almost always.

Negative Reactivity

1. Gets upset when can't find something
2. When disagrees, speaks in a quiet and calm manner*
3. Gets angry even when mildly criticised
4. Reacts strongly (cries or complains) to a disappointment or failure

5. Gets angry when teased
6. Gets very frustrated when makes a mistake
7. Yells, snaps at others when angry
8. Moody when corrected for misbehaviour
9. Responds intensely to disapproval (shouts, cries etc)
10. Makes loud noises when angry (slams doors, bangs objects, shouts etc)
11. Gets upset when there is a change in plans
12. Has off days when is moody and cranky

Persistence

1. Switches from one activity to another before finishing the first
2. Returns to responsibilities (homework, chores) after friends phone or visit*
3. Does not complete homework unless reminders are given
4. Leaves own projects unfinished (drawings, models, crafts etc)
5. Gets frustrated with projects and quits
6. Remembers to do homework without being reminded*
7. Quits routine household chores before finished
8. Stays with homework until finished*
9. Goes back to the task at hand (chores, housework etc) after an interruption*
10. Has difficulty completing assignments (homework, chores etc)
11. When an activity is difficult, gives up easily

Approach

1. Approaches children his/her own age even when s/he doesn't know them*
2. Smiles or laughs with new adult visitors at home*
3. Is shy with adults he/she doesn't know
4. Seems nervous or anxious in new situations (visiting relatives, new playmates)

5. Shy when meeting new children
6. Moves straight into a new place (shop, theatre, playground)*
7. Prefers to play with someone s/he already knows rather than meeting someone new
8. Avoids (stays away from, doesn't talk to) new guests or visitors in the home
9. Seems uncomfortable when at someone's house for the first time

Social skills

Social skills were measured at 11-12 years by parent report. The subscales were rated using a 3-point Likert scale where 0=rarely or never and 2=very often.

Responsibility

1. Introduces herself/himself to new people without being told
2. Asks sales assistants for information or assistance
3. Attends to speakers at meetings such as in church or youth groups
4. Politely refuses unreasonable requests
5. Answers the phone appropriately
6. Appropriately questions household rules that may be unfair
7. Asks permission before using another family member's property
8. Requests permission before leaving the house
9. Acknowledges compliments or praise from friends
10. Reports accidents to appropriate people

Self control

1. Speaks in an appropriate tone of voice at home
2. Responds appropriately when hit or pushed by other children
3. Politely refuses unreasonable requests from others
4. Avoids situations that are likely to result in trouble

5. Controls temper when arguing with other children
6. Controls temper in conflict situations with you
7. Cooperates with family members without being asked to do so
8. Receives criticism well
9. Ends fights with you calmly
10. Reacts appropriately to teasing

Academic competence

Teachers rated academic competence at 7-8 years. This subscale included two items (rating scale in parentheses):

1. Spelling (1=very good at spelling, 2=so-so, and 3=not good at spelling)
2. Mathematics (1=very good at math, 2=so-so and 3=not good at math)

Teachers again rated academic competence at 11-12 years, rating the following items on a 5-point scale where 1=lowest 10%, 2=next lowest 20%, 3=middle 40%, 4=next highest 20%, and 5=highest 10%.

1. Compared with other children in my classroom, the overall academic performance of this child is
2. In reading, how does this child compare with other classmates?
3. In mathematics, how does this child compare with other classmates?
4. In terms of grade-level expectations, this child's skills in mathematics are
5. This child's overall motivation to succeed academically is
6. This child's parental encouragement to succeed academically is
7. Compared with other children in my classroom, this child's intellectual functioning is
8. Compared with other children in my classroom, this child's overall classroom behaviour is

Parent-child relationship

At 4-8 months, parents reported on this single item using a 5-point scale from 'much easier than average' to 'much more difficult than average':

1. Compared to other babies, I think my baby is...

At 11-12 years the ATP child rated the following items from 1=true to 5=false:

1. I get along well with my parents
2. My parents and I have a lot of fun together
3. My parents are easy to talk to
4. My parents like me
5. My parents and I spend a lot of time together
6. I want to raise my children like my parents did
7. My parents understand me
8. I like my parents

Peer relationships

At 11-12 years, the ATP child rated these items according to a 5-point Likert scale ranging from 1=true to 5=false:

1. I have a lot of friends
2. Other kids want me to be their friend
3. Other kids often ignore me
4. I am popular with kids my own age
5. Most kids have more friends than I do
6. I make friends easily
7. Most other kids like me
8. I get along with other kids easily

Parental monitoring

Parents reported on a single item at 11-12 years, rated on a 5-point scale where 1=almost never and 5=almost always.

1. Most afternoons I know exactly where my child is when school is out

Family stress

Family stress was measured as a composite of losses, changes, or problems that had occurred over the past year. Parents rated the effects of the events that had occurred according to 1=good effect, 2=no effect, and 3=bad effect.

Losses

1. Loss of health
2. Loss of job
3. Death of loved one
4. Loss of money or possessions e.g., theft, debt
5. Loss of partner through separation or divorce
6. Absence of partner e.g., through work
7. Other, please list

Changes

1. Change of house
2. Change of job
3. Change of child's school
4. Pregnancy
5. Change in number of people at home
6. Other, please list

Problems

1. Long illness, disability

2. Loneliness, isolation
3. Money worries
4. Drug or alcohol problems
5. Problems with children (e.g., at school)
6. Relationship with partner (wife, husband)
7. Other, please list

Predictor variables in early adolescence

Temperament

Temperament was measured in early adolescence (at 12-13 years) according to parent reports. A 5-point Likert scale was employed where 1=almost never and 5=almost always.

Negative Reactivity

1. Gets upset when can't find something
2. When disagrees, speaks in a quiet and calm manner*
3. Gets angry even when mildly criticised
4. Reacts strongly (cries or complains) to a disappointment or failure
5. Gets angry when teased
6. Gets very frustrated when makes a mistake
7. Yells, snaps at others when angry
8. Moody when corrected for misbehaviour
9. Responds intensely to disapproval (shouts, cries etc)
10. Makes loud noises when angry (slams doors, bangs objects, shouts etc)
11. Gets upset when there is a change in plans
12. Has off days when is moody and cranky

Persistence

1. Switches from one activity to another before finishing the first
2. Returns to responsibilities (homework, chores) after friends phone or visit*
3. Does not complete homework unless reminders are given
4. Leaves own projects unfinished (drawings, models, crafts etc)
5. Gets frustrated with projects and quits
6. Remembers to do homework without being reminded*
7. Quits routine household chores before finished
8. Stays with homework until finished*
9. Goes back to the task at hand (chores, housework etc) after an interruption*
10. Has difficulty completing assignments (homework, chores etc)
11. When an activity is difficult, gives up easily

Approach

1. Approaches children his/her own age even when s/he doesn't know them*
2. Smiles or laughs with new adult visitors at home*
3. Is shy with adults he/she doesn't know
4. Seems nervous or anxious in new situations (visiting relatives, new playmates)
5. Shy when meeting new children
6. Moves straight into a new place (shop, theatre, playground)*
7. Prefers to play with someone s/he already knows rather than meeting someone new
8. Avoids (stays away from, doesn't talk to) new guests or visitors in the home
9. Seems uncomfortable when at someone's house for the first time

Responsibility

Parents rated the following items assessing responsibility when participants were 13-14 years:

1. Says nice things about himself or herself when appropriate
2. Shows concern for friends and relatives his or her own age
3. Appropriately expresses feelings when wronged
4. Follows rules when playing games with others
5. Waits turn in games or other activities
6. Informs you before going out with friends
7. Follows household rules
8. Reports accidents to appropriate persons
9. Is liked by others

School adjustment

When participants were 13-14 years of age, their parents rated the following four items on a scale from 1=no problem to 4=big problem:

1. Understanding the work in class
2. Getting on with the teachers
3. Managing school rules and routines
4. Getting assignments and homework done

Emotional control

The ATP teenager rated the following five items at 13-14 years of age on a 5-point scale ranging from 'strongly disagree' to 'strongly agree':

1. I don't have much difficulty resisting temptations
2. I know how to relax when I feel tense
3. I am always able to keep my feelings under control

4. I have someone who helps me when if I feel out of control
5. I know how to calm down if I'm feeling nervous

Warmth of the parent-teenager relationship

Parent reports at 13-14 years were used to assess warmth in the parent-teenager relationship. The rating scale for each item is indicated in parentheses.

1. How often do you talk with your child about his/her plans for the coming day? (1=almost every day; 2=most days; 3=some days; 4=hardly ever; 5=almost never)
2. Most of the time, how well do you get along with your child? (1=very well; 2=well; 3=okay; 4=not too well, 5=not at all well)
3. In general, how easy or comfortable is it to spend time with your child? (1=very easy; 2=easy; 3=average; 4=not very easy; 5=not at all easy)
4. How much time in a week do you have a chance to sit around and talk with your child? (1=usually no time; 2=1 to 2 hours per week; 3=2 to 3 hours per week; 4=3 to 7 hours per week; 5=8+ hours per week)
5. My child talks with me about his/her problems or troubles (5-point scale from 1=always/almost always to 5=never/almost never)
6. I enjoy listening to, and doing things with, my child (5-point scale from 1=always/almost always to 5=never/almost never)

Family attachment

Teenagers at 13-14 years of age rated aspects of family attachment from 1=always/almost always true and 5=almost never/never.

1. My parents respect my feelings
2. My parents accept me as I am
3. My parents sense when I'm upset about something

4. When I discuss things with my parents, they consider my point of view
5. My parents don't understand what I'm going through these days*
6. My parents trust my judgement
7. I feel that my parents don't understand me*
8. I tell my parents about my problems and troubles

Peer relationships

Parents rated two scales when their teenager was 13-14 years of age. Ratings for both subscales were made on a scale where 0=rarely/never and 2=very often.

Peer involvement

1. Makes friends easily
2. Other kids seek your child out to involve him/her in activities
3. Invites peers to share activities
4. Plays or talks with peers for extended periods of time
5. Works out what to do through discussion with peers
6. Interacts with a number of different peers
7. Has social contacts with peers out of school hours (e.g., by phone, visits)
8. Has at least one close or "best" friend

Participation in group activities

1. Participants in school sports team(s)
2. Participates in extra-curricula activities at school
3. Participates in community sports club(s)
4. Participates in other community group(s) e.g., scouts, church

Parenting style

Parenting style was measured by parent report at 13-14 years. Most items were scored as follows: 1=always/almost always, 2=often, 3=about half the time,

4=occasionally, 5=never/almost never. Those items marked with # were preceded by 'Here is a list of things that parents often do when teenagers misbehave. Circle the number that shows how often you use each method.' Other response options are indicated below in parentheses.

Physical punishment

1. I use threats of physical punishment to control my child
2. I believe that physical punishment is the best way to discipline my child
3. Hit, slap, spank #
4. Physical punishment is often necessary to control the behaviour of children of this age (1=strongly agree, 2=agree somewhat, 3=neither agree nor disagree, 4=disagree somewhat, 5=strongly disagree, 6=don't know)

Parental monitoring

1. It is difficult for me to know where my child is and what s/he is doing, now that s/he is getting older
2. How often do you find out where s/he is going when s/he goes out with friends?
3. When s/he visits friends, how often are adults present?
4. My child tells me when s/he will be back before going out

Obedience orientation

1. I expect my child to follow my directions even if s/he disagrees with my reasons
2. I expect my child to do what s/he is told without stopping to argue about it
3. Children this age should not argue with their parents or question their ideas

Mid/late adolescent predictor variables

Personality

Personality was measured by parent report at 15-16 years using items rated on a 5 point scale from 'hardly at all' to 'extremely'.

Extraversion

1. How energetic do you think he/she is
2. How talkative do you think he/she is
3. How bold do you think he/she is
4. How enthusiastic do you think he/she is
5. How shy do you think he/she is*
6. How quiet do you think he/she is*

Agreeableness

1. How stubborn do you think he/she is*
2. How selfish do you think he/she is*
3. How bossy do you think he/she is*
4. How cooperative do you think he/she is
5. How patient do you think he/she is
6. How polite do you think he/she is

Conscientiousness

1. How organised do you think he/she is
2. How responsible do you think he/she is
3. How neat do you think he/she is
4. How careful do you think he/she is
5. How lazy do you think he/she is*
6. How forgetful do you think he/she is*

Neuroticism

1. How nervous do you think he/she is
2. How tense do you think he/she is
3. How much does he/she worry about things
4. How fearful do you think he/she is
5. How brave do you think he/she is*
6. How confident do you think he/she is*

Openness to experience

1. How intelligent do you think he/she is
2. How artistic do you think he/she is
3. How curious do you think he/she is
4. How creative do you think he/she is
5. How open minded do you think he/she is
6. How imaginative do you think he/she is

Emotional control

Emotional control was measured by self report at 15-16 years, on a 6-point scale from 'never' to 'always'.

1. I know how to relax when I'm feeling tense
2. I have difficulty resisting temptations*
3. I am able to keep my feelings under control
4. When things go wrong I criticise myself*
5. I have someone who helps me if I feel out of control
6. I know how to calm down when I'm feeling nervous
7. I control my temper when I'm frustrated or angry
8. I tend to blame myself when things go wrong*

9. When things go wrong I try to stay optimistic

10. I cope well with physical pain

Sensation seeking

At 15-16 years, teenagers indicated their preferences for different types of activities. The question string was 'Each of the items below has two choices. Please circle the letter which best describes your likes or the way you feel.'

1. I often wish I could be a mountain climber OR I can't understand people who risk their necks climbing mountains
2. I would like to try surfboard riding OR I would not like to try surfboard riding
3. I don't like to do things that are frightening OR I like to do things that are a little frightening
4. I would like to take up the sport of water-skiing OR I would not like to take up the sport of water-skiing
5. I would not like to learn to fly an aeroplane OR I would like to learn to fly an aeroplane
6. I prefer the surface of the water to the depths OR I would like to go scuba diving
7. I would like to try parachute jumping OR I would never want to try jumping out of a plane, with or without a parachute
8. I would like to dive off the high board OR I don't like the feeling I get standing on the high board (or I don't go near it at all)
9. I would not like to sail a long distance in a small sailing craft OR I would like to sail a long distance in a small sailing craft

10. I would not enjoy the sensations of skiing very fast down a high mountain slope OR I think I would enjoy the sensations of skiing very fast down a high mountain slope

School adjustment

School adjustment was measured by parent report at 15-16 years. Aspects of school competence were rated on a 3-point scale where 1=no problem, 2=small problem, and 3=a big problem.

1. Understanding the work in class
2. Getting on with teachers
3. Managing school rules and routines
4. Getting assignments and homework done
5. Achieving a satisfactory standard in work

School bonding

School Bonding was measured according to self reports at 17-18 years. This scale comprised 9 items rated on a 5-point scale where 1=always and 5=never/almost never (except where indicated in parentheses).

1. I work hard to be successful in school
2. I am getting on well with my teachers/lecturers
3. It is important to me to do well in school
4. I try to do things that will make my teachers/lecturers think well of me
5. I look forward to going to school
6. I enjoy school
7. I like my classes
8. Putting them all together, what are your marks like this year? (1=very good, 3=average, 5=very poor)

9. Compared to other students in your year level, how well are you doing? (1=a lot above average, 3=average, 5=a lot below average)

Peer relationships

Measures of peer relationships were rated by the ATP teenager at 17-18 years. Ratings were made on a 4-point scale from 'always/almost always' to 'never/almost never'. The string for all items was 'My friends...'

Trust

1. Accept me as I am
2. Respect my feelings
3. I feel they are good friends
4. I trust them

Communication

1. Sense when I'm upset about something
2. Encourage me to talk about my difficulties
3. I tell them about my problems and troubles
4. If they know something is bothering me, they ask me about it

Alienation

1. Don't understand what I'm going through these days
2. Make me feel ashamed or foolish when I talk about my feelings
3. I get upset a lot more than they know about
4. It seems as if they are irritated with me for no reason

Participation in organised peer group activities

Parents rated this scale at 15-16 years of age. Ratings were made on a scale where 0=rarely/never and 2=very often.

1. Participants in school sports team(s)

2. Participates in extra-curricula activities at school
3. Participates in community sports club(s)
4. Participates in other community group(s) e.g., scouts, church

Parent-child relationship

Participants self reported on family relationships at 17-18 years of age. Ratings were made on a 4-point scale ranging from 'always/almost always' to 'never/almost never'.

Warmth/Communication

1. Senses when I'm upset about something
2. I feel very close to him/her
3. I enjoy spending time with him/her
4. I tell him/her about my problems and troubles
5. I share my thoughts and feelings with him/her
6. Encourages me to talk about any problems or difficulties
7. I can count on him/her when I need to get something off my chest

Trust

1. Respects my feelings
2. Accepts me as I am
3. Lets me decide things for myself
4. Considers my point of view when we discuss things
5. I trust him/her
6. Notices when I'm doing a good job and lets me know
7. Puts me down*
8. Trusts my judgement

Alienation

1. I get upset a lot more than he/she knows about
2. Doesn't understand me
3. I feel angry with him/her
4. Doesn't understand what I'm going through these days

Parenting style

Parenting was measured according to two subscales rated by the parent at 15-16 years.

Parental monitoring (rated according to 1=always/almost always to 5=never/almost never)

1. It is difficult for me to know where my teenager is and what s/he is doing
2. How often do you find out where s/he is going when s/he goes out with friends?
3. When s/he goes out to visit friends, other adults are present
4. My teenager tells me when s/he will be back before going out
5. How often does s/he go out in the evening without adults being present?
6. How often does your teenager do things on the weekends without telling you where s/he is will be?

Punishment ('Here is a list of things that parents often do when teenagers misbehave.

Circle the number that shows how often you use each method'; 1=always/almost always, 5=never/almost)

1. Warn
2. Scold
3. Swear
4. Hit, slap

5. Yell
6. Ground
7. Send to room
8. Take away privileges
9. I use threats of punishment to control him/her (1=always/almost always to 5=never/almost never)
10. How often do you have to discipline him/her repeatedly for the same thing?
(1=always/almost always to 5=never/almost never)

Community engagement

Community engagement was measured at 17-18 years according to self-reports on four scales.

Community bonding (Items 1 through 5 were rated on a 3-point scale from 'true' to 'not true'; items 6 to 8 were rated on a 4-point scale from 'weekly' to 'never')

1. There are adults in my neighbourhood I can talk to about something important
2. I'd like to get out of my neighbourhood*
3. I enjoy spending time with my neighbours
4. I like my neighbours
5. I participate in activities(e.g., sport drama, social groups) in my community
6. How often do you and your neighbours talk with one another?
7. How often do you and your neighbours visit each other?
8. How often do you and your neighbours watch out for or look after each other
(e.g., water garden, give lifts, babysit)?

The political awareness, environmental awareness, and community orientation scales asked participants to rate the likelihood of their involvement in different activities in the future ('When thinking about how you want to live your life in the

future, how likely is it that you will do any of the following?'), with responses made on a 4-point scale ranging from 'not likely' to 'extremely likely'.

Political awareness

1. Be active in politics
2. Work to reduce international conflicts
3. Improve relations between people of differing cultures
4. Contribute to overseas aid projects

Environmental awareness

1. Work to sustain the natural environment
2. Work to protect endangered animals

Community orientation

1. Work to improve conditions in your local community
2. Be guided by religion or faith
3. Help the less fortunate in your community

Psychopathology variables

All psychopathology variables were measured at 19-20 years via self report.

Internalising problems

Participants were asked 'For each statement, please circle the number which best describes how much the statement applied to you over the past month.' Ratings were made on a 4-point Likert scale from 'did not apply' to 'applied very much/most of the time'.

Depression

1. I felt that I had nothing to look forward to
2. I couldn't seem to experience any positive feeling
3. I felt down-hearted and blue

4. I found it difficult to work up the initiative to do things
5. I felt that life was meaningless
6. I was unable to become enthusiastic about anything
7. I felt I wasn't much as a person

Anxiety

1. I was aware of dryness in my mouth
2. I was aware of my heart's action in the absence of physical exertion (e.g. going fast, or missing a beat)
3. I felt scared without any good reason
4. I felt I was close to panic
5. I was worried about situations in which I might panic and make a fool of myself
6. I experienced trembling (e.g. in the hands)
7. I experienced breathing difficulty (not due to a medical condition)

Stress

1. I tended to over-react to situations
2. I found myself getting agitated
3. I felt that I was using a lot of nervous energy
4. I found it hard to wind down
5. I was intolerant of anything that kept me from getting on with what I was doing
6. I found it difficult to relax
7. I felt that I was rather touchy

*Externalising problems*Antisocial behaviour

Nineteen antisocial acts were rated according to the number of times the individual engaged in the behaviour over the last year, where 1=never, and 6=10+ times. Participants were asked 'How many times during the past 12 months have you':

1. Got into physical fights with other people
2. Purposely damaged or destroyed others' property, including graffiti
3. Stolen a motor vehicle (e.g. Car, motor bike)
4. Stolen something from a motor vehicle
5. Shoplifted (taken something from a shop without paying)
6. Stolen something from a person or house
7. Carried a weapon (e.g. Gun, knife)
8. Attacked someone with the idea of seriously harming them
9. Received government benefits or compensation that you were not entitled to
(e.g. Unemployment, youth allowance)
10. Knowingly bought, sold, or kept stolen goods
11. Been paid for having sex with someone
12. Used force to get money or things from others
13. Broken into a house or building to steal something
14. Copied computer software, CDs, DVDs, or videos in order to sell them
15. Sold illegal drugs
16. Had, or tried to have, sex with someone against their will
17. Illegally accessed a computer network, system or files
18. Attacked someone while a member of a group or gang

19. Used fake money, or someone else's credit / bank card or cheque without their permission

Alcohol problems

Participants were asked to indicate the frequency they had experienced 10 alcohol related harms over the past year, where 0=never, 1=once or twice, and 2=more often. These were:

1. Get so drunk you were sick or passed out
2. Have trouble at home, work or school the next day
3. Get injured or have an accident
4. Become violent and get into a fight
5. Have sex with someone which you later regretted
6. Get into trouble with police
7. Be unable to remember what happened the night before
8. Be asked to leave a party, pub or club because you were drunk
9. Feel you were not able to stop drinking once you started
10. Feel irritable or depressed when it wasn't available

Marijuana problems

Participants rated the frequency of five harms associated with marijuana use over the past year according to 0=never, 1=once or twice, and 2=more often.

1. Feel you couldn't get through the week without it
2. Feel it was having a bad effect on your life
3. Feel you couldn't stop using it
4. Get into trouble with police
5. Feel irritable or depressed when it wasn't available

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
13. Self concept - relationship with peers	.0	.07*	.0	-.18**	.19**	.4**	.22**	.2**	.03	.08**	-.01	.42**	1										
14. Mothers age	.11**	-.19**	-.05	-.05	-.04	.04	.1**	.11**	.03	.0	.08**	-.05	.0	1									
15. Number of children in the family	.06*	-.1**	-.01	-.05	.02	.05	-.01	.04	-.03	-.05	.04	-.05	.04	.28**	1								
16. Parental monitoring	.0	.01	-.04	-.05	.05	.07*	.07*	.05	.0	.07*	.0	.01	.0	-.02	-.05	1							
17. Family stress	.01	.08**	.02	.08*	-.07*	-.07*	-.06	-.07*	.05	.03	.0	-.09**	-.04	-.02	-.03	.03	1						
18. SES	.13**	-.12**	.03	-.1**	.01	.06*	.14**	.14**	.12**	.2**	.06*	.03	.03	.28**	-.05	.01	-.02	1					
19. Social competence	.01	-.03	-.04	-.24**	.1**	.29**	.24**	.3**	.14**	.19**	.0	.19**	.13**	.07*	.03	.05	.0	.08**	1				
20. Life satisfaction	.02	-.03	-.04	-.12**	.15**	.16**	.15**	.14**	.0	.03	.0	.23**	.15**	-.03	.05	.03	-.02	.01	.5**	1			
21. Trust and tolerance of others	.05	-.07*	.01	-.15**	.04	.16**	.14**	.18**	.16**	.19**	-.01	.08**	.01	.08**	-.01	.06	-.03	.19**	.54**	.4**	1		
22. Trust in authorities and organisations	.03	-.06	-.01	-.14**	.02	.16**	.12**	.2**	.1**	.08**	.01	.19**	.09**	.01	.06*	.04	-.04	.09**	.47**	.38**	.49**	1	
23. Civic action and engagement	.05	-.05	-.02	-.07*	.06	.05	.13**	.08**	.09**	.12**	.06	.01	-.06*	.09**	-.02	.01	.04	.13**	.28**	.17**	.33**	.16**	1
Range	1-5.43	1.2-6	1-6	1-4.92	1-4.89	1-1.5	5-20	1-20	1-7	10-45	1-1.5	1-4.25	1-4.88	17-44	1-1.8	1-1.5	0-10	1-1.7	1.12-.82	1.55-.81	1.29-1.02	.83-.80	.58-2.14
M	1.97	3.9	2.8	2.95	2.52	2.37	14.51	12.71	2.84	35.33	2.26	1.55	1.87	28.32	2.39	4.88	.6	3.6	.00	.00	.00	.00	.00
SD	.75	.72	.91	.7	.7	.73	2.72	3.52	1.28	6.3	.9	.5	.65	4.18	.86	.44	1.15	1.18	.28	.37	.36	.25	.42

* = $p < .05$, ** = $p < .01$

Table D2

Descriptive Statistics and Intercorrelations of Early Adolescent Predictor Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Negative reactivity	1																			
2. Persistence	-.43**	1																		
3. Approach/sociability	-.23**	.13**	1																	
4. Responsibility	-.4**	.43**	.21**	1																
5. School adjustment	-.28**	.54**	.03	.4**	1															
6. Emotional control	-.21**	.19**	.09**	.23**	.18**	1														
7. Warmth of parent-teen relationship	-.31**	.27**	.17**	.5**	.23**	.18**	1													
8. Family attachment	-.23**	.25**	.1**	.34**	.25**	.43**	.45**	1												
9. Peer involvement	-.16**	.17**	.31**	.38**	.09**	.12**	.23**	.14**	1											
10. Group involvement	-.23**	.17**	.21**	.23**	.17**	.1**	.17**	.16**	.29**	1										
11. Physical punishment	.19**	-.13**	.01	-.22**	-.11**	-.11**	-.12**	-.09**	-.07*	-.05	1									
12. Monitoring	-.15**	.2**	-.01	.31**	.22**	.11**	.23**	.2**	.0	.08**	-.11**	1								
13. Obedience orientation	.03	.03	.01	-.08**	.03	-.02	.02	-.02	-.02	.02	.17**	.08**	1							
14. Family stress	.1**	-.12**	.02	-.11**	-.18**	-.03	.01	-.06*	-.07*	-.04	-.05	-.06*	-.03	1						
15. SES	-.12**	.09**	.0	.17**	.09**	.05	-.01	.07*	.1**	.08**	-.2**	.12**	-.17**	.03	1					
16. Social competence	-.25**	.27**	.11**	.27**	.26**	.22**	.16**	.22**	.16**	.13**	-.14**	.14**	-.07*	-.08**	.08**	1				
17. Life satisfaction	-.15**	.14**	.15**	.15**	.1**	.15**	.13**	.21**	.15**	.18**	-.05	.07*	.01	-.08**	.01	.5**	1			
18. Trust and tolerance of others	-.15**	.19**	.07*	.18**	.2**	.13**	.05	.12**	.06*	.06*	-.11**	.06	-.12**	-.06*	.19**	.54**	.4**	1		
19. Trust in authorities and organisations	-.15**	.2**	.04	.19**	.21**	.09**	.1**	.18**	.08**	.16**	-.09**	.07*	-.01	-.09**	.09**	.47**	.38**	.49**	1	
20. Civic action and engagement	-.06*	.06	.05	.07*	.07*	.05	.01	.03	.04	.06	-.06*	.05	-.05	.02	.13**	.28**	.17**	.33**	.16**	1
Range	1.08-5	1-4.91	1-4.89	7-20	1-4	1-4.5	2-5	1.12-5	.12-2	0-2	1-4	2.4-5	1-5	0-4	1-7.5	-1.12-.82	-1.55-.81	-1.29-1.02	-.83-.80	-.58-2.14
<i>M</i>	2.9	2.31	2.56	17.07	1.42	3.48	4.21	3.96	1.56	1.22	1.23	4.72	3.36	.26	3.91	.00	.00	.00	.00	.00
<i>SD</i>	.69	.7	.64	2.33	.47	.58	.56	.69	.36	.52	.42	.35	.71	.53	1.3	.28	.37	.36	.25	.42

* = $p < .05$, ** = $p < .01$

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
awareness																													
23. Environmental awareness	-.05	-.02	.01	.09**	.14**	.03	.06	.0	.11**	.02	.01	.1**	.02	.07*	.04	.01	-.01	-.06*	.06	.05	.07*	.43**	1						
24. Community orientation	.03	-.01	.06*	.06*	.06*	.03	.01	.04	.23**	.09**	.02	.13**	.04	.15**	.07*	-.05	.02	-.05	.04	.09**	.15**	.54**	.41**	1					
25. Social competence	.11**	.22**	.27**	-.10**	.12**	.3**	.02	.27**	.39**	.17**	.19**	.26**	-.16**	.24**	.25**	-.13**	.14**	-.21**	-.05	.1**	.17**	.19**	.14**	.26**	1				
26. Life satisfaction	.22**	.1**	.14**	-.23**	.02	.33**	.12**	.15**	.26**	.19**	.24**	.23**	-.28**	.27**	.28**	-.26**	.07*	-.08**	-.09**	.04	.2**	.06	.05	.12**	.5**	1			
27. Trust and tolerance of others	.02	.12**	.12**	-.09**	.1**	.2**	.06	.23**	.32**	.13**	.14**	.13**	-.07*	.16**	.17**	-.11**	.07*	-.13**	-.03	.2**	.2**	.3**	.14**	.28**	.54**	.4**	1		
28. Trust in authorities and organisations	.02	.17**	.18**	-.07*	.0	.17**	.0	.23**	.27**	.18**	.14**	.14**	-.12**	.18**	.20**	-.18**	.11**	-.11**	-.11**	.09**	.22**	.1**	.04	.18**	.47**	.38**	.5**	1	
29. Civic action and engagement	.05	.04	.02	-.03	.09**	.06	.08**	.05	.21**	.09**	.04	.08**	.01	.1**	.05	.01	.04	-.04	.04	.18**	.2**	.34**	.25**	.39**	.28**	.17**	.33**	.16**	1
Range	1.17-5	1-5	1.17-5	1-5	1.33-5	1.6-5.7	10-20	0-3.8	1.33-5	0-2	1.75-4	1-4	1-4	1-4	1-4	1-4	1.17-5	1-4.2	0-5	1-7.67	1-3.38	1-4	1-4	1-4	-	-	-	-	-
<i>M</i>	3.33	3.46	3.45	2.44	2.44	3.76	16.84	1.43	3.82	1.07	3.03	2.91	1.78	2.98	3.35	2.05	4.51	1.99	.32	3.84	2.21	1.65	2.02	1.91	.82	.81	1.02	.80	2.14
<i>SD</i>	.61	.65	.67	.62	.62	.6	2.25	.47	.58	.57	.29	.65	.49	.62	.45	.57	.42	.55	.67	1.4	.55	.6	.75	.59	.28	.37	.36	.25	.42

* = p<.05, ** = p<.01

Appendix E

Summary of Study 1 findings

Table E1

Summary of Significant Child Predictors of Positive Development Dimensions in Emerging Adulthood

Variable	Social comp- etence	Life satis- faction	Trust and tolerance of others	Trust in authorities and org's	Civic action and engagement
Step 1					
Gender	+**		+**	+**	+**
SES	+**		+**	+**	+**
Step 2					
Gender	+**		+**	+**	+**
SES	+**		+**	+**	+**
Approach (infancy)					
Activity (infancy)					
Irritability (infancy)					
Negative reactivity (late childhood)					
Approach (late childhood)		+**			
Persistence (late childhood)	+*	+*			-*
Responsibility (late childhood)					+**
Self control (late childhood)	+**			+**	
Academic competence (mid childhood)	+*		+**	+**	
Academic competence (late childhood)					+*
Adjustment of mother- baby pair (infancy)					
Relationship with parents (late childhood)	+**	+**		+**	
Relationship with					-**

Variable	Social comp- etence	Life satis- faction	Trust and tolerance of others	Trust in authorities and org's	Civic action and engagement
peers (late childhood)					
Mothers age (infancy)		-*			
Number of children in family (early childhood)		+		+	
Parental monitoring (late childhood)					
Family stress (mid childhood)					

* = $p < .05$, ** = $p < .01$, + = positive beta value, - = negative beta value.

Table E2

*Summary of Significant Early Adolescent Predictors of Positive Development**Dimensions in Emerging Adulthood*

Variable	Social comp- etence	Life satis- faction	Trust and tolerance of others	Trust in authorities and org's	Civic action and engagement
Step 1					
Gender	+		+		+
SES	+		+		+
Step 2					
Gender	+		+	+	+
SES			+		+
Negative reactivity	-				
Persistence Approach Responsibility		+			
School adjustment	+		+	+	
Emotional control	+				
Parent warmth Family attachment	+	+		+	
Peer involvement Group involvement		+		+	
Physical punishment Monitoring Obedience orientation					
Family stress	-		-		

* = $p < .05$, ** = $p < .01$, + = positive beta value, - = negative beta value.

Table E3

*Summary of Significant Mid/Late Adolescent Predictors of Positive Development
Dimensions in Emerging Adulthood*

Variable	Social comp- etence	Life satis- faction	Trust and tolerance of others	Trust in authorities and org's	Civic action and engagement
Step 1					
Gender	***		**	**	**
SES	**		**	**	**
Step 2					
Gender	**			**	
SES			**		**
Extraversion		+	**	*	
Agreeableness					
Conscientiousness	+				
Neuroticism		**	*		
Openness		*		*	
Emotional control	**	**	**	**	
Sensation seeking		+			
School bonding	**	**	**	**	**
School adjustment			**		
Organised peer group activities				**	
Trust in peers					
Peer communication	**				
Peer alienation		*			
Warmth with parents					
Trust with parents	**		+	**	
Alienation from parents	**				+
Parental monitoring					
Parenting use of punishment	*				
Family stress		*		**	
Community bonding		+	**	**	**
Political awareness			**		**
Environmental awareness					+
Community orientation	**		**	**	**

* = $p < .05$, ** = $p < .01$, + = positive beta value, - = negative beta value.

Appendix F

Descriptive statistics and intercorrelations for variables used in Study 2

Table F1

Intercorrelations and descriptive statistics of study variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
Social competence																							
1. Responsibility	-	.40**	.34**	.35**	.26**	.07*	.11**	.15**	.16**	.17**	.15**	.02	.00	.07*	-.22**	-.16**	-.13**	-.33**	-.16**	-.29**			
2. Empathy		-	.36**	.19**	.22**	.11**	.16**	.19**	.10**	.12**	.12**	.06*	.03	.12**	-.16**	-.15**	-.16**	-.17**	-.02	-.11**			
3. Self control			-	.12**	.25**	.06*	.12**	.23**	.13**	.17**	.17**	.08**	.10**	.16**	-.09**	-.02	.00	-.21**	-.06	-.12**			
Life satisfaction																							
4. Satisfaction with achievement/direction				-	.53**	.13**	.15**	.06	.14**	.18**	.13**	.02	.04	.04	-.48**	-.28**	-.25**	-.16**	-.14**	-.11**			
5. Satisfaction with personal/social life					-	.12**	.10**	.02	.20**	.14**	.14**	.01	.06	.03	-.52**	-.34**	-.32**	-.10**	-.07*	.01			
Trust and tolerance of others																							
6. Trust people in neighbourhood						-	.36**	.18**	.20**	.17**	.15**	.08*	.08**	.12**	-.11**	-.04	-.05	-.07*	-.06*	-.04			
7. Trust Australians							-	.36**	.22**	.25**	.19**	.10**	.10**	.15**	-.12**	-.07*	-.08**	-.14**	-.06	-.02			
8. Value ethnic groups								-	.10**	.14**	.14**	.14**	.15**	.22**	-.04	.00	.02	-.20**	-.08**	-.15**			
Trust in authorities and organisations																							
9. Trust organisations									-	.39**	.44**	.07*	.09**	.03	-.14**	-.07*	-.08**	-.14**	-.08**	-.06*			
10. Confidence in police										-	.55**	.05	.10**	.02	-.15**	-.12**	-.14**	-.28**	-.15**	-.15**			
11. Confidence in courts											-	.02	.04	.01	-.15**	-.06*	-.10**	-.24**	-.13**	-.05			
Civic action and engagement																							
12. Group participation													-	.40**	.42**	.03	.07*	.03	.01	-.05	-.02		
13. Group donation														-	.40**	.01	.04	.01	-.01	-.04	.00		
14. Civic action															-	-.02	.03	.00	-.01	-.02	.04		
Internalising problems																							
15. Depression																	-	.65**	.63**	.14**	.13**	.07*	
16. Anxiety																		-	.71**	.18**	.17**	.10**	
17. Stress																			-	.10**	.13**	.07*	
Externalising problems																							
18. Antisocial behaviour																					-	.29**	.38**

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
19. Problematic marijuana use																				-	.22**	
20. Problematic Alcohol use																						-
Range	1.25- 5.00	1.00- 5.00	1.25- 5.00	1.00- 4.00	1.00- 4.00	1.00- 5.00	1.00- 5.00	1.00- 5.00	1.00- 4.00	1.00- 4.00	1.00- 4.00	.00- 4.00	.00- 4.00	1.00- 2.80	.00- 3.00	.00- 2.86	.00- 2.71	1.00- 2.47	.00- 1.80	.00- 1.80		
M	4.09	3.59	4.09	3.13	3.13	3.38	3.16	3.65	2.23	2.68	2.66	.73	.50	1.30	.54	.38	.72	1.07	.60	.23		
SD	.55	.60	.57	.63	.50	.95	.92	1.06	.50	.61	.67	.94	.86	.33	.58	.44	.54	.16	.23	.27		

Notes. **Bold**, variables within domains.

* = $p < .05$, ** = $p < .01$.

Appendix G

Summary of goodness of fit measures used in the structural equation modelling analyses

Chi square test

Chi-square is a badness of fit measure in that significant chi-square values suggest that the sample correlation matrix and the model correlated matrix are significantly different (Schermelleh-Engel, et al., 2003). However, large sample sizes tend to increase chi-square. Hence, it has been suggested that chi-square is inappropriate for sample sizes over 200 (Hair, et al., 1998).

Goodness-of-fit Index (GFI) and Adjusted Goodness-of-fit Index (AGFI)

The GFI is a measure of overall model fit, and provides the proportion of variance that is explained by the model. It can also be interpreted as the proportion of variance in the unobservable variables that is explained by the observed indicators. The AGFI is the GFI adjusted for the degrees of freedom. GFI values greater than .95 are taken to reflect acceptable fit (Schermelleh-Engel, et al., 2003). AGFI values greater than .80 are taken to reflect acceptable fit (Hair, et al., 1998).

Root Mean Square Residual (RMR)

The RMR measures the average of the fitted residuals, and provides the proportion of variance in the data accounted for by the model. Lower values indicate better model fit, and values below .05 are generally taken to indicate a good fit (Hair, et al., 1998).

Root Mean Square Error of Approximation (RMSEA)

RMSEA is based on the non-centrality parameter, and takes particular account of the error of approximation (Zubrick & Lawrence, 2006). Brown & Cudeck (1993)

suggest that a value below .05 indicates a close fit, and values up to .08 indicate acceptable fit.

Akaike Information Criterion (AIC)

The AIC adjusts the chi-square value for the number of estimated parameters, and thus rewards model parsimony. The AIC can be used to compare the fit of non-nested models as long as the observed data is consistent. Better fit is indicated by relatively lower values. The absolute value of AIC is not interpretable and hence AIC is not examined for single models (Schermelleh-Engel, et al., 2003).



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