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**THE POWER OF POSITIVE THINKING: THE EFFECTS
OF SELF-ESTEEM, EXPLANATORY STYLE, AND TRAIT
HOPE ON EMOTIONAL WELLBEING**

A dissertation submitted in partial fulfilment
of the requirements for the award of the degree
Doctor of Philosophy (Clinical Psychology)

from the

University of Wollongong

By

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B.A. (Hons), MPsych (Applied)

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2009

Certification

I, Fiona Jane Davies, declare that this thesis, submitted in partial fulfilment of the requirements for the award of the degree of Doctor of Philosophy (Clinical Psychology), in the School of Psychology, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledge. The document has not been submitted for qualifications at any other academic institution.

Fiona Jane Davies

Date:

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Publications from this research

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Davies, F., Heaven, P. C., Ciarrochi, J. V., & Vialle, W. J. (2005). The effect of cognitive variables on emotional states in adolescence. *Australian Journal of Psychology : Combined Abstracts of 2005 Australian Psychology Conferences*, 199.

Abstract

Historically, personality and psychopathology have been viewed as conceptually distinct, but recently there have been calls for integrative models. Similarly, the traditional view of mental disorders has been that they are qualitatively different to normal mental states. However, this view has recently changed with a consensus starting to emerge that emotional wellbeing and psychopathology are on a continuum. In particular, the tripartite model of Clarke and Watson (1994) has been influential in understanding the links between affect and psychopathology, proposing that high negative affectivity is related to both anxiety and depression, and low positive affectivity only to depression. Longitudinal research over multiple time points is needed in order to clarify the above relationships and their trajectories over time, as well as to address the nature of developmental change and stability.

Despite this, there is little research available on the link between emotional wellbeing—particularly specific emotional states such as sadness—and mental health over time. In addition, many personality variables have been studied in relation to mental health that have not had the same attention in the realm of emotional wellbeing. This thesis examines one such group of variables and their relationship to emotional wellbeing.

Appraisal theories suggest a link between emotional states and the perceptions of events, and the variables included in this research come from this tradition. The phrase ‘positive thinking’ is used in this thesis to refer to cognitive styles that involve positive appraisals of the self, the world, or the future. The specific constructs studied

provide a mix of two well-established and widely studied variables (self-esteem and explanatory style) and one newer and less studied variable (trait hope).

Study 1 examined the cross-sectional relationship between the three positive thinking variables and four emotional states (fear, sadness, hostility, and joviality) among 785 Year 7 students. The results of the confirmatory factor analysis suggest that the three positive thinking variables are distinct, as do the different patterns of relationships between the positive thinking variables and the emotional states.

Study 2 included 660 of the same students one year later in order to examine the longitudinal relationship between the positive thinking variables and emotional wellbeing. When all three positive thinking variables were included in the structural equation models, there were unique effects for each variable. Specifically, high self-esteem predicted lower fear and sadness, high trait hope predicted increased joviality, and positive explanatory style predicted lower hostility one year later. The positive thinking variables showed moderate stability over time, broadly consistent with prior research.

Overall, the results of this thesis indicate that self-esteem, explanatory style, and trait hope have important and unique effects on emotional wellbeing in early adolescence. These findings have implications for clinical practice, particularly for prevention and early interventions programs for anxiety and depression. The reasons for the specific relationships found in this thesis remain unclear, and further development of the theoretical and research base in this area would be worthwhile.

Chapter 1: Adolescent mental health and emotional wellbeing

1.1 Adolescent mental health

Mental health problems are an enormous burden on both society and individuals, with one in five Australian adults experiencing a mental disorder in a one-year period, and 45 percent experiencing a mental disorder during their lifetime (Australian Bureau of Statistics [ABS], 2009). Similarly, the prevalence of mental health problems in Australian children and adolescents is at least 14 percent, not including anxiety disorders (Sawyer et al., 2001). Worldwide, one in five adolescents experience developmental, emotional or behavioural problems, with one in eight suffering a diagnosable mental illness (World Health Organisation [WHO], 2004).

The child and adolescent component of the 1999 Australian National Survey of Mental Health and Wellbeing found that comorbidity of mental health conditions was common, and that mental health problems were strongly associated with suicide risk (Sawyer et al., 2001). Most of the affected adolescents had not accessed professional help, and the authors acknowledged that resources would not be sufficient to cover the population at need. This highlights the need for a combination of health promotion, prevention and clinical care programs in addressing mental health concerns in young people (Sawyer et al., 2001).

Prevention programmes require the identification of malleable risk and protective factors so that target populations can be identified and focussed interventions can be designed. Unfortunately, research investigating the effectiveness of prevention programmes has had mixed results. Recent reviews have concluded that although some

programmes have had small to moderate effects, these often disappear at follow-up (e.g, Horowitz & Garber, 2006; Merry, 2007; Merry & Spence, 2007).

One way to identify high risk groups may be to look at emotional wellbeing, in order to address non-clinical dysphoria and anxiety before it becomes more severe. Clark and Watson (1991) suggest that an increased tendency to experience negative affective states is common to both depression and anxiety, while low positive affect is related only to depression. Research also suggests that positive affect can be increased, particularly through increasing positive engagement with the environment (Watson, 2002). Improving emotional wellbeing (through decreasing negative affect or increasing positive affect) may therefore lead to a decrease in the prevalence or severity of mental health problems.

1.2 Emotional wellbeing as a marker of risk

The question of the relationship between emotional wellbeing and mental disorders rests on whether there is a continuum between the everyday experience of affective states, such as sadness, and mental disorders characterized by emotional distress, such as depression. The alternative view is that these states are qualitatively different, such that everyday moods are different to clinical states, and more than just in degree.

David Watson and colleagues argue that there is a “fundamental continuity between normal and abnormal psychological processes” (Watson, Gamez, & Simms, 2005, p.46). They present evidence for reliable links between both positive and negative affectivity and psychopathology, as well as continuity between them. There is evidence for four possibilities in explaining this relationship – (a) affectivity could be a causal factor affecting either vulnerability to mental illness or prognosis; (b) mental illness

could cause changes in affective states; (c) a third factor may underlie both affectivity and psychopathology; or (d) negative affectivity may be a subclinical condition on a spectrum with psychopathology (Watson, Gamez, & Simms, 2005; Watson, Kotov, & Gamez, 2006). Similarly, Clark, Beck, and Alford (1999) argue that the evidence suggests that a dimensional, rather than categorical, view of depression is most supported and that the cognitive disturbances present in clinical conditions also exist in a weaker form in individuals with non-clinical dysphoria.

This study takes the first possibility as a starting point – that an individual’s tendency to experience either Positive Affect (PA) or Negative Affect (NA) may constitute either a vulnerability to the later development of mental illness, or a protective factor that lessens the risk (depending on the nature of the affect). Thus, interventions targeting a decrease in NA and/or an increase in PA may help delay or prevent the onset of emotional disorders such as depression or anxiety. The clinical implications of this possibility are enormous, as early onset of mental health conditions is associated with a range of negative outcomes (Dozois & Westra, 2004). It should be noted that the fourth possibility discussed above, that negative affectivity is on a spectrum with clinical disorders, would also lead to similar implications for the results of this study.

1.3 The need for prevention

Reports produced by the World Health Organisation (2004; Hermann, Saxena, & Moodie, 2005) have identified unipolar depression as the most important mental disorder to address through a combination of health promotion, prevention, and early intervention programs. Major Depression has been described as the world’s leading

cause of disability (The National Advisory Mental Health Council Workgroup on Child and Adolescent Mental Health Intervention Development and Deployment, 2001), and epidemiological studies suggest that the age of onset is decreasing for more recent population cohorts (American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, 4th ed. Text Revision [DSM-IV-TR], 2000). Anxiety disorders are amongst the most common mental disorders and tend to have onset in childhood and adolescence (WHO, 2004). Further, anxiety disorders are a common precursor of depressive illnesses, making anxiety disorders another important target for prevention (WHO, 2004).

The World Health Organisation (2009) measures the degree of disability associated with mental or physical illness in terms of disability-adjusted life-years (DALYs). This provides a means of comparison between illnesses, with one DALY equivalent to one year of life lost to disability or mortality. Using this measure, neuropsychiatric conditions (and particularly depression) account for 13 percent of DALYs lost to all diseases worldwide (WHO, 2004). As Major Depressive Disorder is a recurrent illness—with relapse rates of at least 60 percent (DSM-IV-TR, 2000)—preventing or delaying a first episode may decrease the prevalence and degree of disability associated with this illness. Thus, mental disorders such as depression are both common and disabling.

Prevention programmes can be effective through reducing risk factors for an illness, or strengthening protective factors (WHO, 2004). Risk factors such as negative thinking are associated with onset, severity and duration of mental illnesses (WHO, 2004). Protective factors such as self-esteem and positive thinking help to build resilience to risk factors (WHO, 2004). Temperament, specifically the tendency to experience negative and positive affective states, has also been identified as a risk factor

for emotional disorders including anxiety and depression amongst children (e.g., Lonigan, Phillips & Hooe, 2003). Effective prevention programmes have the potential to decrease the global burden of disease.

1.4 Positive thinking as a target of intervention

One way of improving emotional wellbeing in young people may be to increase positive thinking, as is suggested by the success of cognitive-behavioural therapy in treating both anxiety and depression in adolescence (e.g., Cartwright-Hatton, Roberts, Chitsabesan, Fothergill, & Harrington, 2004; Compton et al., 2004; Reinecke, Ryan, & DuBois, 1998). This study will examine whether the way adolescents think about themselves, the world, and their future affects their everyday experience of positive and negative emotions. This may provide a basis for effective prevention programmes to lessen the impact of mental illnesses, as well as informing clinical practice by providing a clearer idea of the ways in which thinking and feeling are related.

One way in which positive thinking may affect emotional wellbeing is through the mechanism of appraisal. Appraisal theories suggest that individual differences in the experience of emotions arise from differences in the appraisal of events, rather than the events themselves (Silvia & Warburton, 2006). Indeed, evidence suggests that appraisal is a proximal cause of emotions (Smith, Haynes, Lazarus, & Hope, 1993). A meta-analysis by DeNeve and Cooper (1998) found that personality traits which involved adaptive attributions were the most successful personality predictors of subjective wellbeing. The highly successful cognitive-behavioural therapies (CBT)—which focus on the relationship between emotion, cognition (thoughts and beliefs), and behaviour—systematically target these appraisals. Beck (1991) proposes ‘cognitive primacy’ in depression, in which negative cognitions lead to the other symptoms of depression (such

as low mood and anhedonia). For example, if someone who is highly focussed on their work loses their job, they may see this as their fault, activating a belief that they are incompetent, and associated automatic thoughts such as ‘I’m a failure’; ‘I’ll never get another job’; etcetera. This may in turn lead to negative emotions such as sadness and shame. CBT is focused on changing this negative thinking, rather than attempting to directly change emotions. The nature of the thinking of depressed individuals is reflected in the cognitive triad of negative thoughts and beliefs about the self, the world, and the future, with this negative thinking activated by appraisals of life events (Beck, 2005).

Beck (1991) also proposed that particular types of emotions should be related to specific types of perceptions of events. Specifically, appraisals of “loss, deprivation, or defeat” should result in sadness; appraisals of personal vulnerability to threat should result in anxiety; appraisals of threat from others should result in anger; and positive emotions should result from perceptions of gain (Beck, 1991). Therefore, both appraisal theories and cognitive theory suggest that positive change in the way adolescents think (their appraisal of events, themselves, and the future) should increase PA and decrease NA. If affectivity is a vulnerability factor for mental illness, or indeed if affectivity and psychopathology are on a continuum, then increasing positive thinking may help to prevent or delay the onset of mental illnesses such as depression and anxiety. On a larger scale, this has the potential to decrease the global burden of disease by leading to a healthier population.

The phrase ‘positive thinking’ will be used to refer to cognitive styles that involve positive appraisals of the self, the world, or the future. The specific constructs studied provide a broad match to the cognitive triad—self-esteem for the self, explanatory style for the world, and trait hope for the future—and provide a mix of two

well-established and widely studied variables (self-esteem and explanatory style) and one newer and less studied variable (trait hope). These constructs, and their associated measures, have all been studied in adolescents, are applicable to the general population (rather than select clinical groups), and have received empirical support.

Self-esteem and explanatory style have been studied extensively as risk or protective factors for anxiety and depression, but in a much more limited way in relation to positive and negative affect. As these variables have generally been studied independently, it is unclear whether they have unique effects or whether they are more readily explained by a general positive thinking factor. Furthermore, a number of authors have recently suggested there may be links between some of these variables (e.g., Judge, Erez, Bono, & Thoresen, 2002). Research, such as the current study, which includes more than one of these variables at a time, may help to clarify this issue.

1.5 Summary & conclusion

Given the prevalence and degree of disability associated with mental health concerns such as anxiety and depressive disorders, the promotion of mental health and prevention of mental illness is an important focus for research on adolescence. If emotional wellbeing contributes to mental health, then this may provide a way to identify adolescents at risk. If positive thinking affects emotional wellbeing, then this would suggest that strengthening positive thinking may be a worthwhile focus for prevention programmes with adolescents. This research will examine the uniqueness of three positive thinking variables as well as their cross-sectional and longitudinal relationships with both positive and negative affect. If the positive thinking variables do affect emotional wellbeing, then they may be a legitimate target for prevention programmes. If the variables have unique effects, then this would allow additional

tailoring of intervention programmes based on individual differences between adolescents. Chapter Two will explore this idea in detail, discussing the theory and research on negative and positive affect, as well as self-esteem, explanatory style, and trait hope.

Chapter 2: Positive thinking and emotional wellbeing

The well known quote from Hamlet ‘for there is nothing either good or bad but thinking makes it so’ (Shakespeare, 1603/1996, p. 110–111) illustrates one of the key ideas behind appraisal theories and cognitive behavioural therapy. It suggests that our appraisal of the ‘goodness’ or ‘badness’—rather than the objective reality of a situation—is crucial. Self-esteem, trait hope, and explanatory style represent different ways of appraising aspects of individual experience. Self-esteem refers to evaluations of the worth of the self, trait hope refers to thoughts about the likelihood of attaining valued goals, and explanatory style refers to the way in which individuals explain the causes of life events. Based on the large body of research on each of these constructs, an individual with high self-esteem, high trait hope, and an optimistic explanatory style could be reasonably expected to have better outcomes in life and better wellbeing than someone with less positive habits of thinking.

Each of these variables has a demonstrated relationship with mental health and a range of important outcomes in adolescence. The evidence for a link between self-esteem and major depression is particularly strong (Baumeister, Campbell, Kruger, & Vohs, 2003). The relationship between these variables and negative and positive affect is less well studied, particularly in adolescence. In addition, as self-esteem, trait hope and explanatory style have generally been studied in isolation from each other, it is unclear whether the effect of these variables may be unique in their impact on affective states. For example, it may be that self-esteem will show a stronger relationship with negative affective states such as sadness, while trait hope may be more strongly related to positive affect.

Depression and anxiety are the most common mental disorders across all age groups, with a common onset in adolescence (Kessler, Berglund, Demler, Jin, & Walters, 2005). They are characterized by disturbances of mood, and are often co-morbid, with anxiety disorders often preceding depressive disorders (Kessler, Berglund, et al., 2005; Kessler, Chiu, Demler, & Walters, 2005). Depression and anxiety have been related to positive and negative affect in the tripartite model (Clark & Watson, 1991). This model suggests that while both anxiety and depression are related to negative affect, only depression is related to low positive affect. Positive affect is characterized by energy and enthusiasm, and low positive affect is therefore similar to anhedonia, one of the defining features of depression (Tarlow & Haaga, 1996). Depression and anxiety will be the focus of discussion in this thesis as they are both the most common mental disorders, and the ones which have been most widely studied (particularly in the case of depression) in relation to the positive thinking variables.

Subjective wellbeing (SWB) has been defined as a broad category of phenomena that includes peoples' positive and negative emotional states, life satisfaction, and satisfaction in specific domains (Diener, Suh, Lucas, & Smith, 1999). Hence, the experience of positive and negative affect makes up two of the three components of SWB or happiness, and adolescents who experience relatively less negative affect and relatively more positive affect are more likely to report a sense of personal wellbeing. In a review of the research, Diener, Suh, Lucas, and Smith concluded that "Personality is one of the strongest and most consistent predictors of subjective well being" (1999, p.279). This includes temperament, traits, and 'cognitive dispositions' such as optimism. Diener et al. (1999) suggested that more research is needed on the causal direction of the factors (such as optimism) associated with SWB. Subsequent research has found evidence for the influence of constructive thinking (Harris & Lightsey, 2005)

and optimism (Daukantaite & Bergman, 2005) on later SWB. For example, positive thinking styles may be more flexible and lead to more effective problem-solving and coping strategies (Harris & Lightsey, 2005). It is reasonable to expect that this will also apply to the positive thinking variables under examination in this thesis – self-esteem, explanatory style, and trait hope.

Thus, self-esteem, explanatory style and trait hope have a demonstrated link to mental health concerns, and positive and negative affect have a demonstrated link to mental health, but the relationship of self-esteem, explanatory style and trait hope with positive and negative affect is less clear and presents an opportunity for further research. Further, the relationship between the three positive thinking variables is unclear, and is also worthy of investigation. Both of these research questions will be addressed in this thesis. I will now review the relationship between emotional wellbeing and mental health, followed by the theories and evidence for the relationship between the three positive thinking variables and wellbeing.

2.1 Emotional wellbeing and mental health

The study of emotion is a rapidly expanding area of psychology, with many different models and definitions of terms such as emotion and mood (Silvia & Warburton, 2006). In line with Silvia & Warburton (2006) I will use ‘affect’ as a broader term encompassing both the more transient nature of emotions and longer lasting moods and ‘emotional wellbeing’ to indicate a state with low levels of negative affect and moderate to high levels of positive affect. Increasing evidence suggests that affect is important, influencing a range of outcomes including mental illness or health, adaptive and maladaptive behaviours, and success in life. That is, the experience of

good or bad feelings on an everyday basis has broader implications than being simply one aspect of subjective wellbeing.

The basic dimensions of positive and negative affect were proposed by Watson and Tellegen (1985) in order to explain the structure of self-reported mood in existing research. They suggested that these two higher-order dimensions account for the majority of variance, although more specific lower-order affective states are also important. Both dimensions are measured such that the high end of both represents a state of emotional arousal or high affect, while the low end represents a state of minimal arousal or neutral affect (Watson & Tellegen, 1985). High negative affect refers to those moods or emotions that people experience as being unpleasant or upsetting, including hostility, sadness, fear and so on; low negative affect is characterised by moods such as relaxed and calm (Watson & Tellegen, 1985). High positive affect refers to a state of enthusiasm and 'zest for life', including energy, interest, and alertness; low positive affect consists of moods such as drowsiness, sleepiness and sluggishness (Watson & Tellegen, 1985). Negative affectivity is conceptually similar to neuroticism and behavioural inhibition, and positive affectivity to extraversion and behavioural activation (Brown, 1997).

The tripartite model of Clark and Watson (1991) has been one of the most influential approaches to understanding the links between affect and psychopathology, and has the advantage of providing a model for understanding both the comorbidity and the differences between mood and anxiety disorders. Emotional distress (negative affect) is a core experience of both the anxiety and mood disorders. An individual with an anxiety disorder will experience pervasive feelings of fear and apprehension while an individual with depression will experience at least one of two pervasive moods – sadness or anhedonia (DSM-IV-TR, 2000). Anhedonia can be thought of as equivalent

to low positive affect, representing a state of little enthusiasm and low energy (Watson, Kotov, & Gamez, 2006). Irritability is a common symptom of depression among adolescents, and may be manifest instead of sad mood (DSM-IV-TR, 2000). The anxiety and mood disorders are the most common of the mental illnesses, affecting 28.8 % and 20.8 % respectively of the population in their lifetime (Kessler, Berglund, et al., 2005). Adolescence is a particularly significant time as the median age of onset for anxiety disorders is 11 years of age, and 75 % of all disorders have their onset prior to 24 years of age (Kessler, Berglund, et al., 2005). Additionally, there is considerable comorbidity as 40 % of individuals who meet criteria for any one mental disorder in a 12-month period, also meet the criteria for at least one additional disorder in that period (Kessler, Chiu, et al., 2005).

Given the prevalence of the mood and anxiety disorders, the following discussion will focus on the tripartite model rather than covering all the different models of affect and psychopathology that have been suggested. Studies investigating the tripartite model in adolescence will be discussed, along with research on the benefits of emotional wellbeing in adolescence.

2.1.1 The tripartite model

Negative affectivity as a personality trait is a strong predictor of psychopathology as well as general psychological functioning (Watson, Kotov, & Gamez, 2006). It may also be more strongly related to disorders involving high levels of subjective distress and/or dysphoria as a central feature (Watson et al., 2006). Positive affectivity, on the other hand, relates negatively to anhedonia and interpersonal anxiety (Watson et al., 2006). Anhedonia is a symptom of a number of disorders—particularly

depression and schizophrenia—while interpersonal anxiety is a central feature of social phobia (Watson et al., 2006).

The tripartite model was originally proposed to account for the high comorbidity between anxiety and depression (Clark & Watson, 1991; Watson et al., 1995), building on earlier research examining the relationship of positive and negative affectivity to both types of conditions (e.g., Watson, Clark, & Carey, 1988). The tripartite model consists of three factors: subjective distress (negative affectivity or NA), anhedonia (low positive affectivity or PA), and physiological hyperarousal (PH) (Watson et al., 1995). In this model, high negative affectivity is a general factor common to both anxiety and depression and accounts for the high comorbidity between these symptoms. Low positive affectivity, on the other hand, is specific to depression and therefore distinguishes one symptom group from the other. The physiological hyperarousal factor was proposed to differentiate anxiety disorders, but is less supported by the evidence than the other two factors (Brown, Chorpita & Barlow, 1998; Chorpita, Plummer, & Moffitt, 2000; Watson et al., 1995) and may be a lower level factor (Brown et al., 1998; Mineka, Watson, & Clark, 1998).

In later work Watson and colleagues have focussed on positive and negative affectivity rather than the physiological hyperarousal factor (e.g., Watson, Gamez, & Simms, 2005; Watson, Kotov, & Gamez, 2006). In keeping with this later work, I will focus on the evidence for the relationship of positive and negative affectivity to both anxiety and depression, particularly amongst adolescents.

2.1.2 Evidence supporting the tripartite model in adolescents

The tripartite model has empirical support amongst adult psychiatric patients (e.g., Brown, Chorpita, & Barlow, 1998; Clark, Beck, & Stewart, 1990; Watson et al.,

1995; Watson, Clark, & Carey, 1998), undergraduate students (Watson et al., 1995; Watson & Walker, 1996), and normal adults (Watson et al., 1995; Watson, Gamez, & Simms, 2005; Weinstock & Whisman, 2006). Compared to research examining the tripartite model in adults, research on adolescents is relatively sparse but growing (Lonigan, Phillips, & Hooe, 2003).

Several recent studies have found support for the tripartite model in non-clinical adolescent populations. In one of the largest studies available, Chorpita (2002) examined the relationship between the three components of the tripartite model and anxiety and depression in 1578 school students. In line with the current theorising discussed previously, Chorpita (2002) found that PA and NA operated at a structurally higher level than PH. The relationships were as expected with (low) PA related only to depression and (high) NA to both anxiety and depression. Additionally, they found equivalent results for the males and females in their study, suggesting the tripartite model holds across gender.

A limitation of this study—and one it has in common with much other research in this area—is the use of self-report scales for depression and anxiety symptoms rather than diagnostic measures. Chorpita (2002) raised this issue, along with the reliance on self-report measures, and also commented that the relationship between reports on symptom scales and clinically significant conditions is not fully understood. In a common criticism of research in this area, Chorpita (2002) noted the need for longitudinal studies to investigate the relationship between tripartite factors and the development of anxiety and mood disorders over time (see also Brown, 2007; Daleiden, Chorpita, & Lu, 2000). Finally, the use of items from several depression and anxiety scales (e.g., the Depression Anxiety Stress Scales [DASS], Lovibond & Lovibond, 1995) to assess positive and negative affectivity blurs the distinction between the

tripartite factors and depression and anxiety. Chorpita and Daleiden (2002, p.1150) argue that research in this area is marred by 'creative attempts' to measure the factors in children, and that scale validation is problematic as a result.

In an important development of the research base, a recent longitudinal study of 270 child and adolescent school students also supported the NA and PA factors of the tripartite model in predicting the expected changes in symptoms of anxiety and depression over seven months (Lonigan, Phillips, & Hooe, 2003). In line with Chorpita (2002) no difference was evident between male and females in the sample. It is worth noting that Lonigan et al. (2003) used two of the same measures as Chorpita (2002); however, where Chorpita (2002) used the Revised Children's Manifest Anxiety Scale [RCMAS] (Reynolds & Richmond, 1978) and Children's Depression Inventory [CDI] (Kovacs, 1985) as measures of NA, Lonigan et al. (2003) used them as measures of anxiety and depression (as did Joiner, Catanzo, & Laurent, 1996). This is an example of the 'creative attempts' problem discussed above, and makes it difficult to align the results of the various studies.

The tripartite model has also been found to hold across age groups in school samples. In a study comparing 213 adolescents (12-17 years) to 152 children (9-11 years) Lonigan, Hooe, David, and Kistner (1999) found little difference in the factor structure across age groups or gender. This study generally supported the two factor model (NA and PA) and its relationship with anxiety and depression, although the factors were not as independent of each other as the model would suggest. That is, although PA was most strongly associated with depression (at least in the older sample) it also correlated with the anxiety measures (Lonigan et al., 1999).

The tripartite model has also received some support in adolescent psychiatric populations. In a study of 100 children and adolescents with anxiety and/or depressive

disorders, PA was related to depression and social anxiety, while NA was related to a range of other anxiety disorders but not to depression or social anxiety (Chorpita, Plummer, & Moffitt, 2000). Similar results were obtained with an adult outpatient population by Brown et al. (1998), who found PA to be equally predictive of both social phobia and depression, but unrelated to other anxiety disorders (see also Watson, Gamez, & Simms, 2005). The Chorpita et al. (2000) study provides some limited support for the tripartite model in child and adolescent clinical populations.

The model has also received support in a study of 116 child and adolescent psychiatric inpatients with a range of disorders; in this case the results supported all three factors (Joiner et al., 1996). Lonigan, Carey, and Finch (1994) also found evidence for negative affectivity as a common factor across anxiety and depression in their sample of 233 child and adolescent inpatients; however, their results indicate that more specific measures of emotional states have a role in distinguishing anxiety and depression. They suggested that further research is needed to examine these more specific states as well as broader factors such as positive and negative affectivity (Lonigan et al., 1994).

The broad dimensions of positive and negative affectivity, and their relationship to anxiety and depression, have thus been supported in a range of studies on both normal and clinical adult and adolescent populations. In adolescents, age and gender do not appear to affect the basic findings. Further research including longitudinal studies and studies incorporating measures of more specific affective states would be valuable in understanding the trajectory of affect and psychopathology in adolescence, and whether high NA and low PA constitute a risk factor for depression and anxiety disorders.

2.1.3 Emotional wellbeing in adolescence

The support for the tripartite model suggests that positive and negative affect have implications for the development of anxiety and depressive disorders in adolescence. Interventions designed to decrease negative affect and increase positive affect may therefore assist in preventing or delaying the onset of anxiety and depression in adolescence. However, while this may be of assistance to those adolescents who are at risk of developing psychopathology, the question remains as to whether it would also have benefits for those adolescents who are not at risk of mental illness. Recent research suggests that this may indeed be the case, and that these benefits extend beyond the obvious one of increased subjective wellbeing discussed previously.

Affect has been proposed as a major pathway through which psychological stress can be linked to physical illness (Cohen & Pressman, 2006). For example, negative affect has been found to account for a prolonged rise in heart rate compared to positive affect (Brosschot & Thayer, 2003). Affect is also likely to have implications for health behaviours. For example, a meta-analysis by Stice (2002) found that negative affect is a risk factor for eating pathology (such as binge-eating) and bulimic symptoms. Hostility has also been associated with smoking initiation in early adolescence (Weiss et al., 2005). More hostile adolescents, particularly those showing elevated levels of depressive symptoms, were more likely to begin smoking over a one year period. The authors suggest that smoking may be a coping mechanism to deal with negative affect (Weiss et al., 2005). However, hostility in this study was measured using a scale that included behavioural items, and was therefore not a pure affect measure.

Additionally, an increasing research base suggests that positive affect (happiness) increases the amount of attention people pay to rewards (e.g., Tamir & Robinson, 2007) as well as increasing successful outcomes in life through positive

engagement with the world and other people (Lyubomirsky, King, & Diener, 2005). Therefore, while affect is related to psychopathology (particularly anxiety and depression), it is also related to other outcomes both beneficial and harmful. In particular, the frequent experience of positive affect may lead to more rewarding experiences, which are experienced more intensely, leading to more engagement and more rewards in a positive feedback loop.

In a major review and meta-analysis of 293 samples, Lyubomirsky et al. (2005) found that people who regularly experience positive affect tend to have more success at work, better social relationships, better health, and participate more in their community than people who have dispositionally lower levels of positive affect. At work they tend to perform better, earn more, and be better organisational citizens. In social relationships they tend to have better and larger support networks, and are more likely to have happy romantic relationships. Lyubomirsky et al. (2002) argue that while the assumption has been that success causes happiness, the evidence suggests that the relationship also works in the opposite direction, with the tendency to experience frequent positive affect constituting a human strength which contributes to success and flourishing. They draw on the literature to suggest a variety of mechanisms for this effect, including positive perceptions of the self and of other people, increased social interactions, greater energy and enjoyment of activities, being more likeable and cooperative, showing more prosocial behaviour, better physical and mental health, improved coping and problem-solving, and enhanced cognitive performance.

In summary, interventions aimed at increasing positive affect and/or decreasing negative affect may have beneficial effects on subjective wellbeing, physical health, and commonly accepted measures of successful life outcomes such as employment and relationships. This suggests that prevention programs may have benefits for all

adolescents and not only those who are at increased risk of mental illnesses such as anxiety and depression.

The rest of this chapter will focus on the three positive thinking variables and their relationships to mental health and affective wellbeing from both a theoretical and empirical perspective. The potential overlap between the three variables will also be discussed. Self-esteem has the longest and largest research tradition and will be discussed first, followed by explanatory style, and finally trait hope.

2.2 Self-esteem

Self-esteem has been a major area of study and interest since the 1960s, resulting in a massive research literature (Hewitt, 2002). It has also become widely accepted by the general public as an important aspect of wellbeing, particularly amongst young people. For example, in recent public debates in Australia about the nature of school report cards, one of the main arguments voiced against the government's proposed grading system (A to E) has been the potential for a negative impact on the self-esteem of students who receive lower grades (e.g., NSW Teacher's Federation, 2006).

The Macquarie Dictionary (2nd Revision, 1988) defines self-esteem as 'a favourable opinion of oneself; conceit', while a recent review of the literature offers a more technical definition, 'the evaluative component of self-knowledge' (Baumeister, Campbell, Krueger, & Vohs, 2003). Thus, self-esteem is an individual's perception of their own self-worth – which may or may not be grounded in reality (Baumeister et al., 2003). Rosenberg (1979) saw it as an important aspect of the self-concept and developed the Rosenberg Self-Esteem Scale (RSE), which has been the most widely used measurement instrument in research on self-esteem (Baumeister et al., 2003).

The focus of the current study, global self-esteem, has traditionally been viewed as being on a scale from high (representing a positive evaluation of the self) to low (representing a negative evaluation of the self), allowing simple measurement (Hewitt, 2002). This is exemplified by the unidimensional RSE. Stability in self-evaluations over time using this measure has been reported amongst young adults (Donnellan, Trzesniewski, Conger, & Conger, 2006) and adolescents (Bolognini, Plancherel, Bettshart & Halfon, 1996). In a three year longitudinal study of 219 early adolescents, global self-esteem was found to be stable over time and poorer amongst adolescent females compared to males (Bolognini et al., 1996).

Global self-esteem refers to a general tendency to either positive or negative thoughts about the self, and differs from dimensional self-esteem which is assessed in a variety of specific domains (e.g., athletic self-esteem, social self-esteem, academic self-esteem, and so on). It has been chosen as the focus of the current study for three reasons. Firstly, it has been the most widely used and well-validated measure. Secondly, the other two variables in the study provide global measures rather than domain specific measures, allowing a better alignment of the variables and simpler analysis. Finally, global self-esteem is an appropriate measure when looking at global outcomes (Swann, Chang-Schneider, & Larsen McClarty, 2007) as is the case in this thesis.

The research on self-esteem is somewhat fragmented due to the lack of a generally accepted theory on self-esteem and its relationship to important outcome variables. The literature on self-esteem is not as coherent in this way as research on explanatory style or trait hope, which are guided by explicit theories (such as the hopelessness theory of depression, discussed later). Some of the issues currently debated in the self-esteem literature will be discussed briefly below. I will focus on those aspects of the self-esteem literature which are most relevant to anxiety,

depression, and affect and will therefore be highly selective in which studies are discussed.

The accuracy of the traditional conceptualization of self-esteem has been questioned by a number of authors (e.g., Baumeister et al., 2003; Hewitt, 2002; Tracy & Robins, 2003). Hewitt argues that self-esteem is socially constructed in societies (especially the United States of America) that value individualism, and should be understood in its cultural and historical context. Baumeister et al. (2003) argue that an individual's level of self-esteem may, or may not, have a basis in reality. Thus, someone with high self-esteem may be justified in their view of their capabilities, but may also be narcissistic. Likewise, someone with low self-esteem may underestimate themselves, or may have a realistic view of their failings (Baumeister et al., 2003).

The utility of attempts to bolster self-esteem have also been criticised over the last few years, with several authors arguing that the evidence for a relationship between self-esteem and life outcomes does not justify attempts to increase it (e.g., Baumeister et al., 2003; Crocker and Park, 2004). Their criticisms include, amongst others, that the effect sizes are small (Baumeister et al., 2003), and that the short-term emotional and motivational benefits of self-esteem mean that people pursue feeling good over more beneficial long-term goals (Crocker & Park, 2004). These criticisms have been countered by other authors, who have proposed ideas on how self-esteem may indeed be beneficial (e.g., Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004; Swann, Chang-Schneider, & Larsen McClarty, 2007). Swann et al. (2007) suggest that self-esteem has been studied too narrowly and needs to be seen as part of a broader domain of self-views, and indeed, Rosenberg (1979) made a similar argument that self-esteem was only a part of the self-concept. They also argue that the importance of small effect sizes has also been underestimated in the literature on self-esteem (Swann et al., 2007).

Pyszczynski et al. (2004) take a different view, arguing that self-esteem can be beneficial in buffering anxiety and is linked to social connection.

Current thinking suggests that self-esteem varies across domains (such as academic, social, physical), rather than being a simple global self-evaluation (e.g., Baumeister et al., 2003; Dubois & Tevendale, 1999). However, it seems that global self-esteem still has a place when examining global outcomes (Swann et al., 2007).

Additionally, some authors have suggested that there are different types of self-esteem. For example, Kernis (2003) differentiates optimal and high self-esteem, arguing that high self-esteem can be either fragile or secure and this may have different consequences for wellbeing. Furthermore, it is possible that the low correlations between self-esteem and some outcome measures are due to these different categories of high self-esteem having opposite effects (Baumeister et al., 2003). There has also been discussion in the literature about the relationship between high self-esteem and narcissism (e.g., Sedikides, Rudich, Gregg, Kumshiro, & Rusbult, 2004), with Tracy & Robins (2003) suggesting that narcissism is a form of fragile self-esteem. However, Donnellan et al. (2005) found the relationship between self-esteem and externalizing problems in their study was independent of narcissism, arguing that self-esteem and narcissism are separate constructs rather than either end of a spectrum.

As can be seen from the above, the research on self-esteem is diverse and fragmented, and lacks a dominant theoretical framework for explaining the link between self-esteem and outcomes such as depression. This suggests that our current views of self-esteem may undergo some changes in the next few years as measurement instruments are developed in line with these theoretical developments. This thesis will focus on global self-esteem as this has been the most widely studied variable. The following two sections outline some current ideas about self-esteem as a positive

response style and, secondly, some mechanisms by which self-esteem may have an impact on mental health and emotional wellbeing.

2.2.1 Theories of self-esteem

2.2.1.1 Self-esteem as a positive response style

Evidence is accumulating to suggest that low self-esteem may reflect a global tendency reflecting negative thinking about the world and other people (Baumeister et al., 2003). Aspinwall and Taylor (1992) make a similar argument that variables like self-esteem and optimism may represent a positive response style, regardless of content. This global tendency to respond in a positive (or negative) way has been given a variety of labels (e.g., floccinaucinihilification, Baumeister et al., 2003), but I will refer to it as ‘positive thinking’ in line with the ‘thinking’ aspect of cognitive-behavioural models, the positively phrased nature of two of the three variables under study (self-esteem and trait hope), and the growing interest in positive psychology.

The relationships between self-esteem and other types of positive thinking variables are unclear at this stage, with research demonstrating a relationship between self-esteem and other constructs such as optimism (e.g., Heinonen, Rääkkönen, & Keltikangas-Järvinen, 2005). A meta-analysis of studies on self-esteem, neuroticism and locus of control found high convergence between the three variables (Judge, Erez, Bono, & Thoresen, 2002). Follow-up studies found limited evidence of discriminant validity between these variables and the authors concluded that much of the variance could be explained by a higher order factor (Judge et al., 2002). Examination of the distinctiveness of self-esteem, explanatory style and trait hope will be a key aspect of this thesis, as this has not previously been done in a single study.

2.2.1.2 Self-esteem and emotional regulation

The impact of self-esteem on emotional processing and emotional regulation has been the focus of a number of recent studies. These ideas are relevant to the current thesis as they may provide a mechanism for any link between self-esteem and emotional wellbeing. That is, if high self-esteem aids emotional processing or emotional regulation in a positive way, increased self-esteem may lead to greater emotional wellbeing.

A variety of theories regarding emotional processing have been proposed, including the possibility that self-esteem may influence the accessibility of negative thoughts, such as self-evaluative social comparisons (Wood, Michela & Giordano, 2000). Wood et al. (2000) suggest a 'multiple influence model' with both accessibility (mood-cognition priming) and motivational factors influencing the direction of self-evaluative comparisons. This suggests that people with higher self-esteem would be less likely to experience negative self-evaluative thoughts, and a reduction in these negative appraisals should lead to a decrease in negative emotions (as discussed previously regarding positive thinking as a target for prevention programmes).

Self-esteem may influence the likelihood of an individual experiencing particular mood states (Rusting, 1998). Rusting (1998) discusses different models for looking at the impact of personality and mood on emotional processing and concludes that a moderation or mediation approach fits the evidence better than a direct relationship. The traditional conception was that mood states and personality had independent effects on emotional processing (including attention, perception, judgement, memory, etcetera), while more recent approaches have suggested more complex relationships between the three variables (Rusting, 1998). The moderation approach suggests that mood and personality interact to effect emotional processing,

while the mediation approach suggests that personality affects mood, which affects emotional processing (Rusting, 1998). Pyszczynski et al (2004) present evidence suggesting that self-esteem has an anxiety-buffering effect, reducing both anxiety and anxious behaviour. DuBois and Flay (2004) suggest that the avoidance of low self-esteem is important for wellbeing and that an adaptive search for increased self-esteem can lead to beneficial long-term outcomes.

An alternative view is that self-esteem may be important in emotional regulation (Wood, Heimpel, & Michela, 2003). According to this view, people may see positive or negative affect as being more or less congruent with their ideas of who they are or what they deserve in life, and may therefore react differently to successes or failures. In five studies Wood et al. (2003) found that self-esteem was a significant contributor to the regulation of positive affect with those people with low self-esteem using strategies to dampen the effect of positive emotions. In a further five studies, differences in self-esteem were also found to affect the motivation of people to improve negative moods, with those low in self-esteem less likely to seek to improve their mood (Heimpel, Wood, Marshall, & Brown, 2002). In these studies individuals with low self-esteem had fewer intentions to improve mood, and were less likely to actively take steps to improve their mood. This could not be accounted for by lesser knowledge of mood improvement strategies (Heimpel et al., 2002). Possible explanations may be that low self-esteem individuals are more accepting of negative moods, have low expectations of mood improvement, and are suffering from energy depletion and an increase in negative thoughts about themselves (Heimpel et al., 2002). Similarly, Bryant (2003) found that people's beliefs about their ability to savour positive affect was related to both self-esteem and happiness.

Higher self-esteem may also predict the use of different coping strategies. In line with this idea, Aspinwall and Taylor (1992) found that higher self-esteem predicted decreased avoidant coping and increased seeking of social support amongst a large college sample. Another possibility is that self-esteem may influence the direction of counterfactual thinking. Counterfactual thinking involves generating alternative outcomes to a given life event, with upward counterfactuals describing thoughts that are better than reality (e.g., “If I had worked harder I would have got a better mark”), and downward counterfactuals describing thoughts that are worse than reality (e.g., “At least I did some study, or my mark could have been even worse”) (Sanna, Turley-Ames, & Meier, 1999). Self-esteem influenced the direction of counterfactual thinking in negative moods, with high self-esteem individuals generating both upward and downward counterfactuals, and low self-esteem individuals only generating upward counterfactuals (Sanna et al., 1999). These authors suggest a number of explanations for this effect, including the possibility that high self-esteem individuals find negative moods incongruent with their self-concept and use downward counterfactuals as a mood repair strategy. Another possibility may be that high self-esteem individuals are more flexible in their response styles and are able to generate more alternatives than low self-esteem individuals.

While the mechanism is not entirely clear it seems that self-esteem does affect mood in the short term, although longitudinal studies on the relationship between self-esteem and emotional wellbeing over time are lacking. However, the ideas discussed above suggest a longitudinal link between self-esteem and emotional wellbeing is worth investigating. The current research will explore both the distinctiveness and the longer term effects of self-esteem on affect. As the literature on self-esteem is so large, the following sections will focus on those studies which are most relevant to this thesis –

that is, longitudinal studies (where available) of self-esteem and its relationship with both emotional wellbeing and mental health, with an emphasis on larger and/or more recent studies and on studies incorporating adolescents in their sample.

2.2.2 Self-esteem and emotional wellbeing

In the wide literature on self-esteem its relation to a range of outcomes has been studied including antisocial and risk-taking behaviour, emotional wellbeing and mental health, relationships, and performance and achievement. In their review Baumeister et al. (2003) concluded that there is limited evidence for any longitudinal relationship between self-esteem and school achievement, job performance, or relationships.

However, self-esteem may have some impact on performance through its effect on self-regulation (Baumeister et al., 2003), as discussed above. For example, Aspinwall and Taylor (1992) found that self-esteem predicted higher motivation at a two year follow-up of 672 college students. However, a recent 11-year prospective study with 978 participants found that low self-esteem predicted a wide range of outcomes including poorer physical and mental health, poorer economic circumstances, and increased criminal behaviour in adulthood (Trzesniewski, et al., 2006). Similarly, in a large longitudinal study, Donnellan et al. (2005) found a clear relationship between low self-esteem and externalizing problems. This suggests a somewhat more positive view of the benefits of self-esteem, in line with the reviews discussed previously (e.g., Pyszczynski et al., 2004; Swann et al., 2007;).

The evidence for a link between self-esteem and emotional wellbeing is clear, with self-esteem showing strong cross-sectional associations with both happiness and depression (Baumeister et al., 2003). Baumeister et al. conclude that the main benefits of increased self-esteem appear to be ‘enhanced initiative and pleasant feelings’ (2003,

p.1), suggesting that positive affect may be the mechanism for the link. They suggest that longitudinal research would strengthen the case for a causal relationship between self-esteem and wellbeing. This short-coming does not appear to have been addressed in the years since this review was published, although some recent cross-sectional studies suggest that the expected positive relationship between self-esteem and emotional wellbeing is supported. A large study by Diener and Diener (1995) found a moderate correlation between self esteem and life satisfaction among college students in 31 countries. Although this does not address specific emotional states it provides some evidence that self esteem is important to wellbeing. More recently, Cheng and Furnham (2003) found that explanatory style and self-esteem accounted for 55 percent of the variation in happiness amongst their sample of 88 young adults. Similarly, in a larger study of 234 adults and adolescents, Cheng and Furnham (2002) found a cross-sectional relationship between self-esteem and happiness, such that those with higher self-esteem reported higher levels of happiness.

In a recent six week longitudinal study of 160 university students, self-esteem predicted two percent of the variance in later negative affect (after controlling for Time 1 negative affect), while negative affect had no effect on self-esteem (Lightsey, Burke, Ervin, Henderson, & Yee, 2006). Considering the short timeframe of this study, even this comparatively small effect suggests that self-esteem may be relevant to negative affect generally and not just clinical depression. Similarly, Tarlow and Haaga (1996) found that self-concept was more strongly related to depression than anxiety, and to positive affect rather than negative affect, supporting the tripartite model of Clark and Watson (1991).

There is limited research linking self-esteem to aggressive or hostile emotions, as opposed to externalizing behaviours. In one recent study, Donellan et al. (2005)

surveyed 3143 undergraduates and found that low self-esteem and narcissism contributed independently to high levels of aggressive thoughts, feelings, and behaviours. In two laboratory studies, Kirkpatrick, Waugh, Valencia and Webster (2002) found that global self-esteem was not related to aggression, but aspects of domain-specific self-esteem did predict aggression. Given the wide study of both aggression and self-esteem it is surprising how little research is available on the links between the two variables.

In summary, there is convincing cross-sectional evidence linking self-esteem to both positive affect and to a lesser extent dysphoria, but relatively little research has been done to investigate any longitudinal relationship or potential relationships to other emotional states (such as anxiety or hostility). This is a clear gap in the literature available on self-esteem and this will be partially addressed in this thesis. The evidence for a link between self-esteem and mental health, especially depression, is much stronger and will be discussed in the following section.

2.2.3 Self-esteem and mental health

The relationship between self-esteem and depression is clear, with research repeatedly finding a relationship such that low self-esteem is related to depression, or alternatively, that high self-esteem is related to positive affect (Baumeister et al., 2003). As discussed previously, recent research has also suggested a possible link between self-esteem and affective states including happiness and hostility. The mechanism for this link may be through emotional regulation or emotional processing, although much work remains to be done in this area. The following section presents the much stronger evidence for a link with mental health, especially depression.

In a study of 234 adolescents and adults investigating two emotional outcomes, Furnham and Cheng (2003) found a cross-sectional relationship between self-esteem and both happiness and depression, with self-esteem predicting both states to a similar degree. The authors note that the relationship between self-esteem and depression may operate in both directions. In support of this possibility, Benetti and Kambouropoulos (2006) found that negative and positive affect mediated the effect of trait anxiety and resilience on self-esteem among 240 young adults. However, this study was cross-sectional and it would be interesting to see if this relationship was evident in a longitudinal design. Roberts and Gamble (2001) also found an effect of past depressive episodes on self-esteem, although the authors acknowledge that the retrospective design of the study does limit the conclusions that can be drawn.

Several studies have found a longitudinal relationship between self-esteem and depression (Baumeister et al., 2003). Baumeister et al. (2003) conclude that there is sufficient evidence to suggest low self-esteem is a causal factor in depression, although the pathway is not clear. This may reflect Rusting's (1998) suggestion that a more complex model of self-esteem and depression (rather than a direct relationship) may be more appropriate. The most recent of these studies by Trzesniewski et al. (2006) found both cross-sectional and longitudinal relationships between self-esteem and mental health. Firstly, they found a cross-sectional relationship during adolescence, with low self-esteem participants twice as likely to meet criteria for a major depressive episode (using a diagnostic interview). Secondly, they found that participants with low self-esteem in adolescence were more likely to meet diagnostic criteria for both anxiety (1.6 times) and depression (1.26 times) in adulthood, even when controlling for adolescent depression. This is a convincing study given the large sample size (978), long duration (11 years), and use of diagnostic interviews rather than symptom scales.

Robinson, Garber, and Hilsman (1995) found that perceived self-worth in sixth grade predicted depressive symptoms in seventh grade in a sample of 371 adolescents. They also found an interaction between explanatory style and self-esteem, with explanatory style predicting depressive symptoms only for those adolescents with low self-esteem. A prospective study of 115 adolescents by Southall and Roberts (2002) also found an interaction between self-esteem and explanatory style, with low self-esteem amplifying the effect of a negative explanatory style, and high self-esteem buffering the effect of a negative explanatory style (for those who were initially symptom-free).

While self-esteem and depression in adolescence has been relatively widely studied, research on adolescent anxiety is less common (McCauley Ohannessian, Lerner, Lerner, & von Eye, 1999). In a cross-sectional study of 224 adolescents, Byrne (2000) found a significant negative correlation between self-esteem and anxiety. Bolognini, Plancherel, Bettshart and Halfon (1996) found that lower self-esteem was related to both anxiety and depressive symptoms. Byrne (2000) using an Australian sample of 150 high school students also found higher self-esteem amongst boys, and an association between low self-esteem and increased levels of anxiety and fear. As discussed above, Trzesniewski et al. (2006) also found a link between low self-esteem in adolescence and anxiety disorders in adulthood.

In summary, there is clear evidence for a relationship between self-esteem and depression. There is also some evidence for a relationship between self-esteem and anxiety, and between self-esteem and affective states such as happiness and hostility. The relationship between self-esteem and depression appears to be a complex one, with some indications that self-esteem may interact with other variables such as explanatory style, or that self-esteem may influence emotional regulation.

2.2.4 Future directions for research on self-esteem and affect

Recently, it has been suggested that there would be benefits in integrating the separate literatures on personality and psychopathology – specifically to look at the relationship between self-esteem and structural models of personality and affectivity (Wood, et al., 2003; Watson, Suls, & Haig, 2002). One suggestion is that self-esteem may be a lower order personality construct, sitting on a bipolar continuum with depressive mood (Watson et al., 2002). The basis for this suggestion is the overlap they found in their research between measures of self-esteem and measures of dysphoria. However, this argument is limited by the fact that their studies were cross-sectional, so it is not clear whether this result would occur over time. They also argue that self-esteem should show affective specificity, with a stronger relationship evident with depressive mood than with anxiety (Watson et al., 2002). These ideas are worth pursuing in longitudinal research to clarify these relationships as will be done in this thesis.

Our understanding of the relationship between self-esteem and affect would be enhanced by longitudinal research showing the trajectory of the relationship over time. There is also some research accumulating to suggest that self-esteem may interact with other positive thinking variables such as explanatory style, as will be discussed in the following section. A promising line of research would be to investigate the relationship between different aspects of personality and different types of affect over time.

2.3 Explanatory Style

Explanatory style is the habitual way in which an individual explains the causes of life events. In earlier research, explanatory style was referred to as attributional style

and the associated causal explanations were referred to as attributions. In keeping with the original researchers in this area, who later argued that explanatory style is a more precise description of their intended meaning, I will use explanatory style except when referring to the names of the measurement scales (Peterson & Seligman, 1984). As described below, causal explanations may vary on three dimensions – global-specific, internal-external, and stable-unstable.

The internal-external dimension relates to where individuals place the responsibility for an event – that is, whether it is due to them, or due to someone or something else. For example, if a student fails a test they may make either an internal explanation such as ‘I’m stupid’ or ‘I didn’t study enough’, or an external explanation such as ‘the test was too hard’ or ‘the teacher hates me’. An individual who habitually makes internal explanations for negative events may experience decreased self-esteem over time (Peterson & Seligman, 1984). On the other hand, it seems likely that individuals who habitually make internal explanations for positive events may experience increased self-esteem over time. Therefore, wellbeing is related to both the explanation (internal-external) and the nature of the event (positive or negative).

The global-specific dimension describes how pervasive the individual perceives the causes of an event to be. For example, if a student does well in an assignment, they may make a global explanation such as ‘I’m good at schoolwork’, or a specific explanation such as ‘I worked really hard on that assignment’ or ‘the teacher was in a good mood’. As for the internal-external dimension, the relationship between explanatory style and wellbeing is thought to be different for positive and negative events, such that global explanations for positive events may be more likely to lead to positive emotional states, whereas global explanations for negative events are more likely to lead to helplessness and negative emotions.

The stable-unstable dimension relates to whether the explanation an individual gives for an event is likely to persist. For example, ‘I failed the test because I’m stupid’ would be a stable (and internal) explanation as ability does not change, whereas ‘I failed the test because I didn’t study hard enough’ is an unstable (and internal) cause that may change next time the student does a test. As for the other dimensions, the effect on wellbeing depends on both the explanation and the nature of the event – with global explanations for negative events being the most damaging to wellbeing, and global explanations for positive events being the most beneficial.

A negative explanatory style is one in which an individual attributes negative life events to internal, stable and global causes and attributes positive life events to external, unstable, and specific causes (Nolen-Hoeksema & Girgus, 1995). A positive explanatory style is the reverse in which an individual attributes negative life events to external, unstable, and specific causes and attributes positive life events to internal, stable and global causes (Nolen-Hoeksema & Girgus, 1995).

As discussed previously in relation to self-esteem, it is possible that explanatory style may reflect a general ‘positive thinking’ tendency. Explanatory style also has some features in common with other positive thinking constructs, particularly dispositional optimism (e.g., Gilham, Shatté, Reivich, & Seligman, 2001). The distinctiveness of explanatory style is an area in need of further research, and this will be explored in the current thesis.

2.3.1 Theories of explanatory style

Explanatory style has generated a large research literature. For reviews see Gladstone and Kaslow (1995); Jacobs, Reinecke, Gollan, & Kane (2008); and Joiner and Wagner (1995). The concept of explanatory style developed out of research on

learned helplessness and became a prominent feature of two subsequent models of depression – the attributional reformulation of the learned helplessness model, and the theory of hopelessness depression.

2.3.1.1 Learned Helplessness

Research on learned helplessness showed that animals (and later people) will show a range of deficits in the face of uncontrollable negative events, and that this may provide an explanation for depression (Maier & Seligman, 1976). The theory of learned helplessness suggests the nature of events leads to helplessness and depression, rather than internal factors. Specifically, when people learn that negative events are outside their control (i.e., their actions and the outcomes of the situation are independent) this leads to motivational, emotional, and cognitive effects which Maier and Seligman (1976) labelled as helplessness.

In further research, it became apparent that the learned helplessness model did not account for individual differences in the duration and pervasiveness of depression, or for the lowered self-esteem evident in many individuals suffering from depression (Peterson & Seligman, 1984). These concerns led to the attributional reformulation of the learned helplessness model.

2.3.1.2 Attributional Reformulation of Learned Helplessness

The attributional reformulation of learned helplessness proposed that it was the way in which people explained the causes of events that determined whether they became helpless, and that a negative explanatory style also constituted a risk factor for depression in the face of negative events (Peterson & Seligman, 1984). Helplessness is characterized in the model by a range of deficits, including passivity and lowered aggression, cognitive and emotional deficits, decreased appetite, neurochemical

problems, and greater risk of illness (Peterson & Seligman, 1984). The specific emotional deficits included sadness, anxiety and hostility and will all be explored in this thesis. The symptoms of helplessness described above are clearly similar to those of depression (Peterson & Seligman, 1984), and in a more circumscribed way may affect emotional wellbeing.

A depressive explanatory style is characterized by stable, global and internal explanations for negative life events – that is, ‘it’s me; it’s going to last forever; and it’s going to affect everything I do’ (Peterson & Seligman, 1984, p.350). Characteristically attributing negative events to internal causes may lead to lowered self-esteem, whereas attributing negative events to stable causes is more likely to constitute a risk factor for depression and helplessness (Peterson & Seligman, 1984). If causes are also seen as global this may lead to more widespread functional problems (Peterson & Seligman, 1984). Therefore, in the attributional reformulation it is primarily the perceived stability of the causes of negative events, in combination with the events themselves that are seen as leading to helplessness and later depression.

Thus, a negative explanatory style is seen as a risk factor for decreased emotional wellbeing (sadness, anxiety and hostility), and for the development of depression. However, explanatory style in this formulation is not a cause of depression. Later researchers expanded on the theory and proposed a new subtype of depression called hopelessness depression, in which hopelessness is a proximal and sufficient cause of depression (Abramson et al., 1989).

2.3.1.3 Hopelessness Depression

Hopelessness depression was proposed as a theory-based subtype of depression. It is a diathesis-stress model in which negative life events interact with explanatory style to determine whether an individual becomes hopeless, and hopelessness is in turn the

proximal cause of the depression (Abramson et al., 1989). It differs from the attributional reformulation of learned helplessness theory in that the focus is on hopelessness rather than helplessness, that it is related to one form of depression rather than to depression generally, and that rather than being a risk factor for depression hopelessness is a 'proximal sufficient cause' for depression (Abramson et al., 1989, p. 358). Unlike the attributional reformulation, this model has little to say about affect beyond specifying sad affect as one of the symptoms of hopelessness depression. In this model, self-esteem is seen as a symptom of hopelessness depression which results in part from stable, global and internal attributions for negative life events, and from drawing negative conclusions about the self given those negative events (Abramson et al., 1989).

More recently, it has been suggested that explanatory style and self-esteem may interact in contributing to depressive symptoms (e.g., Metalsky, Joiner, Hardin & Abramson, 1993; Southall & Roberts, 2002). Specifically, that the explanatory style - life events diathesis should only exist for individuals with low self-esteem, with high self-esteem acting as a buffer against depression (Metalsky et al., 1993).

The above sections describe the dominant models of explanatory style and the expected relationships between explanatory style and depression. In addition to exploring the relationships proposed by these models, researchers have expanded the field of enquiry to include a range of outcomes including academic and sporting achievement, psychological wellbeing, and other mental health concerns such as anxiety. The following sections will summarise this research, with an emphasis on findings concerning affect and mental health, and will highlight areas where this thesis may contribute to the body of knowledge.

2.3.2 Explanatory style and mental health

A negative explanatory style is clearly correlated with depression (e.g., Joiner & Wagner, 1995; Nolen-Hoeksema & Girgus, 1995). What is less clear is whether it plays a causal role (Joiner & Wagner, 1995), as there have been relatively few longitudinal studies done in this area (Southall & Roberts, 2002). In a meta-analysis of 27 studies examining explanatory style and depression in young people, Joiner and Wagner found that scores on the Children's Attributional Style Questionnaire (Thompson, Kaslow, Weiss, & Nolen-Hoeksema, 1998) were 'strongly and reliably associated with self-reported depression among children and adolescents' (1995, p.785) of different ages and gender, and across clinical and non-clinical samples. Across studies, results varied regarding whether explanatory style for those individuals with clinical depression was statistically different from those with other mental disorders. Thus, it is not clear whether pessimistic explanatory style is specific to depression, or whether it also has a relationship with other mental disorders, although the authors suggest that it may have a greater relationship with depression than anxiety (Joiner & Wagner, 1995). The results for prospective studies were less conclusive due to their smaller numbers, but were also suggestive of a link between explanatory style and the onset and severity of depression (Joiner & Wagner, 1995).

A recent review of nine prospective studies of adolescents examining the stress-vulnerability aspect of the hopelessness depression theory found general support for the interaction of life events and explanatory style in predicting depression (Lakdawalla, Hankin, & Mermelstein, 2007). Overall, the authors concluded that research on cognitive theories of depression is relatively lacking amongst child and adolescent populations and that more work needs to be done in this area. Further, they suggest that researchers need to move away from a hypothesis testing approach to providing

measures of effect sizes so that a clearer developmental picture may emerge. In their review they note that the effect sizes for child populations are smaller than for adolescent populations suggesting that developmental considerations may be important (Lakdawalla et al., 2007).

One of the available prospective studies examined the relationship between self-reported depression and explanatory style among 308 children over a one year period, and found that explanatory style predicted changes in depressive symptoms (Nolen-Hoeksema, Girgus, & Seligman, 1986). The authors concluded that further study was needed and extended the research over a five year period (Nolen-Hoeksema, Girgus, & Seligman, 1992). As the children aged, explanatory style showed a stronger relationship with depressive symptoms, suggesting that there is a developmental trajectory for explanatory style (Nolen-Hoeksema et al., 1992). Children who were depressed also showed negative changes in explanatory style, suggesting a somewhat complex relationship between the two measures (Nolen-Hoeksema et al., 1992). In contradiction to the attributional reformulation of learned helplessness, children who showed signs of helplessness were not at greater risk for depression, although helplessness in itself may be an appropriate target of intervention (Nolen-Hoeksema et al., 1992). The results on helplessness are interesting for this thesis, as some of the affective aspects of helplessness (sadness, anxiety, and hostility) are included in the study.

Ciarrochi and Heaven (2008) suggest that a pessimistic explanatory style combined with low social support may lead to 'learned social hopelessness' in which adolescents develop negative beliefs about their capacity to make friends and obtain support from others. Their research found that social support and explanatory style influenced each other over time, and that this relationship could not be explained by

self-reported sadness or peer ratings of likeability (Ciarrochi & Heaven, 2008). This result is interesting in light of the link between low social support and depression (e.g., Stice, Ragan, & Randall, 2004)

Approaching the problem from a different angle, Needles and Abramson (1990) found that explanatory style for positive events may assist recovery from depression in those people who experience positive life events. Specifically, they found that those students from their sample who showed elevated levels of hopelessness and depression at the beginning of the study, but also had a positive explanatory style for positive events, showed marked decreases in hopelessness when positive events occurred (and/or negative events did not), and this was accompanied by remission of depressive symptoms (Needles & Abramson, 1990). While alternative explanations are possible, this study suggests that the hopelessness model of depression may also provide a model for recovery from depression (Needles & Abramson, 1990). The authors highlight the fact that a combination of positive explanatory style and positive events may be important in recovery from depression, in contrast to earlier research which had concentrated on negative events and negative explanatory style in the onset of depression (Needles & Abramson, 1990).

In line with the integrated theory of explanatory style and self-esteem proposed by Metalsky et al. (1993), at least four studies have found a three-way interaction between self-esteem, explanatory style, and depressive symptoms (Abela & Payne, 2003; Metalsky et al., 1993; Robinson, Garber, & Hilsman, 1995; Southall & Roberts, 2002). In general, self-esteem acted as a vulnerability factor (for low self-esteem individuals) or a buffer (for high self-esteem individuals), with explanatory style related to depressive symptoms only in the presence of low self-esteem. However, Abela and

Payne (2003) found that for the female children in their study, explanatory style and negative events predicted depressive symptoms only for those with high self-esteem.

Robinson, Garber, and Hilsman (1995) found that perceived self-worth in sixth grade predicted depressive symptoms in seventh grade in a sample of 371 adolescents. They also found an interaction between explanatory style and self-esteem, with explanatory style predicting depressive symptoms only for those adolescents with low self-esteem. A prospective study of 115 adolescents by Southall and Roberts (2002) also found an interaction between self-esteem and explanatory style, with low self-esteem amplifying the effect of a negative explanatory style, and high self-esteem buffering the effect of a negative explanatory style (for those who were initially symptom-free).

There is limited support for a prospective link between explanatory style and anxiety (Robins & Hayes, 1995), although there is little research available in this area. While research has supported a relationship between explanatory style and depression, it is not clear whether the relationship is specific to depression or whether it may also apply to anxiety disorders (Mineka, Pury, & Linten, 1995). In a cross-sectional study of 466 college students Reardon and Williams (2007) found that pessimistic explanatory style was associated with both anxiety and depressive symptoms, and suggest that this may reflect both helplessness (for anxiety symptoms) and hopelessness (for depressive symptoms).

In an attempt to integrate the tripartite model and the hopelessness theory of depression, Ralph and Mineka (1998) examined the interaction of self-esteem and explanatory style in predicting the responses of undergraduate students to midterm grades. Their study included measures of anxiety and depression, as well as positive and negative affect, in order to establish whether the two thinking styles have an impact specifically on depressive symptoms, or on subjective distress generally. They found

that the three-way interaction between self-esteem, explanatory style, and exam outcome predicted changes in non-specific distress but not in specific depressive measures – suggesting that explanatory style may not be specific to depression (Ralph & Mineka, 1998). This finding is interesting for the current thesis as it again suggests that the relationship between affect and thinking style is worth investigating in more detail than has been done in the past.

A recent study also found a parallel between the tripartite model and findings on explanatory style, with negative explanatory style failing to distinguish between depressed and anxious students, but low scores on positive explanatory style distinguishing depressed students from both normal and anxious students (Fresco, Alloy, & Reilly-Harrington, 2006). The tripartite model (Clark & Watson, 1991) proposes that negative affect is a general factor to both anxiety and depression, while (low) positive affect is specific to depression. Thus, negative affect and negative explanatory style are common to anxiety and depression, whereas positive affect and positive explanatory style distinguish between the two conditions. This study is unusual in a positive way as it includes a longitudinal component, as well as diagnostic interviews in addition to standard self-report scales.

In summary, there is ample research to suggest a relationship between explanatory style (particularly negative explanatory style) and depression. There also appears to be an interaction between explanatory style and self-esteem in predicting depression. What is less clear is whether this relationship is specific to depression, or whether it also relates to anxiety disorders. Given the high comorbidity between anxiety and depressive disorders this relationship is worth exploring in more detail. A starting point may be provided by examining the relationship between explanatory style and different affective states, as discussed below.

2.3.3 Explanatory style and emotional wellbeing

Little research has examined the relationship between emotional wellbeing and explanatory style (Cheng & Furnham, 2003). As mentioned above in the section on self-esteem and affect, these authors found that self-esteem and explanatory style accounted for 55% of the variance in self-reported happiness among 88 undergraduate students.

There is minimal research on the relationship between explanatory style and hostility, with one prospective study finding a relationship between explanatory style and anger (Boman, Smith, & Curtis, 2003). A pessimistic explanatory style was related to later anger intensity and self-reported destructive behaviour among 102 early high-school students, although the relationship was clearer for males than females (Boman et al., 2003).

In summary, it appears that explanatory style is related to negative affective states including sad/depressed, anxious/fearful, and hostile/angry emotions. However, the research evidence is limited for all but depressed/sad states – both in the amount of research, and in the preponderance of cross-sectional studies. This is also the case for positive affective states, although the available studies do suggest a relationship.

2.3.4 Future directions for research on explanatory style and affect

The relationship between explanatory style and self-esteem is relatively unexplored – while the original hopelessness model suggests that explanatory style will influence self-esteem, research has found the reverse (e.g., Hirschy & Morris, 2001). The integrated model of Metalsky et al. (1993) suggests that both are influential. The relationship between these two variables needs further study and clarification.

It is only in the last few years that researchers have started to discuss the conceptual similarities between dispositional optimism and optimistic and pessimistic explanatory style (Gillham, Shatté, Reivich, & Seligman, 2001). Considerable research has focused on dispositional optimism, conceptualized as a broader tendency to expect good things to happen, and this overlaps to a certain extent with explanatory style.

While dispositional optimism represents global positive expectancies about future events, explanatory style refers to people's causal explanations for events which have already occurred (Gillham et al., 2001). Correlational research has found a weak to moderate relationship between dispositional optimism and explanatory style, and the two measures show a similar pattern of relationships with outcomes (Gillham et al., 2001). However, it should also be noted that similar results occur when comparing explanatory style to self-esteem (Cheng & Furnham, 2003; Gillham et al., 2001) and these constructs show little conceptual overlap. This thesis will focus on explanatory style rather than dispositional optimism.

More research is needed on the prospective relationship between explanatory style and affect for adolescents – particularly for positive affect. The attributional reformulation of the learned helplessness model in particular suggests that a negative explanatory style should result in increased negative affect, particularly sadness, anxiety and hostility. Although the theory says relatively little about positive explanatory style, later work on optimism suggests that a positive explanatory style should result in greater levels of emotional wellbeing, as does some research on recovery from depression. In addition, the relationship between explanatory style and self-esteem needs some clarification. The current research will contribute to both of these questions by including measures of both explanatory style and self-esteem in the same study, as well

as examining the relationship between these variables and positive and negative affect over time.

2.4 Trait Hope Theory

The concept of trait hope proposed by Snyder (2000a), which is a focus of this thesis, is a form of goal-directed thinking in which individuals believe they know how to reach their goals (pathways), and believe they are able to achieve them (agency). Hope, in Snyder's (2000a) conceptualisation, is a motivational state in which people are more or less hopeful about achieving their goals. According to Snyder (2000a), hope has been regarded historically as both a negative and a positive tendency. However, since the 1960s, research and theorizing by psychologists and psychiatrists has tended to portray hope as "positive expectations for goal attainment" (Snyder, 2000a, p.4). Snyder (2000a) argues that people are continually thinking about their goals and trying to orient themselves in a positive way toward achieving these goals.

Snyder et al. (1996, p.321) talks about hope as a "way of thinking", which although it also involves feelings, is primarily cognitive in nature. It is people's beliefs about their capacity to successfully pursue goals that are most important. In this way, it is an appraisal theory in which it is an individual's perception of a situation which influences their behaviour (in this case, goal pursuit).

Trait hope involves goals, pathways thoughts, and agency thoughts (Snyder, 2000a). Snyder (2000a) argues that, to involve hope, goals need to have enough importance to us to occupy our minds, and to have sufficient uncertainty about their attainment. Goals that are 100% achievable, or goals that are impossible to achieve, do not involve hopeful thinking. Pathways thoughts involve an individual seeing a way in which their goal could be achieved, with high hope people seeing multiple ways to

achieve their goals (Snyder, 2000a). That is, the individual sees themselves as knowing how to achieve their valued goal. Agency thoughts are the motivational component of the model in which an individual sees themselves as being able to pursue the path that will lead to their goal (Snyder, 2000a). It is only in this combination of seeing a path to achieve a valued but uncertain goal and believing that you can follow that path, that leads to hope.

The role of barriers to reaching goals is also important. Often individuals will see more than one way to achieve their goal, and even if they do not initially, confronting a barrier will often lead to the generation of alternative pathways (Snyder, 2000a). Agency remains important in this scenario as it provides the motivation to pursue the alternate pathways to the goal (Snyder, 2000a).

Snyder and Taylor (2000) argue that agency and pathways thoughts are causally related, with both types of thoughts influencing the other. In this way, an intervention that increases pathways thoughts should also increase agency thoughts, and vice versa (Snyder & Taylor, 2000). Agency and pathways thoughts are thus additive (both are required for goal attainment) and iterative (increases in one lead to increases in the other) (Snyder et al. 1991).

Snyder (2000a) discusses the application of the model to different stages in goal pursuit. Firstly, prior to the event, individuals have a learning history that may or may not dispose them to pathways and agency thoughts. Secondly, an outcome value is assigned to the goal. Finally, specific agency and pathways thoughts interact with the perceived outcome value to determine the goal-directed behaviour of the individual. In this model, pathways thoughts involve outcome expectancies, and agency thoughts involve efficacy expectancies.

Snyder's (2000a) conception of trait hope is primarily cognitive - thoughts are seen as the causes of emotional responses, not as a consequence of mood states. This is important in understanding the direction and the consequences of hopeful thinking. Snyder argues that hopeful thinking and consequent goal attainment should lead to emotional wellbeing, and not the reverse. Specifically, positive emotions should result from goal achievement and from successfully navigating barriers to goal pursuit, while negative emotions should result from failure to achieve goals or to overcome barriers to goal pursuit (Snyder, 2002). Rodriguez-Hanley and Snyder (2000) propose that perceived goal blockages produce disappointment which may progress in stages from hope, to rage, to despair, and finally to apathy. As apathy is conceptually similar to anhedonia, it seems most likely that trait hope will be most closely related to positive affect. That is, high trait hope and the ability to overcome barriers will result in positive emotions, while low trait hope and the inability to overcome barriers will lead to a state of low energy (low positive affect or anhedonia).

Snyder (2000b) argues that the adolescent period is important for hope, with close friends being important in the development of hope, and peer groups influencing the development of an identity. Snyder (2002) concludes that hope has broad effects and is related to academic outcomes, athletic performance, physical health, psychological adjustment, and psychotherapy outcomes. However, the research on hope in the adolescent period is relatively sparse, with much of it focused on the outcomes mentioned above, rather than emotional wellbeing or mental health. The research that is available is discussed below, along with some studies on hope in adults that may shed light on the likely effects of high and low hope among adolescents.

2.4.1 Trait Hope and Mental Health

In his original conceptualization of trait hope, Snyder et al. (1991) did not propose any explicit links to mental health. Subsequent writers (e.g., Cheavens, 2000; Michael, 2000) have attempted to describe how trait hope might relate to common mental health concerns. Low trait hope has been proposed as a risk factor for depression (e.g., Cheavens, 2000) and high trait hope as a protective factor against clinical anxiety (e.g., Michael, 2000), although the research evidence backing these explanations is untested. Cheavens (2000) views low hope as explaining depression and dysphoria through the impact of ‘goal blockage’, ‘agency loss’ and ‘pathway reduction’, and sees high hope as a protective factor in preventing dysphoria. He aligns the symptoms of depression with aspects of the model, so that anhedonia and low energy are reflective of low agency, suicidality and depressed mood are a consequence of goal blockage, and poor concentration reflects a deficit in pathways thinking. Finally, Cheavens (2000) argues that increasing hope in depressed individuals through goal setting, positive feedback, exercise, positive self-talk, and skills training should ameliorate depressive symptoms. Relating this to the tripartite model, low agency should predict (low) positive affect, while goal blockage should predict (high) negative affect, suggesting that it is low agency which should distinguish depression from anxiety. Potentially then, goal blockage may be common to both anxiety and depression.

Michael (2000) argues that trait hope may be one of several protective factors that prevent normal anxiety progressing to clinical anxiety. He argues that people who are confident they can achieve their goals will be less prone to the debilitating effects of anxiety – they may feel anxious but it will be less likely to block goal pursuit. In contrast to Snyder’s (2000) view that emotions do not affect hope, Michael (2000)

suggests that the experience of anxiety can also decrease hope by making it harder to plan and work toward goals. This is consistent with Cheavens (2000) view that low agency may relate to depression.

Research on the relationship between hope and anxiety and depression amongst adolescents is limited. In particular, searches revealed no prospective research showing hope as a predictor for clinical diagnoses. Cross-sectional research has linked low hope to internalizing and externalizing problems in at-risk children (Hagen, Myers, & Mackintosh, 2005), and in normal adolescents (Valle, Huebner, & Suldo, 2004). There is a paucity of longitudinal research in this area although there is some more general research relating hope to emotions, which is discussed in the next section.

2.4.2 Trait Hope and Emotional Wellbeing

The research linking trait hope to emotional wellbeing is limited, with existing studies suggesting that trait hope is related to other types of positive thinking such as self-esteem and optimism (e.g., Cantrell & Lupinacci, 2004; Carvajal, Clair, Nash, & Evans, 1998). Few studies have included both trait hope and measures of PA and NA. Where this has occurred both variables have tended to be included as predictors (e.g., Vieth et al., 1997). A recent study by Thio and Elliott (2005) tested whether NA was a mediating variable between trait hope and postpartum depression. The authors found that there was a relationship between both NA and depression and hope and depression, but found no evidence of mediation. This study is limited by its cross-sectional design and focus on post-partum depression.

Chang and DeSimone (2001) found a direct relationship between trait hope and dysphoria as measured by the Beck Depression Inventory [BDI] (Beck, Rush, Shaw, & Emery, 1979) and an indirect effect of hope through coping strategies. The authors

argue that more research is needed to examine the effects of related variables such as self-esteem and pessimism, and to examine the extent to which these variables overlap. They also highlight the need for research to examine the effects of trait hope on specific emotional states (e.g., anxiety, hostility), rather than just the broader construct of NA, in order to determine if hope has specific and unique effects (Chang & DeSimone, 2001). This thesis will attempt to do just that – both by incorporating other positive thinking variables and by looking at specific affective states.

2.5 Summary and Conclusion

2.5.1 The distinctiveness of self-esteem, explanatory style, and trait hope

Judge et al. (2002) discuss the history of concentrating on broad versus specific factors in psychology. They argue that to begin to pull apart whether similar variables represent a common construct, research needs to examine both convergent and discriminant validity. The current study allows some examination of these issues for self-esteem, explanatory style and trait hope by examining their overlap, as well as whether they differentially predict specific affective outcomes.

Conceptually, there appears to be some relationship between the different variables, particularly in relation to perceptions of the self. This relationship is inherent in the definition of self-esteem, but is also present in aspects of trait hope and explanatory style. Trait hope relates to perceptions of the self somewhat indirectly through perceptions of agency (the ability to pursue goals). Therefore, people who regularly experience agency thoughts believe themselves capable of pursuing valued goals, while people who do not have agency thoughts and do not believe they can

achieve their goals are likely to experience a sense of helplessness. The internal dimension of explanatory style and the agency aspect of trait hope may also be related through perceptions of control, that is, whether an individual believes they have the ability to influence outcomes. The internal dimension of explanatory style rests on whether individuals attribute causality to themselves in either positive or negative directions, and hopelessness depression theory explicitly states that a combination of negative events and pessimistic explanatory style may lead to low self-esteem. For example, an individual who habitually attributes the causes of negative events to internal causes would be expected to have lower self-esteem than an individual who does not, or to an individual who habitually attributes the causes of positive events to internal factors. Thus there are at least two viable reasons for overlap in the three variables – perceptions of the self, and perceptions of control over events.

However, there are also unique aspects to each variable. Self-esteem is the purest measure of perceptions about the self – and these perceptions are predominantly around whether the self is worthwhile rather than about control. Trait hope is oriented to future events, while explanatory style is oriented to past events. It is therefore reasonable to propose that there will also be some distinction between the variables and their effects. This distinctiveness may lead to a range of outcomes, but the focus of this thesis is on affective wellbeing.

The distinctiveness of the effects of the three variables on affective outcomes has not been tested, and the theories themselves are not entirely specific about which effects could be expected. However, the demonstrated relationship between self-esteem and depression (Baumeister et al., 2003) would suggest that self-esteem would also have a relationship with negative affective states, particularly sadness. There is also some research to suggest that self-esteem may be related to positive affective states such as

happiness (e.g., Cheng & Furnham, 2003), and it is reasonable given the relationship between self-esteem and depression to expect that high self-esteem would be negatively related to anhedonia. Theories of explanatory style suggest that it is related to helplessness, and helplessness is characterized by a range of negative emotions including sadness, anxiety, and hostility (e.g., Peterson & Seligman, 1984). Thus, explanatory style could be expected to demonstrate a relationship with these affective states. Snyder (2002, p. 252) proposes that trait hope will show a relationship with positive affective states when goals are achieved or obstacles overcome, and that this will consist of a state of 'affective zest'. In contrast, Snyder proposes that unsuccessful goal pursuit should result in negative emotions and a sense of 'affective lethargy' (2002, p.252). This description is similar to low positive affect or anhedonia than to true negative affect, and Cheavens (2000) also proposes that low agency will be related to anhedonia. Therefore, trait hope appears to be most likely to relate to positive affect.

2.5.2 Gender differences

Research on the tripartite model with adolescents has found that the tripartite structure is the same for males and females (e.g., Chorpita, 2002; Lonigan et al., 1999; Lonigan et al., 2003). Research on self-esteem has found some gender differences in adolescence, with self-esteem lower for females (e.g., Bolognini et al., 1996, Byrne, 2000). Research on explanatory style has found varied relationships across gender. Joiner and Wagner (1995) found that the relationship between explanatory style and depression held across gender. However, Abela and Payne (2003) found that while explanatory style predicted depression for the males in their study, this relationship only held for those females with high self-esteem. Boman et al. (2003) found a clearer

relationship between pessimistic explanatory style and anger intensity for males in their sample.

In summary, there may be some gender differences in the positive thinking variables, or in their relationship with emotional wellbeing, but this relationship has not been tested comprehensively. It seems possible that there may be some gender differences, although it is difficult to speculate about what they may be from the available research. The impact of gender will therefore be explored in this thesis.

2.5.3 The current thesis

This thesis will examine the distinctiveness of the three positive thinking variables and their relationships with four affective states. The four affective states include three components of negative affect (sadness, fear, and hostility) and the major component of positive affect (joviality). This will be done through two studies.

The first will be a cross-sectional study which will examine the potential overlap or distinctiveness of the three positive thinking variables (self-esteem, explanatory style, and trait hope) using factor analysis, as well as their relationship to emotional wellbeing. The sample will consist of approximately 800 students in Year 7 across five high schools in Sydney and the New South Wales South Coast.

The second study will be a longitudinal study examining the emotional wellbeing of the same students one year later in Year 8. This study will look at the impact on the four affective states of the three positive thinking variables over the one year period.

These studies are intended to clarify the degree of overlap between the three positive thinking variables, and to examine their impact on emotional wellbeing over time. Increasing our understanding of these relationships may help in the better design

of early intervention and prevention programs for mental health concerns in adolescence.

Chapter 3: Study 1

3.1 Introduction

In any given year, approximately one in five adolescents worldwide experiences a mental disorder (WHO, 2004) with many going on to experience chronic mental health problems in adulthood. The importance of health promotion and prevention programmes, in addition to clinical care, is therefore clear (Sawyer et al., 2001). The scale of the problem suggests that we need to clearly understand the precursors and early vulnerability factors for mental health concerns. One way to address some of these concerns may be to look at the affective wellbeing of adolescents and ways to enhance this aspect of subjective wellbeing. Indeed, it has been argued that there is a continuum between positive and negative affectivity and psychopathology and that affectivity may constitute a vulnerability factor for mental disorders (Watson, Gamez, & Simms, 2005; Watson, Kotov, & Gamez, 2006).

The way in which adolescents think about themselves and their world has been shown to affect mental health. In particular, there is good evidence for a relationship between depression and both self-esteem and explanatory style (e.g., Baumeister et al., 2003; Joiner & Wagner, 1995). As discussed in Chapter Two, there is evidence in the literature for a relationship between self-esteem and both positive and negative emotional states (e.g., Baumeister et al., 2003, Furnham & Cheng, 2003). While the research is limited, explanatory style is hypothesized to contribute to helplessness including emotions of sadness, fear, and hostility (Peterson & Seligman, 1984). The relationship of hope to emotional outcomes is unclear from the research evidence, but Snyder (2002) suggests that successful goal pursuit should result in positive emotions

and vice versa. The relationship between the three positive thinking variables is unclear, with some writers suggesting that individuals may possess a general positive response style.

In short, there is a shortage of research linking three commonly researched positive thinking variables (self-esteem, trait hope, and explanatory style) to positive and negative affect more generally, and to specific emotional states such as hostility. Further, as these positive thinking variables have largely been studied in isolation from each other, we do not know the extent to which they may measure a general positive thinking tendency. Study 1 uses a cross-sectional design to begin exploring both of these questions. It is based on written self-report measures completed by students in their first year of high school (Year 7) at approximately 12 years of age. Study 2 will use a longitudinal design, and follow the same students into Year 8 to examine developmental changes.

This research is part of a larger project, the Wollongong Youth Study, and students were asked to complete the measures as part of a broader survey. As a consequence, time constraints affected the measures that could be included in the survey. Only global self-esteem was included (rather than dimensions of self-esteem), as this has a strong research history and is also quick to measure. In addition, the affective states explored were limited to four key types of affect – joviality as the key measure of positive affect; sadness, fear, and hostility as the measures of negative affect. Joviality is a broader concept than it might appear, with high joviality representing a state of energy and enthusiasm while low joviality is equivalent to anhedonia.

The major aim of this first study is to examine the relationship between the three positive thinking variables and the emotional states, as this has not been done

previously. The second aim is to examine, using confirmatory factor analysis, whether the three variables are best explained by a general positive thinking tendency, or whether they are distinct.

3.1.1 Aim

Study 1 had two main aims: (1) to examine the cross-sectional relationship between the three positive thinking variables (self-esteem, explanatory style, trait hope) and both positive (joviality) and negative (sadness, fear, hostility) affect; and (2) to examine whether the three positive thinking variables are best explained by a general positive thinking tendency or whether they add unique variance.

3.1.2 Hypotheses

It was predicted that:

- (1) Self-esteem would be predictive of all four affective variables, with high self-esteem predicting increased joviality and decreased sadness, fear, and hostility.
- (2) Trait hope would be predictive of positive affect only, with high hope predicting increased joviality.
- (3) Explanatory style would be predictive of the three negative affective variables, with positive explanatory style predicting decreased sadness, fear, and hostility.
- (4) A three-factor model would fit the thinking style data better than a one-factor model using confirmatory factor analysis.

3.2 Method

3.2.1 Participants

Participants included students in five high schools from the Wollongong Catholic Diocese, in New South Wales, Australia. The schools are located both in the city of Wollongong, and in south-western Sydney, and include students from a variety of socio-economic and cultural backgrounds. The survey was completed in the middle of Year 7 (the first year of high school) by 785 students (males = 377, females = 389; 19 did not indicate gender).

3.2.2 Materials

Students were given a test booklet including the following measures:

1. *Positive and negative affect [PANAS-X] (Watson & Clark, 1994)*. We measured a variety of affective states, including one basic positive emotion subscale (Joviality) and three basic negative emotion subscales (Hostility, Fear, Sadness). Higher scores indicate higher levels of the affective state. Students were asked to describe how they felt 'in general'. In line with prior research on the PANAS-X scales, the internal consistency coefficients for Time 1 were: sadness (.90), joviality (.93), hostility (.83), and fear (.87) (Joiner et al., 1996; Lonigan et al., 2003).
2. *Children's Attributional Style Questionnaire - Revised [CASQ-R] (Thompson, Kaslow, Weiss & Nolen-Hoeksema, 1998)*. This measure consists of 24 items describing both negative and positive events. Students were asked to choose between two possible interpretations of each event. The negative composite

measures student's tendency to attribute the cause of negative events to global, stable, and internal events. The positive composite measures the student's tendency to attribute the cause of positive events to global, stable, and internal events. We measured student's attributional style using the overall composite score drawn from all 24 items, which consists of the positive composite minus the negative composite. Thus a positive score on the overall composite equates to a positive overall explanatory style, and a negative score indicates a pessimistic explanatory style. In line with previous research, the internal consistency coefficient for Time 1 was .63 (Robinson et al., 1995; Thompson et al., 1998).

3. *The Children's Hope Scale [CHS]* (Snyder et al., 1997). This measure consists of a total of six items assessing trait hope. Three items assess pathways thinking, and the other three assess agency thinking. The items are measured on a 6-point scale from 'none of the time' to 'all of the time'. Higher scores indicate increased hope. In line with previous research, the internal consistency coefficient was .82 (Hagen et al., 2005; Valle et al., 2004).
4. *Rosenberg Self-Esteem Scale [RSES]* (Rosenberg, 1979). We measured student's global self-esteem using a version of the RSES requiring a forced choice Yes/No response. Rosenberg originally scored the RSES using a 7-point Guttman scale, but subsequent research has tended to use a 4-point Likert scale and sum the items (Hagborg, 1993). In line with previous research, the internal consistency coefficient was .86 (e.g., Aspinwall & Taylor, 1992; Carvajal et al., 1998).

3.2.3 Procedure

Ethics approval was granted by the University of Wollongong Human Research Ethics Committee. Consent for the study was obtained from the Catholic Education Office, individual schools, and parents, and students were then asked to complete a survey on “Youth Issues”. Students were informed that their participation was voluntary. The surveys were completed during regular classes with supervision from one of the authors or a teacher. Students completed the questionnaires anonymously and were asked not to discuss their answers. They had an opportunity to ask questions about the survey, and were thanked for their participation at the end of the class time.

3.3 Results

3.3.1 Descriptive Statistics

Means and standard deviations for the positive thinking and affective measures, broken down by gender, are given in Table 3.1.

Table 3.1

Means and Standard Deviations

Measure	Gender	n	Mean	S.D.
Self-esteem	Male	375	9.33	2.62
	Female	389	8.93	2.82
Trait Hope	Male	376	27.54	5.46
	Female	389	28.53	5.33
Explanatory Style	Male	352	8.38	6.50
	Female	372	10.88	6.71
Fear	Male	374	11.12	4.72
	Female	389	12.78	5.86
Hostility	Male	373	12.72	5.00
	Female	388	11.83	5.11
Sadness	Male	372	8.92	4.63
	Female	389	10.47	5.66
Joviality	Male	373	33.95	7.10
	Female	389	35.53	6.01

3.3.2 Correlational Analyses

Because previous research has noted gender differences in the types of variables used in the present study, gender was included in the following analyses (e.g., Abela & Payne, 2003; Bolognini et al., 1996; Boman et al., 2003; Byrne, 2000). Pearson correlations are presented for males and females separately in Table 3.2, with correlations for females presented in brackets. Tests for gender differences at $p < .05$, indicated several significant differences between the genders (10 out of 21 pairs of correlations). Wherever significant differences occurred, the correlations were larger for the females in the sample, with most of these differences occurring for self-esteem

(with trait hope, explanatory style, sadness, and hostility) and explanatory style (with self-esteem, fear, hostility, and joviality).

The correlational analyses show statistically significant relationships between self-esteem and all four affective variables, such that higher self-esteem is associated with lower fear, sadness, and hostility, and with higher joviality. There are also statistically significant relationships between trait hope and the four affective variables, and these associations are in the same pattern as those for self-esteem. Similar results were also obtained for explanatory style, with the exception of fear for males, which did not reach statistical significance.

Table 3.2

Pearson Correlations Between Measures

	Self-esteem	Trait hope	Explanatory style	Fear	Hostility	Sadness	Joviality
Self-esteem	---						
Trait hope	.36** (.53**)	---					
Explanatory style	.28** (.50**)	.40** (.49**)	---				
Fear	-.30** (-.39**)	-.13* (-.33**)	-.07 (-.30**)	---			
Hostility	-.30** (-.41**)	-.34** (-.38**)	-.26** (-.42**)	.49** (.61**)	---		
Sadness	-.46** (-.56**)	-.25** (-.35**)	-.24** (-.41**)	.52** (.54**)	.54** (.56**)	---	
Joviality	.37** (.41**)	.39** (.38**)	.29** (.33**)	-.07 (-.25**)	-.19** (-.26**)	-.34** (-.43**)	---

p < 0.05; ** p < 0.01 (2-tailed)

Note: Correlations for males are presented first, with correlations for females presented in brackets on the 2nd line of each row.

3.3.3 Gender Differences

Multivariate analysis of variance (MANOVA) was used to examine, across all variates, the impact of gender. There were gender differences evident in the sample, with a main effect for gender $F(7, 710) = 16.42, p < .001$ (using Pillai's Trace).

Follow-up univariate F tests, using a Bonferroni adjustment of the Type 1 error rate ($.05/7 = .007$) showed significantly lower scores on explanatory style for males, and significantly higher scores for females across sadness, fear, and joviality. The effect sizes, as measured by partial ϵ^2 , were small. Results are presented in Table 3.3.

Table 3.3

Univariate F Tests for Gender

Measure	F test	Partial ϵ^2
Self-esteem	$F(1,716) = 4.33$	.01
Trait Hope	$F(1,716) = 4.85$	.01
Explanatory Style	$F(1,716) = 26.16^*$	.04
Fear	$F(1,716) = 18.03^*$	.03
Hostility	$F(1,716) = 4.89$	.01
Sadness	$F(1,716) = 15.84^*$	.02
Joviality	$F(1,716) = 9.34^*$	.01

* = significant after Bonferroni adjustment ($.05/7 = .007$)

3.3.4 Multivariate Analyses

Due to the gender differences discussed above, gender was included as a fixed factor in later analyses. Multiple regression analyses using the general linear model

were conducted to determine the impact of the positive thinking variables and gender on the affective measures. Using Pillai's Trace as a multivariate test of each independent variable across all dependent variables, there was a significant effect for gender, $F(4, 710) = 15.48, p < .001$; self-esteem, $F(4, 710) = 43.99, p < .001$; trait hope, $F(4, 710) = 16.04, p < .001$; and explanatory style, $F(4, 710) = 8.06, p < .001$.

Follow-up univariate F tests, using a Bonferroni adjustment of the Type 1 error rate ($.05/4 = .0125$) showed that self-esteem predicted scores on all affective variables, trait hope predicted hostility and joviality, and explanatory style predicted all affective states except fear. Gender predicted fear, sadness and joviality. Measures of effect size suggest that the strongest relationship is between self-esteem and sadness (Partial $\epsilon^2 = .18$). Results are presented in Table 3.4¹.

¹ Structural equation models were also run separately for each affective state, including all positive thinking variables in the models. The results were similar to the regression results above, with the exception of the paths between trait hope and hostility (which just missed statistical significance at $p=.06$) and explanatory style and joviality (which was not significant). These results provide better support for the second and third hypotheses as the relationships found in the regression analyses above were counter to prediction. These relationships will be examined further in Study 2 using the longitudinal data.

Table 3.4.

Tests of Between-subjects Effects

Positive Thinking Measure (IV)	Affective Measure (DV)	<i>F</i> (1,713)	<i>t</i>	Partial ϵ^2
Self-esteem	Fear	51.25*	-7.16	.07
	Hostility	25.97*	-5.10	.04
	Sadness	156.03*	-12.49	.18
	Joviality	38.84*	6.23	.05
Trait Hope	Fear	4.49	-2.12	.01
	Hostility	25.27*	-5.03	.03
	Sadness	1.46	-1.21	<.01
	Joviality	34.42*	5.87	.05
Explanatory Style	Fear	1.23	-1.11	<.01
	Hostility	21.08*	-4.59	.03
	Sadness	13.10*	-3.62	.02
	Joviality	7.35*	2.71	.01
Gender	Fear	17.74*	4.21	.02
	Hostility	1.65	-1.29	<.01
	Sadness	19.24*	4.39	.03
	Joviality	7.53*	2.74	.01

* = significant after Bonferroni adjustment ($.05/4 = .0125$)

Examination of the results in Table 3.4 shows that positive self-esteem is predictive of high joviality and low sadness, fear, and hostility thereby supporting the first hypothesis. The second hypothesis is supported, with high trait hope predicting high joviality (as predicted) and low hostility (not predicted). The third hypothesis is also partially supported with a positive explanatory style predicting increased joviality (not predicted), decreased hostility and sadness (as predicted), but with no effect on fear

(contrary to prediction). Females in the sample had significantly higher levels of fear, sadness, and joviality.

3.3.5 Confirmatory factor analysis of positive thinking variables

Confirmatory factor analysis using AMOS 7.0 was used to test the fit of two different factor structures, and hence two different explanatory models for the three positive thinking variables (self-esteem, explanatory style, and trait hope). First, a simple one-factor model was tested which included all items from each of the three measures, examining whether all items contribute to a general positive thinking tendency (see Figure 3.1). Second, a three-factor model with items fixed to load on their hypothesized factor (i.e., all 6 trait hope items onto a ‘trait hope’ factor, and so on) was tested and compared to the one-factor model (see Figure 3.2). This model tests the extent that the items can be explained by three separate factors (self-esteem, hope, and explanatory style).

A range of fit statistics were used including a measure of parsimony (degrees of freedom or Df), a measure of minimum sample discrepancy (χ^2/Df), a measure of population discrepancy (Root Mean Square Error of Approximation or RMSEA), and a parsimony adjusted measure (Confirmatory Fit Index or CFI). The fit statistics were generally lower than common rules of thumb (see Table 3.5 below) and removal of poorly fitting items made little difference to the model fit. Nevertheless, there are differences in the fit statistics that suggest that the three positive thinking measures may add unique variance. In general χ^2/Df should be less than 3, the CFI should be over .95, and the RMSEA should be <.05 for good fit, and <.08 for moderate fit (Arbuckle, 2006; Byrne, 2001). The one-factor model has a generally poor fit, with only the RMSEA in the acceptable range. The three-factor model is better, with χ^2/Df in the acceptable

range and a good fit according to the RMSEA. The CFI, although improved, does not indicate an acceptable fit. Arbuckle (2006) suggests that indices such as the RMSEA provide a way of ranking alternative models in terms of their fit to the data, and this approach suggests that the more complex three-factor model is a better fit. This provides some limited support for hypothesis four, suggesting that the three positive thinking variables may not be entirely explained by a general positive thinking tendency.

Table 3.5

Fit Statistics for Confirmatory Factor Analysis

Model	One factor	Three factor
χ^2	3040.36	2045.47
Df	819	816
χ^2/Df	3.712	2.507
χ^2/Diff	-	994.89
Df/Diff	-	3
CFI	.609	.784
RMSEA	.053	.040

In order to investigate possible reasons for the relatively poor fit of the models, confirmatory factor analysis was also used to examine the extent that the items in each individual positive thinking scale fitted a one factor model (for example, the extent to which the 6 trait hope items fitted a single trait hope factor). The model fit indices are presented in Table 3.6, and the models and parameter estimates in Figures 3.3, 3.4, and 3.5.

The model fit indices are poor for all three positive thinking variables.

Comparing model fit across the three measures, explanatory style is closer to the

acceptable levels of χ^2/Df and RMSEA, while self-esteem and trait hope are closer to acceptable levels for the CFI. Examination of Figures 3.3, 3.4, and 3.5 shows that the parameter estimates show greater variation for explanatory style, than for either self-esteem or trait hope, suggesting that explanatory style is a more heterogenous scale. Therefore, the relatively poor fit of the individual positive thinking models, in combination with the heterogeneity of the explanatory style scale, may be contributing to the relatively poor fit of the more complex one-factor and three-factor models (that is, those including all three variables) .

In summary, these analyses suggest that the effects of self-esteem, trait hope, and explanatory style cannot be wholly attributed to a general positive thinking tendency, and instead represent three unique factors. This provides some support for the fourth hypothesis, although the relatively poor fit of the models overall does not allow a firm conclusion at this stage.

Table 3.6

Fit Statistics for Confirmatory Factor Analysis for Self-esteem, Hope, and Explanatory Style

Model	Self-esteem	Trait hope	Explanatory style
χ^2	552.34	123.67	600.96
Df	54	9	252
χ^2/Df	10.23	13.74	2.38
CFI	.796	.923	.672
RMSEA	.098	.116	.038

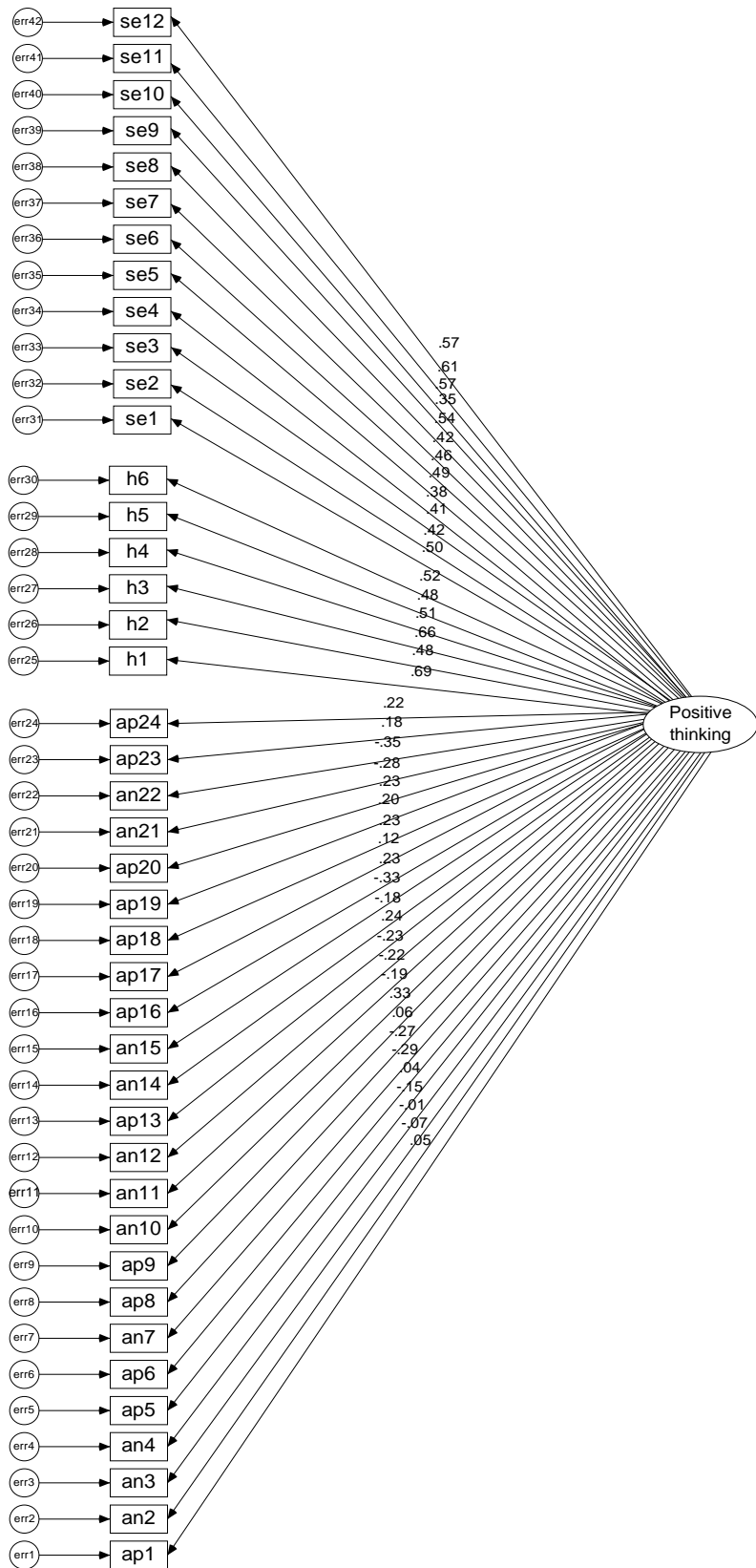


Figure 3.1. Confirmatory factor analysis for one factor model

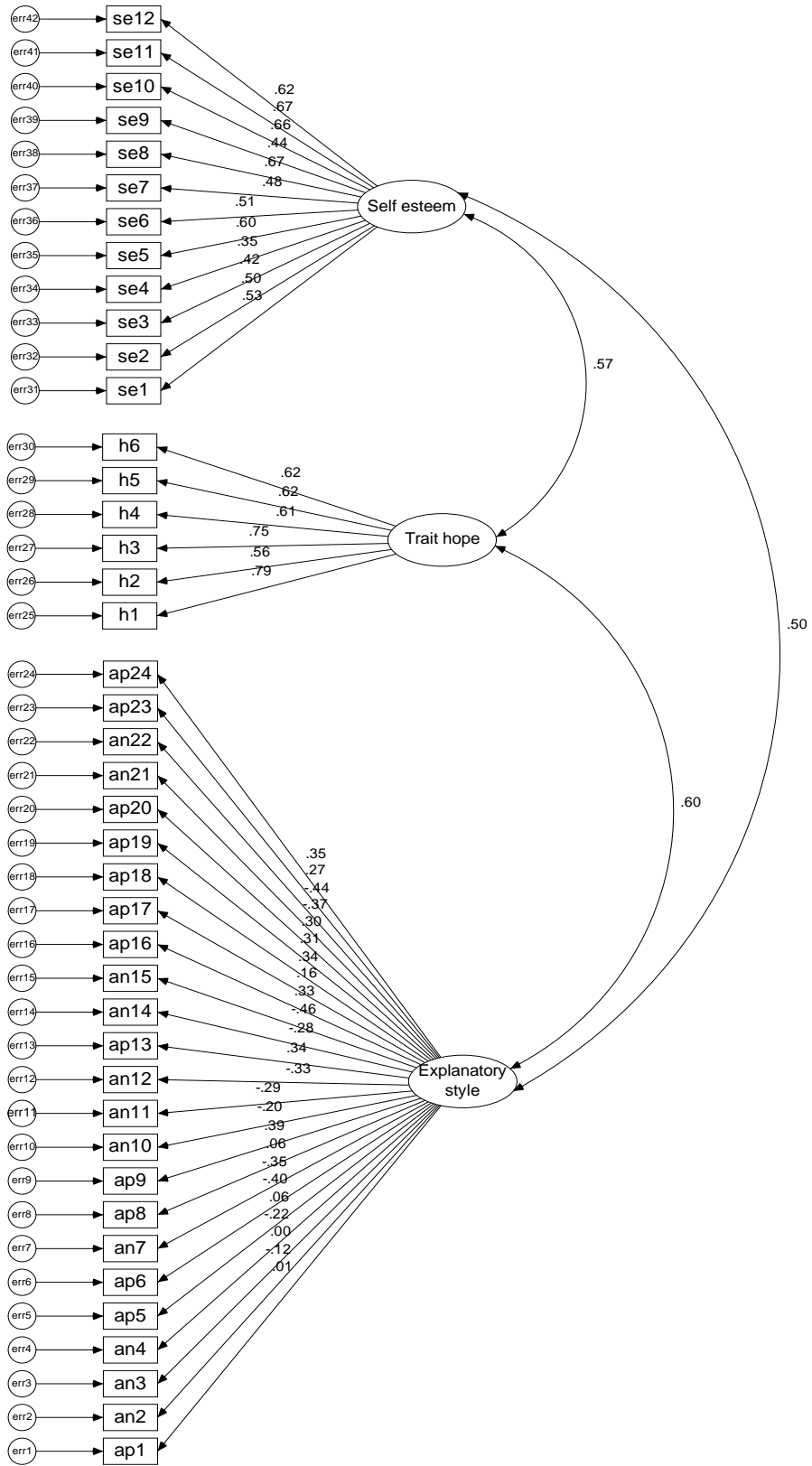


Figure 3.2. Confirmatory factor analysis for three factor model

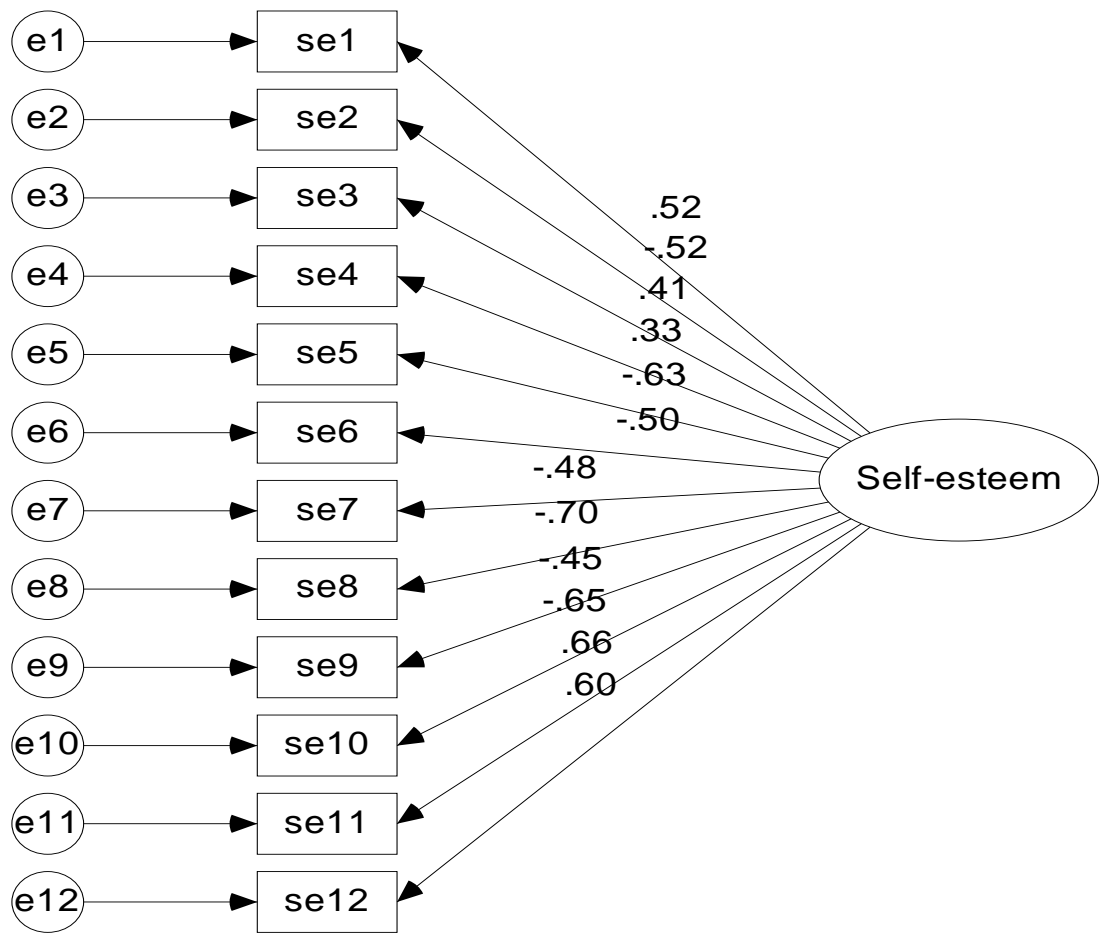


Figure 3.3. Confirmatory factor analysis for self-esteem

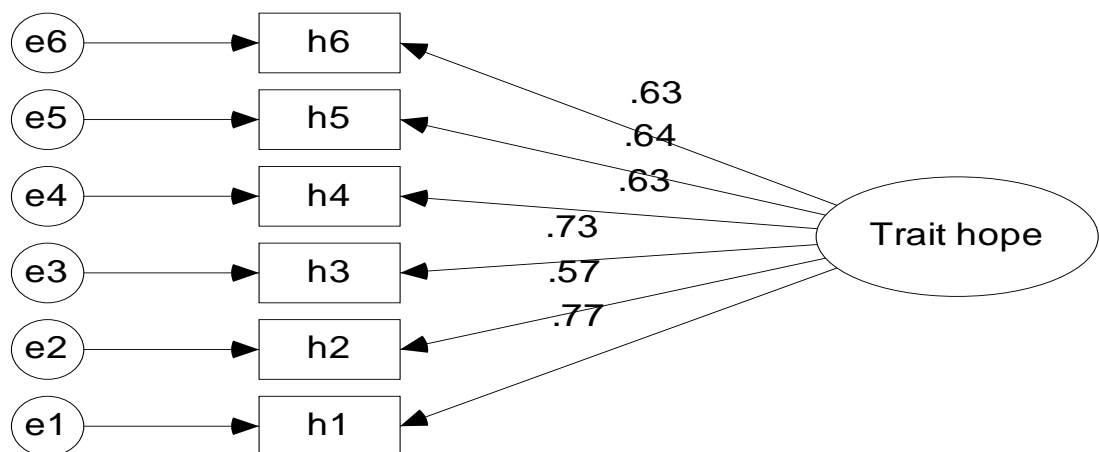


Figure 3.4. Confirmatory factor analysis for trait hope

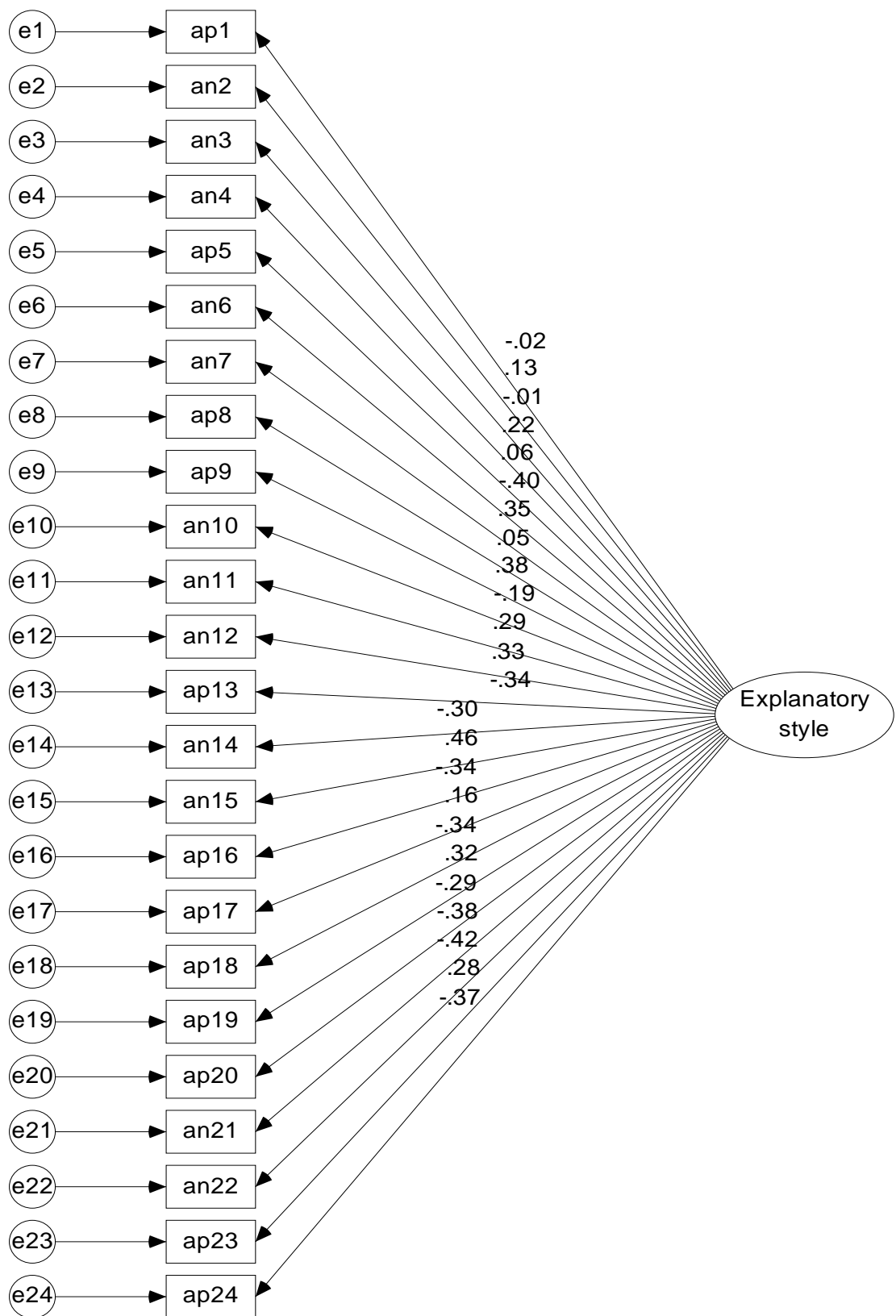


Figure 3.5. Confirmatory factor analysis for explanatory style

3.4 Discussion

This discussion will focus on (1) the findings of Study 1 and how these relate to both the hypotheses and prior research, (2) the limitations of the study, (3) suggestions for further research, and (4) implications for clinical practice and prevention programmes.

3.4.1 Findings

Study 1 had two main aims. Firstly, to investigate the link between three commonly researched positive thinking variables (self-esteem, trait hope, and explanatory style) and emotional wellbeing. Secondly, to examine whether each of the three positive thinking variables added unique variance, or whether they could be better explained by a general positive thinking factor.

3.4.1.1 Self-esteem

The results supported the first hypothesis with positive self-esteem predicting both positive and negative affect in the expected directions, with greater self-esteem predicting higher levels of joviality, and lower levels of sadness, fear and hostility. Self-esteem had the strongest relationship with sadness, predicting 18 percent of the variance. This result is in line with a wealth of prior research showing a cross-sectional relationship between self-esteem and emotional wellbeing (for a recent review see Baumeister et al., 2003).

3.4.1.2 Trait Hope

Students with higher levels of trait hope reported greater joviality and less hostility, partially supporting the second hypothesis. These results are in line with

Snyder's (2000a) view that the achievement of goals facilitated by agency and pathways thinking should lead to positive affect. It does not directly support the suggestions by Cheavens (2000) or Michael (2000) that hope should relate to feelings of dysphoria and anxiety respectively. The relationship between trait hope and hostility is consistent with the hypothesis of Rodriguez-Hanley and Snyder (2000), who suggest that goal blockages may lead to a series of emotional responses, of which the first is rage (followed by despair and apathy). Hope showed no relationship with sadness or fear, indicating that self-esteem and hope may have different effects on emotional wellbeing. This is consistent with Aspinwall and Staudinger's (2003) argument that positive states are not necessarily the opposite of negative states.

3.4.1.3 Explanatory Style

In partial support of the third hypothesis, a positive explanatory style predicted lower levels of hostility and sadness, and higher levels of joviality. The weakness of the relationship between explanatory style and sadness is surprising in light of the depth of research showing a relationship between explanatory style and depression (e.g., Joiner & Wagner, 1995; Nolen-Hoeksema et al., 1992). However, the hopelessness theory of depression predicts an interaction between negative explanatory style and negative life events as being central to the development of hopelessness depression (Abramson et al., 1989). As we did not measure life events in this study it is not possible to assess whether this is the case.

The relationship between explanatory style and hostility may be linked to the tendency for angry individuals to possess a hostile attributional style for social events and to see situations as unfair or a personal affront, and that they must therefore act to assert their rights. For example, if another student bumps into an angry individual they are likely to see it as deliberate, and personal, and become aggressive in response. Other

interpretations, such as that the bump was an accident caused by tripping on a shoelace or step, are unlikely to occur to them. This phenomenon is widely discussed in the literature on cognitive-behavioural anger management interventions (e.g., Gorenstein, Tager, Shapiro, Monk & Sloan, 2005; Lochman, Whidby, & Fitzgerald, 2000) and is a target of both cognitive restructuring and problem-solving interventions.

3.4.1.4 Positive Thinking

The results of the confirmatory factor analysis suggest that while there is a degree of overlap between global self-esteem, trait hope, and explanatory style, the three variables do add additional variance to the model. However, the models investigated were overall not a good fit to the data, perhaps because of characteristics of the individual scales, and so caution should be used in interpreting these results. In support of the fourth hypothesis, the results suggests that each type of positive thinking has a unique element to add, and that a generalized tendency to think in a positive way may not adequately explain the complexity of the relationship between thinking and emotional wellbeing. The analysis of the relationship between the positive thinking variables and positive and negative affect also supports this notion, with a different pattern of relationships apparent for each variable and emotional state.

These results contribute to the current debate on the distinctiveness of the growing variety of positive thinking variables, as it is the first time that these three widely studied variables have been combined in the one study. These results suggest that self-esteem, trait hope and explanatory style are likely to be distinct factors and different in their effects.

3.4.2 Limitations of the current study

The main limitation of the current study, like much of the research into the links between positive thinking and emotional wellbeing, is the cross-sectional design. It cannot tell us whether positive thinking contributes to emotional wellbeing over time, nor does it tell us anything about the developmental trajectory of the relationship between positive thinking and emotional states. Study 2 will address some of these limitations by a second measurement of most of the key variables after a one-year period.

Life events were not measured in this research, and this limits the interpretation of results, particularly in relation to explanatory style. The hopelessness theory of depression (Abramson et al., 1989) proposes that it is the combination of a pessimistic explanatory style with negative life events that results in depression. Thus it could be argued that the weak relationship between explanatory style and sadness may disguise individual differences in negative life events. However, sadness is not equivalent to depression, and it seems more reasonable to argue that the link between explanatory style and emotional wellbeing is at an earlier stage in the model. That is, the affective states (such as sadness) are part of the state of helplessness brought about through pessimistic explanatory style, and that life events are only relevant in relation to the model's later stage of hopelessness.

A further limitation is the modest reliability of the Children's Attributional Style Questionnaire. Further research using measures of explanatory style with better psychometric properties, such as that developed by Hankin and Abramson (2002), would be beneficial. Unfortunately, this measure was not available at the time the current research was designed and conducted.

Emotional wellbeing in this study was measured using a self-report measure of affect, rather than clinical measures of depression or anxiety. The inclusion of affect measures is a strength because the literature (e.g., WHO, 2004; Sawyer et al., 2001) suggests that we need to prevent mental illnesses such as depression in order to improve outcomes, and negative affect (or the absence of positive affect) may be an early warning sign (Watson, Gamez, & Simms, 2005). In addition, much of the existing research concentrates on syndromal measures (e.g., BDI, CDI) rather than everyday affect. The exclusion of clinical measures is a weakness in that we cannot draw conclusions about the relationship of low affect to diagnosable mental illness. However, to do this comprehensively would require diagnostic interviews and would have greatly changed the scope of the study.

The measures used are self-report, and this is another limitation of the study. This is unavoidable in that there is no ready way to determine how adolescents think and feel without asking them, but it suffers from the same limitations as other self-report research. That is, ratings are subjective and may vary between respondents, and answers may be affected by the conditions of the survey (being in a room with other students, their mood on the day, impression management, random or non-serious responding, etc). However, the measures used are well established, and there is no reason to suggest that this survey was substantially different to others in the field.

Related to the above, our self-report measure asked students to report how they 'generally feel'. The way people remember an earlier mood is different to how they report that mood at the time, leading to the widespread use of experience sampling procedures in which people are asked to record their moods at regular intervals during the day (Schneiders et al., 2007). However, people's memories of their emotions and moods are also important to emotional wellbeing and are a valid focus for research. In

particular, momentary emotions are highly influenced by context and show considerable variability, while moods are longer lasting and show more stable relationships with other indicators such as life satisfaction (Eid & Diener, 2004).

3.4.3 Summary

The aims of Study 1 were to examine the cross-sectional relationship between the three positive thinking variables and the four emotional states, and to conduct a preliminary analysis of whether the three positive thinking variables could be explained by a single general positive thinking tendency. The results of Study 1 were generally supportive of the hypotheses, with positive thinking predicting lower NA and higher PA, and each positive thinking variable contributing unique variance. The results of the study suggest that each positive thinking variable has different consequences for emotional wellbeing, and this will be further explored in Study 2 which follows the same students into Year 8 (one year later).

Further research is needed to establish whether the relationships between the positive thinking variables and positive and negative affect are consistent over time. There is a general shortage of longitudinal research in this area and this is an important area for further study. Study 2 contribute to the literature by examining whether positive thinking measured in Year 7 is predictive of changes in positive and negative affect between Year 7 and Year 8.

Chapter 4: Study 2

4.1 Introduction

Targeting aspects of positive thinking as a prevention or early intervention strategy will only be useful if a link can be established between positive thinking variables and emotional wellbeing over time. Study 1 provides initial support for the idea that positive thinking (global self-esteem, trait hope, and explanatory style) has an impact on adolescent emotional states (sadness, fear, hostility, and joviality) by demonstrating cross-sectional associations between these variables. Further, the results of Study 1 suggest that the different types of positive thinking may have different effects on emotional wellbeing rather than simply representing a general positive response style.

However, Study 1 was cross-sectional, and the major limitation of past research on both positive thinking and emotional wellbeing is the relative lack of longitudinal studies. Study 2 is designed to contribute to the literature by examining the effects of positive thinking on emotional wellbeing over a one-year period, by following the same students surveyed in Year 7 into Year 8. This constitutes a prospective longitudinal panel design. In these designs, data are collected on at least two time periods, with data collected during each time period rather than retrospectively (Menard, 2008a). One of several reasons for conducting longitudinal research is to understand why and how individuals change across time (Menard, 2008b), and this is the rationale for conducting Study 2.

As for Study 1, this research is part of the larger Wollongong Youth Study and was administered as part of a larger survey. The same variables were measured in Year 8 as in Year 7, with the exception of explanatory style, which was excluded due to time constraints in the second survey. This exclusion has little impact on the analysis.

Study 2 will use structural equation modelling to determine how much (if any) of the change in each type of affect between Year 7 and Year 8 can be attributed to each positive thinking variable. It will also assess the impact of each positive thinking variable in the presence of the other two to see whether they contribute unique variance to the prediction of each aspect of emotional wellbeing.

If, as predicted, the way in which adolescents think about the world affects their emotional wellbeing, then positive thinking may provide a target for prevention or early intervention programs to minimize the effect of mental health problems and to increase the wellbeing of young people during these crucial years for social and emotional development. Further, if specific emotional states are influenced by particular types of positive thinking, then this may help to better target clinical interventions for at-risk adolescents.

4.1.1 Aim

Study 2 had two main aims: (1) to extend Study 1 by following up the same students one year later and examining, using structural equation modelling, whether positive thinking contributes to changes in their emotional wellbeing over this time period; and (2) to examine whether the three positive thinking variables (global self-esteem, trait hope, and explanatory style) have different effects on the four emotional states (sadness, fear, hostility, and joviality).

4.1.2 Hypotheses

The hypotheses in Study 1 were generally supported, and where the results vary, there is not a clear rationale for why this may be the case. Thus, there is no compelling reason to change the details of the original theoretically-driven hypotheses on the basis of the results of Study 1. As Study 2 is an extension of Study 1 over a one-year time period, the nature of the hypotheses are the same:

- (1) Self-esteem would be predictive of changes in all four affective variables, with high self-esteem predicting increased joviality and decreased sadness, fear, and hostility.
- (2) Trait hope would be predictive of changes in positive affect only, with high hope predicting increased joviality.
- (3) Explanatory style would be predictive of changes in the three negative affective variables, with positive explanatory style predicting decreased sadness, fear, and hostility.

4.2 Method

4.2.1 Participants

Participants were drawn from the same five high schools as in Study 1. The Year 8 group is predominantly the same students surveyed one year later. The survey was completed in the middle of Year 8 (the second year of high school) by 792 students (males = 404, females = 384, 4 did not indicate gender). The results from Year 7 and Year 8 were matched using student enrolment numbers and checked using demographic questions (such as gender and the first initial of their mother's name), resulting in a

longitudinal sample size of 660 students (males = 330, females = 330). The attrition rate was 16% with 660 out of the 785 students who completed the survey in Year 7 also completing the survey in Year 8.

4.2.2 Materials

For the Year 8 data, students were given a test booklet including the same measures as for Study 1, with the exception of the CASQ-R, which was excluded due to time constraints. The details are as follows:

1. *Positive and Negative Affect Scale [PANAS-X] (Watson & Clark, 1994)*. As in Study 1, we measured four affective states, including one Basic Positive Emotion subscale (Joviality) and three Basic Negative Emotion subscales (Hostility, Fear, and Sadness). Higher scores indicate higher levels of the affective state. In line with the Year 7 data and prior research, the internal consistency coefficients for Time 2 were: sadness (.91), joviality (.94), hostility (.82), and fear (.85).
2. *The Children's Hope Scale [CHS] (Snyder et al., 1997)*. This measure consists of a total of six items assessing trait hope. Three items assess pathways thinking, and the other three assess agency thinking. The items are measured on a 6-point scale from 'none of the time' to 'all of the time'. Higher scores indicate increased hope. In line with Study 1 and previous research, the internal consistency coefficient was .85 for Time 2.
3. *Rosenberg Self-Esteem Scale [RSES] (Rosenberg, 1979)*. We measured each student's global self-esteem using a version of the RSES requiring a forced choice Yes/No response. In line with Study 1 and previous research, the internal consistency coefficient was .83 for Time 2.

4.2.3 Procedure

Consent for the study was obtained from schools and parents, and students were then asked to complete a survey on “Youth Issues” in both Year 7 and Year 8. Students were informed that their participation was voluntary. The surveys were completed during regular classes with supervision from Wollongong Youth Study researchers and/or school teachers. Students completed the questionnaires anonymously and were asked not to discuss their answers. They had an opportunity to ask questions about the survey, and were thanked for their participation at the end of the class time.

4.3 Results

4.3.1 Cross-sectional analyses for Year 8

The cross-sectional analyses for Year 8 were completed using the full sample of 792 students. These analyses are a replication of many of the analyses from Year 7 in order to examine whether the results are broadly equivalent, and potentially strengthening the conclusions from Study 1 through replication.

4.3.1.1 Descriptive Statistics for Year 8

Means and standard deviations for the positive thinking and affective measures in Year 8, broken down by gender, are given in Table 4.1. For Year 7 data refer to Table 3.1 in Study 1.

Table 4.1

Means and Standard Deviations for Year 8

Measure	Gender	n	Mean	S.D.
Self-esteem	Male	409	9.66	2.48
	Female	383	8.94	2.93
Trait Hope	Male	410	26.33	5.74
	Female	385	27.06	5.70
Fear	Male	400	9.22	3.45
	Female	381	10.82	4.29
Hostility	Male	383	10.73	4.08
	Female	372	10.33	4.17
Sadness	Male	399	7.66	3.56
	Female	377	9.70	5.07
Joviality	Male	401	32.36	6.87
	Female	380	34.06	6.58

4.3.1.2 Correlational Analyses for Year 8

As for Study 1, gender has been included as a variable in the following analyses as previous research has noted gender differences in the types of variables used in the present study (e.g., Abela & Payne, 2003; Bolognini et al., 1996; Boman et al., 2003; Byrne, 2000). Pearson correlations are presented for males and females separately in Table 4.2, with correlations for females presented in brackets. Tests for gender differences at $p < .05$, indicated few significant differences between the genders (5 out of 15 pairs of correlations). Wherever significant differences occurred, the correlations were larger for the females in the sample, with all of these differences occurring for self-esteem (with trait hope, sadness, and joviality) or sadness (with self-esteem, hostility, and joviality). The largest gender difference in correlations was between sadness and joviality, with a moderate to strong correlation for females ($r = -.46$) but a weak correlation for males ($r = -.22$), $z = 3.86$, $p = .0002$. Clark and Watson (1991) argue that PA and NA are independent, and this is largely consistent for the males in both the Year 7 and Year 8 sample, although the correlation between sadness and joviality was higher for females.

Self-esteem and trait hope had significant correlations with all four affective variables as in Year 7. Both higher self esteem and higher trait hope were associated with increased joviality, and lower fear, sadness, and hostility.

Table 4.2

Pearson correlations between measures for Year 8

	Self-esteem	Trait hope	Fear	Hostility	Sadness	Joviality
Self-esteem	1					
Trait hope	.39** (.52**)	1				
Fear	-.27** (-.36**)	-.15** (-.12*)	1			
Hostility	-.31** (-.38**)	-.21** (-.23**)	.51** (.53**)	1		
Sadness	-.47** (-.61**)	-.28** (-.35**)	.54** (.52**)	.47** (.61**)	1	
Joviality	.33** (.48**)	.48** (.52**)	-.10 (-.18**)	-.09 (-.18**)	-.22** (-.46**)	1

$p < 0.05$; ** $p < 0.01$ (2-tailed)

Note: Correlations for males are presented first, with correlations for females presented in brackets on the 2nd line of each row.

4.3.2 Gender Differences in Year 8

Multivariate analysis of variance (MANOVA) was used to examine, across all variates, the impact of gender. There were gender differences evident in the sample, with a main effect for gender $F(6, 619) = 18.88, p < .001$ (using Pillai's Trace).

Follow-up univariate F tests, using a Bonferroni adjustment of the Type 1 error rate ($.05/6 = .008$), showed significantly higher scores on self-esteem for males, and significantly higher scores for females across sadness, fear, and joviality. The effect sizes are relatively small. Results are presented in Table 4.3.

Table 4.3

Univariate F Tests for Gender in Year 8

Measure	F test	Partial ϵ^2
Self-esteem	$F(1, 625) = 14.51^*$	.02
Trait Hope	$F(1, 625) = 1.48$	.00
Fear	$F(1, 625) = 22.15^*$	.03
Hostility	$F(1, 625) = 1.68$	.00
Sadness	$F(1, 625) = 33.80^*$	.05
Joviality	$F(1, 625) = 7.97^*$	.01

* = significant after Bonferroni adjustment (.05/6 = .008)

4.3.3 Multivariate Analyses for Year 8

Due to the gender differences discussed above, gender was included as a fixed factor in later analyses. Multiple regression analyses were conducted to determine the impact of the positive thinking variables and gender on the affective measures. Using Pillai's Trace as a multivariate test of each independent variable across all dependent variables, there was a significant effect for gender, $F(4, 619) = 20.86, p < .001$; self-esteem, $F(4, 619) = 49.30, p < .001$; and trait hope, $F(4, 619) = 29.20, p < .001$.

Follow-up univariate F tests, using a Bonferroni adjustment of the Type 1 error rate (.05/3 = .017) showed that self-esteem predicted scores on all affective variables as in Year 7, while trait hope predicted joviality (as in Year 7) and sadness. Gender predicted fear, sadness and joviality as in Year 7. Measures of effect size suggest that the strongest relationships are between self-esteem and sadness (Partial $\epsilon^2 = .22$) and trait hope and joviality (Partial $\epsilon^2 = .16$). Results are presented in Table 4.4.

Table 4.4

Tests of Between-subjects Effects for Year 8

Positive Thinking Measure (IV)	Affective Measure (DV)	<i>F</i> (1,625)	<i>t</i>	Partial ϵ^2
Self-esteem	Fear	54.45*	-7.38	.08
	Hostility	63.52*	-7.97	.09
	Sadness	177.99*	-13.34	.22
	Joviality	30.35*	5.51	.05
Trait Hope	Fear	.07	2.65	<.01
	Hostility	.65	-1.28	<.01
	Sadness	5.75*	-2.40	<.01
	Joviality	113.762*	10.67	.16
Gender	Fear	12.81*	-3.60	.02
	Hostility	7.01	2.65	.01
	Sadness	22.09*	-4.70	.03
	Joviality	13.28*	-3.65	.02

* = significant after Bonferroni adjustment (.05/3 = .017)

Examination of Table 4.4 shows that positive self-esteem was predictive of high joviality and low sadness, fear, and hostility. The effect size was largest for sadness. High trait hope predicted high joviality, and additionally low sadness. The effect size was largest for joviality. Comparing these to the results in Study 1, the link between trait hope and hostility is no longer apparent in Year 8, suggesting that this may not have been a reliable result or that there have been developmental changes.

4.3.4 Longitudinal analyses

The longitudinal analyses only use data for which there was a match between Year 7 and Year 8 (i.e., the same student responded to both the Year 7 and Year 8

surveys). In order to test for any significant differences between students who either dropped out (125 students participated in Year 7 only) or were added to the study (132 students participated in Year 8 only) and those who participated in both surveys (660 students), their scores on each of the positive thinking and emotional wellbeing variables were compared using analysis of variance. There were no significant differences on any of the variables between students who participated in both years (660, 72% of the total sample of 917 participants who completed at least one survey in the two years), and those that participated in Year 8 only (132, or 17% of the 792 students who completed the survey in Year 8). However, there were significant differences on some variables for those students who only participated in Year 7 (125, or 16% of the 785 students who completed the survey in Year 7), compared to those who participated in both years. The students who dropped out of the study after Year 7 had significantly lower scores on self-esteem and joviality, and significantly higher scores on sadness (see Table 4.5 below).

In order to test for any systematic demographic differences in the families of those students who dropped out of the study, chi-squared tests were conducted comparing the marital and employment status of the parents of those students who only participated in Year 7 to those who participated in both years. Chi-squared tests were also conducted to determine whether there were any gender differences between the two groups. Neither set of tests were significant, suggesting there are no systematic differences in gender or family circumstances between those students who dropped out of the study and those who remained.

Table 4.5

*Univariate F tests Comparing Students Participating in Both Years to Students**Participating in Year 7 Only*

Measure	Mean Yr 7 only	Mean Yr 7 & 8	F test	Partial ϵ^2
Self-esteem	8.42	9.27	$F(1,781) = 10.26^*$	.01
Trait Hope	26.90	28.22	$F(1, 782) = 6.16$	.01
Explanatory style	8.10	9.92	$F(1, 740) = 7.13$	.01
Fear	12.57	11.90	$F(1, 780) = 1.59$	.00
Hostility	13.89	11.99	$F(1, 778) = 1.68$	.02
Sadness	11.21	9.44	$F(1, 778) = 11.84^*$	.02
Joviality	33.21	35.04	$F(1, 779) = 8.01^*$	.01

* = significant after Bonferroni adjustment (.05/7 = .007)

4.3.5 Correlations between Year 7 and Year 8

The pattern of correlations between the Year 7 and Year 8 variables can be seen in Table 4.6. The three positive thinking variables as measured in Year 7 are significantly associated with all emotional states as measured in Year 8 for females, and for all emotional states except fear for males. Follow-up tests investigating gender differences in the correlations, indicated only one statistically significant difference at $p < .001$ with the correlation between attributional style and fear stronger for females ($z = 3.48, p = .0006$). This suggests that the structure of the relationships between the variables does not vary by gender.

These correlations also provide a measure of the stability of the positive thinking variables over the year. The correlation between Year 7 and Year 8 self-esteem was statistically significant and of a moderate size ($r = .57$), with no significant difference between the size of the correlations for males ($r = .62$) and females ($r = .53$). Similarly, the correlation between Year 7 and Year 8 trait hope was statistically significant and a

similar size ($r = .55$), Again, there was no significant difference between the correlations for males ($r = .53$) and females ($r = .57$).

Table 4.6

Pearson correlations between measures for Year 7 and Year 8

	Self-esteem Yr 8	Trait hope Yr 8	Fear Yr 8	Hostility Yr 8	Sadness Yr 8	Joviality Yr 8
Self-esteem Yr 7	.62** (.53**)	.32** (.36**)	-.15** (-.23**)	-.19** (-.22**)	-.37** (-.29**)	.30** (.30**)
Trait hope Yr 7	.30** (.39**)	.53** (.57**)	-.06 (-.14**)	-.18** (-.24**)	-.17** (-.21**)	.35** (.29**)
Explanatory style Yr 7	.26** (.34**)	.26** (.33**)	.01 (-.27**)	-.17** (-.30**)	-.08** (-.26**)	.21** (.19**)
Fear Yr 7	-.24** (-.16**)	-.21** (-.14*)	.26** (.28**)	-.11 (.14*)	-.27** (-.13*)	-.06 (-.12*)
Hostility Yr 7	-.25** (-.22**)	-.31** (-.23**)	.14* (.32**)	.23** (.33**)	.27** (.19**)	-.16** (-.15**)
Sadness Yr 7	-.45** (-.32**)	-.25** (-.21**)	.20** (.30**)	.17** (.29**)	.42** (.37**)	-.16** (-.28**)
Joviality Yr 7	.24** (.28**)	.27** (.26**)	-.09 (-.13*)	-.15 (-.16**)	-.18** (-.25**)	.34** (.42**)

 $p < 0.05$; ** $p < 0.01$ (2-tailed)Note: Correlations for males are presented first, with correlations for females presented in brackets on the 2nd line of each row.

4.3.6 Structural Equation Models

Linear panel analysis for datasets where the sample size is large, and the number of data collection points is small, is typically analysed using either methods derived from econometrics or structural equation modelling (Finkel, 2008). Structural equation modelling is more common in psychology, and is useful for modelling dynamic causal processes and accounting for possible bias resulting from measurement error (Finkel, 2008). Structural equation modelling using full information maximum likelihood estimation will be used in this analysis as the sample size is large, the number of measurements in time (two) is small, and structural equation modelling accounts for measurement error in estimation of the relationships between the latent variables. Measurement error is likely to be particularly relevant with the variables used in this study, particularly explanatory style which has lower reliability than the other measures.

The data were first analysed separately for each positive thinking variable, and then the positive thinking variables were combined in the same model. The initial analyses will be referred to as the simple structural equation models, and the later analyses as the complex structural equation models. Each emotional state was analysed separately. When items are based on categorical scales (as is the case for self-esteem and explanatory style), bias can be introduced into the model, and a common solution is to form parcels of items rather than using individual items (Kline, 2005). This has been done for each emotional state and positive thinking variable in the following analyses.

Due to some skewness in the data, both parametric and non-parametric versions of the analyses were completed. To complete the non-parametric analysis, missing values in the original data were imputed using the expectation-maximisation method, and then bootstrapping procedures (using 5000 samples and a 95% confidence interval)

were completed. Only where relationships were significant in both parametric and non-parametric analyses were they regarded as statistically significant. Throughout Study 2, the standardized regression weights are used as a measure of effect size.

4.3.6.1 Simple Structural Equation Models

The initial analyses (presented in Table 4.7) examined how well each positive thinking variable in Year 7 predicted each affective state in Year 8, controlling for Year 7 affect and Year 8 positive thinking (for self-esteem and trait hope only) in each structural model. For example, the model for sadness and self-esteem included both these variables at both time points (i.e., self-esteem for both Year 7 and Year 8, and sadness for both Year 7 and Year 8). These provide a starting point for the later and more complex analyses. The results were consistent across both parametric and non-parametric analyses for all three positive thinking variables. Self-esteem in Year 7 predicted all four emotional states in the expected direction. That is, higher self-esteem predicted lower negative affect, and higher positive affect. A more positive explanatory style in Year 7 predicted both decreased hostility and increased joviality in Year 8. Higher trait hope in Year 7 predicted lower hostility and sadness, and increased joviality, in Year 8.

Table 4.7

Estimates for the Path from Year 7 Positive Thinking to Year 8 Affect, Controlling for Year 7 Affect and Year 8 Positive Thinking (for self-esteem and trait hope only)

Year 7 ⇨ Year 8	Parametric analysis	Non-parametric analysis (from bootstrap)		
	Standardised regression weight	Non-standardised estimate	Lower bound	Upper bound
Self-esteem ⇨ Fear	-.18***	-.17**	-.27	-.08
Self-esteem ⇨ Sadness	-.21***	-.29**	-.47	-.12
Self-esteem ⇨ Hostility	-.18***	-.20**	-.33	-.08
Self-esteem ⇨ Joviality	.20***	.40**	.17	.65
Explanatory style ⇨ Fear	-.07	-.07	-.18	.04
Explanatory style ⇨ Sadness	-.06	-.06	-.22	.10
Explanatory style ⇨ Hostility	-.25***	-.26**	-.46	-.10
Explanatory style ⇨ Joviality	.14**	.34**	.10	.64
Trait hope ⇨ Fear	-.04	-.03	-.09	-.04
Trait hope ⇨ Sadness	-.12**	-.12**	-.21	-.03
Trait hope ⇨ Hostility	-.18***	-.13**	-.22	-.05
Trait hope ⇨ Joviality	.29***	.44***	.25	.65

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

Note: Bootstrap confidence intervals are based on the percentile method.

For self-esteem and trait hope, estimates of the effect of Year 7 affect on Year 8 positive thinking were also calculated, but none were statistically significant, suggesting that the direction of causality may be one-way from positive thinking to emotional wellbeing (see Table 4.8).

Table 4.8

Standardised regression weights for the paths from Year 7 affect to Year 8 positive thinking, controlling for Year 7 positive thinking

	Fear	Sadness	Hostility	Joviality
Self-esteem	.01	-.06	.00	-.02
Trait hope	-.02	-.04	-.08	-.01

Note: No statistically significant relationships

4.3.6.2 Complex Structural Equation Models

The final analyses presented in Table 4.9 examine the change in each affective state between Year 7 and Year 8, and the variance in affect explained by each of the positive thinking variables in the presence of all three positive thinking variables. That is, all Year 7 positive thinking variables were included in each model, as well as the specific emotional state at both Year 7 and Year 8. The structural models are presented in Figures 4.1 (fear), 4.2 (sadness), 4.3 (hostility), and 4.4 (joviality). As can be seen in Table 4.9, both the parametric and non-parametric analyses showed the same pattern of relationships. The model fit indices (see Study 1 for a discussion of the model fit indices) are all acceptable, and are included in Figures 4.1 through 4.4.

The structural equation model for fear is shown in Figure 4.1. When all three positive thinking variables are included in the model, the only statistically significant effect is that of self-esteem at .16 in both the parametric and non-parametric analyses. That is, only self-esteem accounts for unique variance in fear from Year 7 to Year 8, with higher self-esteem in Year 7 predicting lower fear in Year 8.

The structural equation model for sadness is shown in Figure 4.2. Again, self-esteem is the only positive thinking variable that has a statistically significant effect in

the presence of the other two variables, with this effect occurring with both parametric and non-parametric analyses. Self-esteem accounts for unique variance in changes in fear from Year 7 to Year 8, with higher self-esteem in Year 7 predicting lower levels of sadness in Year 8.

The structural equation model for hostility is presented in Figure 4.3. In the presence of the other positive thinking variables, only explanatory style adds unique variance to the prediction of hostility. A more positive explanatory style in Year 7 predicts lower hostility in Year 8 in both the parametric and non-parametric analyses.

The structural equation model for joviality is shown in Figure 4.4. As was the case for all the types of negative affect, only one positive thinking variable adds unique variance to the prediction of joviality. In this case, higher trait hope in Year 7 predicts increased joviality in Year 8 in both the parametric and non-parametric analyses.

Table 4.9

Standardised Regression Weights for the Path from Year 7 Positive Thinking to Year 8 Affect, Controlling for All Year 7 Variables (affect, self-esteem, explanatory style, and trait hope)

Year 7 ⇒ Year 8	Parametric analysis	Non-parametric analysis (from bootstrap)		
	Standardised regression weight	Estimate	Lower bound	Upper bound
Self-esteem ⇒ Fear	-.16**	-.16**	-.28	-.05
Self-esteem ⇒ Sadness	-.16**	-.23**	-.41	-.06
Self-esteem ⇒ Hostility	-.06	-.09	-.23	.05
Self-esteem ⇒ Joviality	.06	.11	-.13	.36
Explanatory style ⇒ Fear	-.07	-.05	-.22	.10
Explanatory style ⇒ Sadness	.01	.07	.30	.55
Explanatory style ⇒ Hostility	-.21*	-.23*	-.51	-.01
Explanatory style ⇒ Joviality	.03	.06	-.28	.39
Trait hope ⇒ Fear	.10	.06	-.03	.17
Trait hope ⇒ Sadness	-.02	-.03	-.16	.90
Trait hope ⇒ Hostility	-.04	-.02	-.13	.10
Trait hope ⇒ Joviality	.18**	.29**	.08	.51

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

Note: Bootstrap confidence intervals are based on the percentile method.

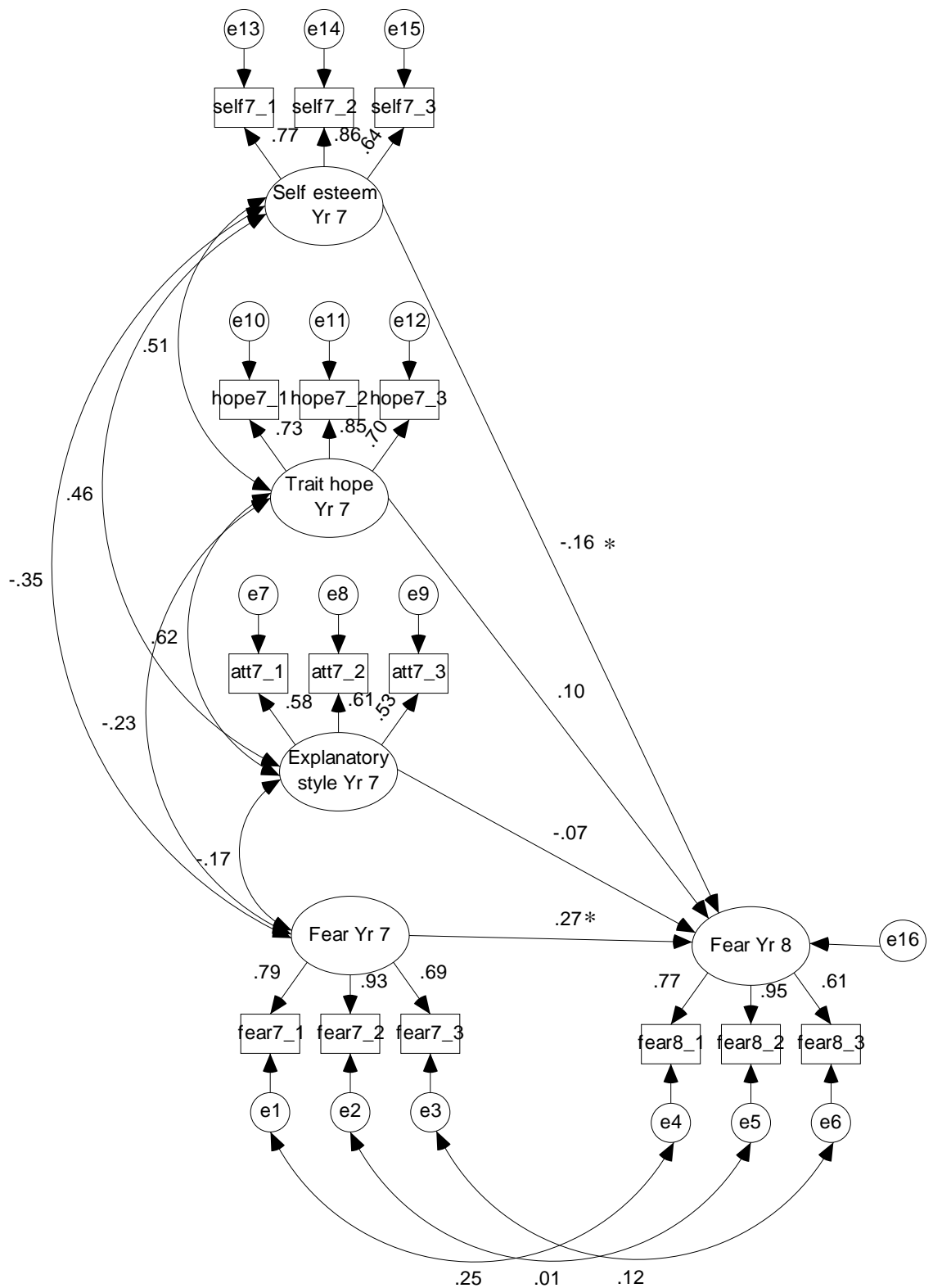


Figure 4.1. Structural equation model with standardised estimates for Year 8 fear, controlling for Year 7 fear, self-esteem, explanatory style, and trait hope

Note 1: Model fit was satisfactory with $\chi^2 = 207.48$, $\chi^2 / df = 2.70$, RMSEA = .05, and CFI = .96.

Note 2: Statistically significant pathways between the Year 7 and Year 8 latent variables are marked with an asterisk.

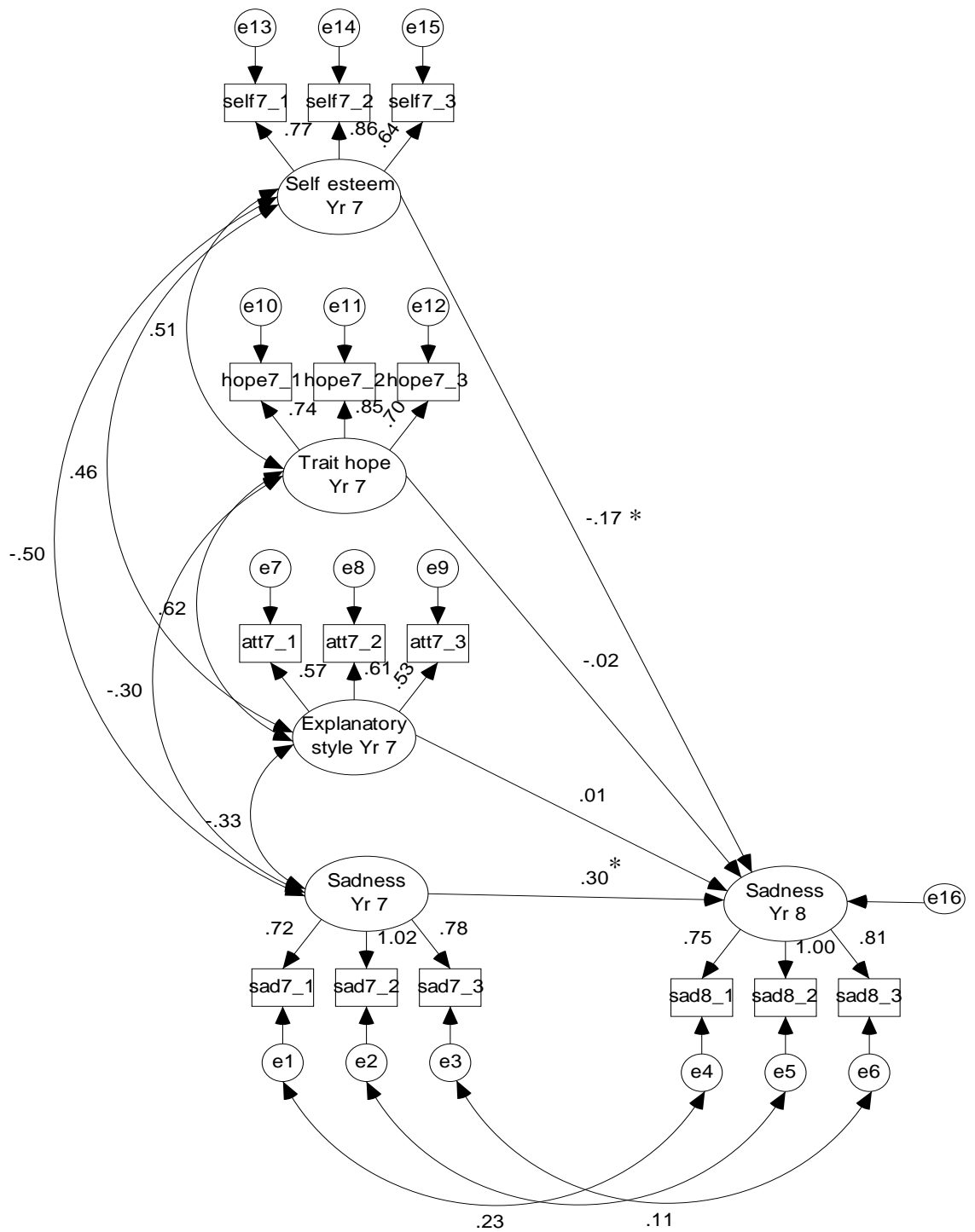


Figure 4.2. Structural equation model with standardised estimates for Year 8 sadness, controlling for Year 7 sadness, self-esteem, explanatory style, and trait hope

Note 1: Model fit was satisfactory with $\chi^2 = 210.44$, $\chi^2 / df = 2.73$, RMSEA = .04, and CFI = .98. A single negatively correlated error variance resulted in this solution being inadmissible. However, given the excellent model fit this model is acceptable for the purposes of this study.

Note 2: Statistically significant pathways between the Year 7 and Year 8 latent variables are marked with an asterisk.

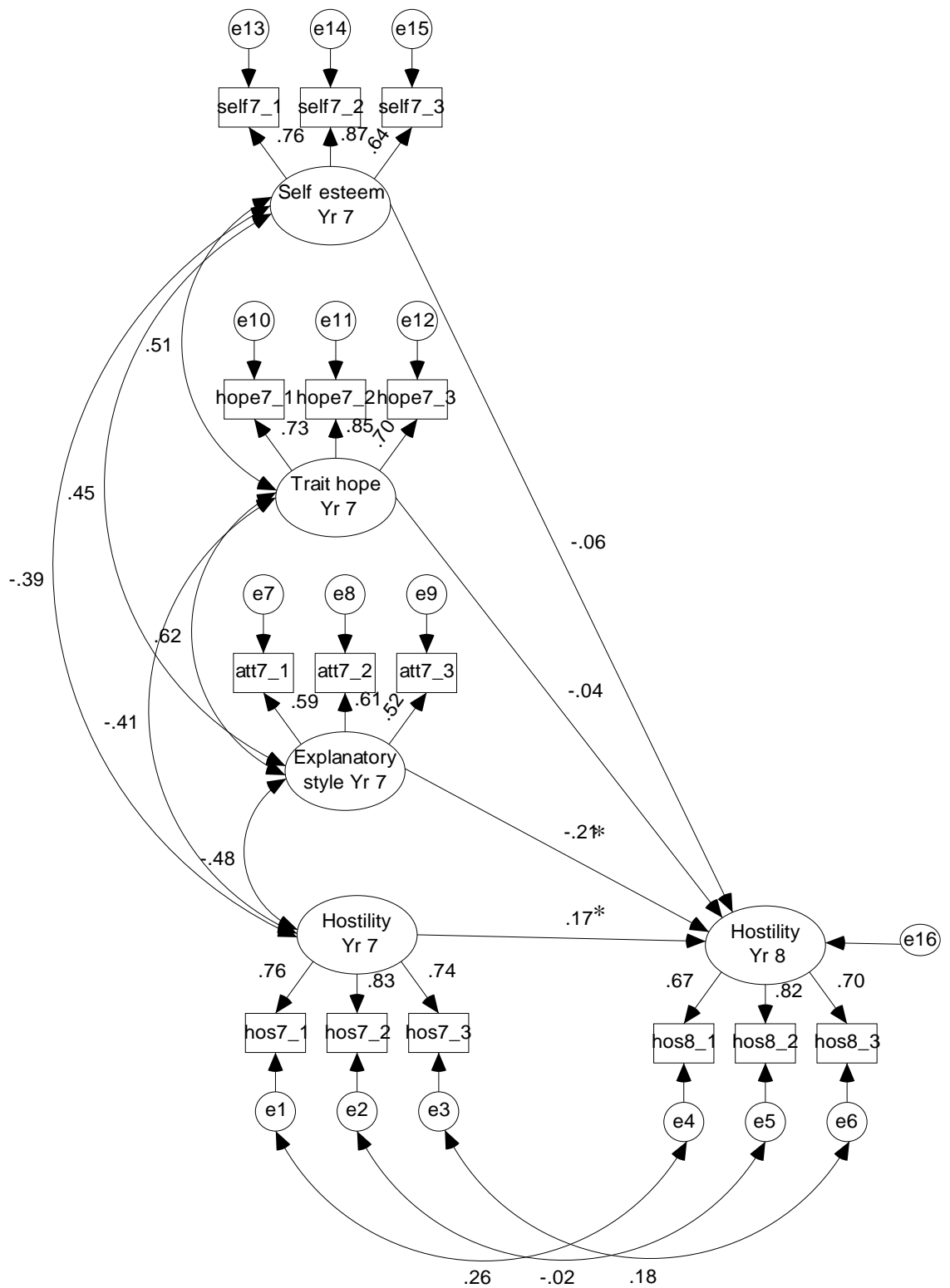


Figure 4.3. Structural equation model with standardised estimates for Year 8 hostility, controlling for Year 7 hostility, self-esteem, explanatory style, and trait hope

Note 1: Model fit was satisfactory with $\chi^2 = 159.37$, $\chi^2 / df = 2.07$, RMSEA = .04, and CFI = .98.

Note 2: Statistically significant pathways between the Year 7 and Year 8 latent variables are marked with an asterisk.

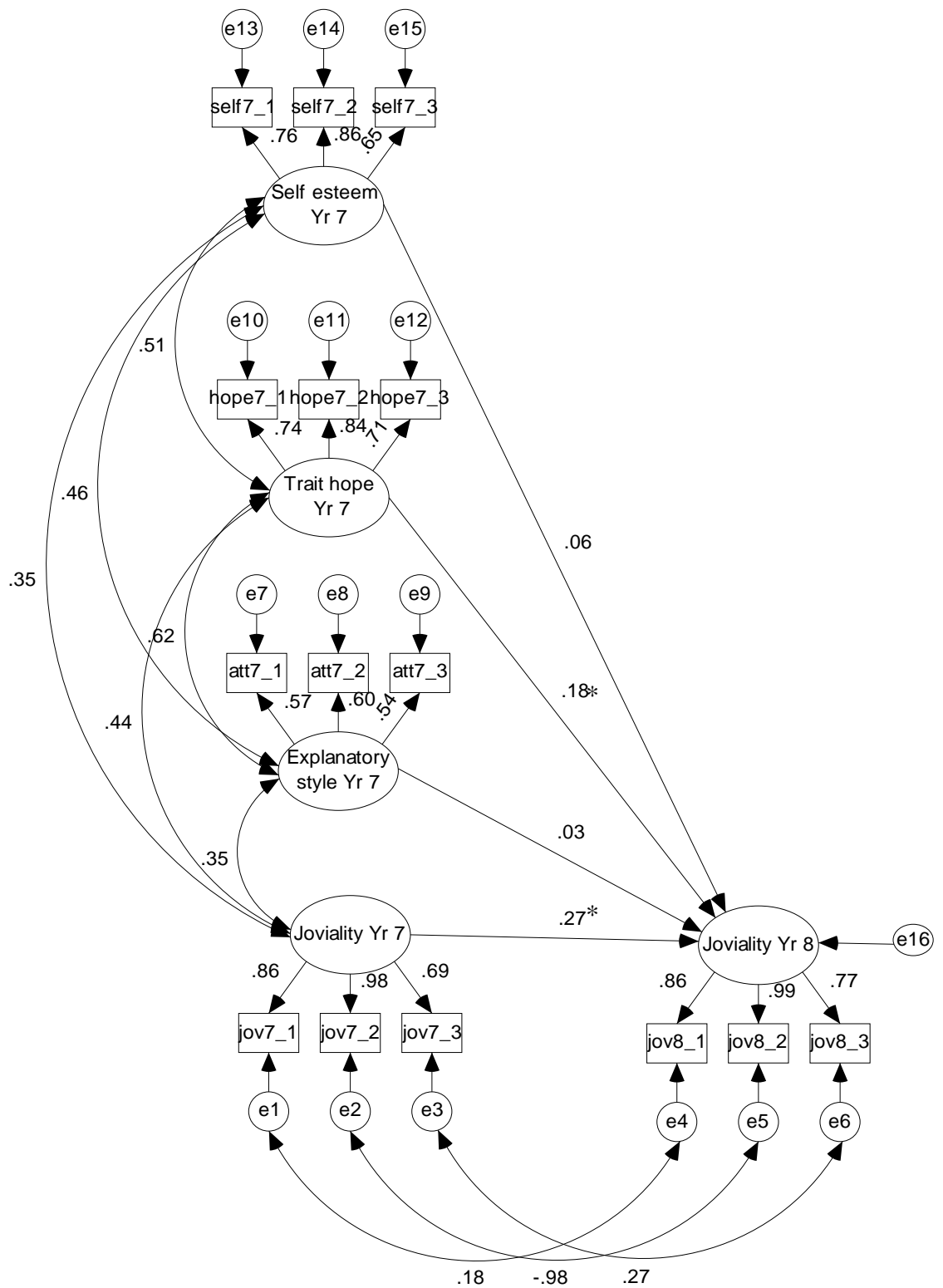


Figure 4.4. Structural equation model with standardised estimates for Year 8 joviality, controlling for Year 7 joviality, self-esteem, explanatory style, and trait hope

Note 1: Model fit was satisfactory with $\chi^2 = 235.00$, $\chi^2 / df = 3.05$, RMSEA = .06, and CFI = .97.

Note 2: Statistically significant pathways between the Year 7 and Year 8 latent variables are marked with an asterisk.

Given the gender differences found in earlier analyses, the models were tested for structural invariance across gender. The structural models for girls and boys were not significantly different, and in each case the standard errors were lower when equal regression weights were assumed for the three key paths from positive thinking to Year 8 affect (i.e., the constrained models), indicating that the assumption of structural invariance across gender is to be preferred. The combined sample has therefore been used (as above) for the main analyses. This was done for three reasons. Firstly, the structural models are already complex, and there is the risk of losing sight of the forest for the trees by attempting to account for too many factors. Secondly, using the whole sample increases statistical power. Finally, from a practical perspective, if there is the same pattern of relationships for males and females then this is the most relevant information for the design of intervention and prevention programmes as it means that the same programme can be used for both genders.

In line with the results of the cross-sectional analyses, self-esteem, trait hope, and explanatory style account for unique variance in emotional states. In fact, each affective state is uniquely predicted by only one of the three positive thinking variables. Hypothesis 1 is partially supported, with self-esteem accounting for unique variance in fear and sadness (see Figures 4.1 and 4.2). Hypothesis 2 is supported, with trait hope predicting unique variance in joviality (see Figure 4.4). Hypothesis 3 is partially supported, with explanatory style explaining unique variance in hostility (see Figure 4.3).

4.4 Discussion

This discussion will focus on (1) the findings of Study 2 and how these relate to the hypotheses and prior research, and (2) the limitations of the study.

4.4.1 Findings

4.4.1.1 Gender Differences

Consistent with Study 1, the females in this study showed higher levels of sadness, joviality, and fear in Year 8, suggesting reliable gender differences in emotional wellbeing during these early years of high school, at least with the current sample. As previous research has not found reliable gender differences in the affect scales for adults (Watson & Clark, 1994) or in the structure of the tripartite model for adolescents (e.g., Chorpita, 2002; Lonigan et al., 1999; Lonigan et al., 2003), the issue of potential gender differences in emotional wellbeing warrants additional study.

The gender differences in the positive thinking scales were not as consistent, with males scoring lower on explanatory style only in Year 7, and scoring higher on self-esteem only in year 8. It is unclear whether this represents true gender differences, or simply a different developmental path for males and females. Gender did not affect the nature of the longitudinal relationships between the positive thinking variables and emotional wellbeing.

4.4.1.2 Positive thinking and emotional wellbeing

All three hypotheses were partially supported by the longitudinal analysis, with the effects of the three positive thinking variables clearly distinct. Global self-esteem was a unique predictor of changes in sadness and fear from Year 7 to Year 8, partially supporting the first hypothesis. When explanatory style and trait hope were included in the analyses, global self-esteem did not predict changes in either hostility or joviality. In line with prior research and theorizing this suggests that positive thoughts about personal worth are associated with less negative feelings, particularly feeling down or

anxious. This finding suggests that self-esteem may indeed contribute to changes in emotional wellbeing over time.

The second hypothesis was supported, with higher trait hope uniquely predicting positive changes in joviality. This is in line with Snyder's (2000a) view that emotional wellbeing should flow from the increase in goal achievement that is expected to accompany positive agency and pathways thinking. This also lends some credence to Cheavens' (2000) argument that low agency should predict low positive affect.

Explanatory style was a unique predictor of hostility, partially supporting the third hypothesis. When global self-esteem and trait hope were included in the analysis, explanatory style did not predict any of the other emotional states. This replicates the finding of a link between explanatory style and hostility as found in Study 1, however, the small association between explanatory style and sadness that was apparent in the cross-sectional data is not replicated here. As discussed in Study 1, the absence of a clear relationship is somewhat surprising given the demonstrated link between explanatory style and depression. However, the attributional reformulation of the learned helplessness model does predict that hostility would be an emotional deficit associated with pessimistic explanatory style, so this finding is consistent with the theory.

These results are consistent with the results of the three-factor confirmatory factor analysis done in Study 1. They suggest that shared variance may be responsible for the generalized effect of the positive thinking variables on emotional wellbeing, but that more specific factors may account for unique variance in the positive thinking variables.

4.4.2 Limitations of the current study

Study 2 addresses a major limitation of Study 1 by extending the research over a one year period. This allowed examination of the effect of positive thinking on emotional wellbeing over time, showing that the different types of positive thinking do have different effects. Nonetheless, one year is still a relatively short period of time and it would be useful to conduct a longer study over the whole of the high school years in order to understand the developmental path of the relationship between positive thinking and emotional wellbeing – a different pattern may be apparent in the mid to late years of adolescence. For example, it is possible that positive thinking habits are less stable in younger adolescents, or that positive thinking has different effects on emotional wellbeing at different developmental stages. That is, the relationship between positive thinking and emotional wellbeing may vary over time, and testing for any changes is advisable before using these results for intervention programs on other age groups. The other limitations discussed in Study 1 are still present – including the exclusive use of self-report measures and the absence of clinical measures.

A possible issue for the current research is that of panel conditioning, where participation in the survey itself causes changes in responses from year to year (Cantor, 2008). This may lead to more accurate responding by participants in later surveys, or to less accurate responding, thus confounding measurement error with genuine change in the participants on the variables of interest. Waterton and Lievesley (1989) outline several theoretical possibilities for why changes might occur, some of which may apply to the current research, including increased insight (students becoming more aware of their thoughts or feelings as a result of completing surveys), increased trust in later years leading to more open responses (e.g., students seeing no harmful consequences from participating in Year 7), and higher or lower motivation (e.g., students becoming

more interested in contributing to research in Year 8, or becoming bored with the survey in the second year). In a review of research on panel conditioning, Cantor (2008) concludes that the evidence on panel conditioning related to attitudes and subjective phenomena (as opposed to behaviour such as voting intentions) is mixed, making it difficult to draw any solid conclusions about which factors might lead to panel conditioning and when these might be of concern. Given the 12 month gap between administrations of the two surveys in the current research, there is no compelling reason to expect significant effects from panel conditioning.

A further issue relates to the increase in literacy of the students over the high school years, with less students struggling to read the surveys or understand the words in Year 8 compared to Year 7. While most students appeared able to understand the surveys, it is possible that their understanding of the words used may have become more sophisticated in Year 8. It is possible that either of these factors (increases in literacy or changes in understanding of language) may have differentially affected responses in the two years. However, given the similar internal reliability of the measures in both years, it is unlikely this was a significant limitation. In addition, this issue of change over time is common to all developmental research, so this study is no different from any other in the area.

There were some differences between students who dropped out after Year 7, and those students who participated in both years of the study. Those students who dropped out after the first year had less positive scores on self-esteem, sadness, and joviality. The reasons for students not participating in the second year are unknown, but may include some instability in their home environment (from their family simply moving house to more serious issues such as parents splitting up or the death or illness of a parent), difficulties paying the fees for private schooling (e.g., parental

unemployment), students with emotional or behavioural problems being moved to different schools, absenteeism on the day of the survey, and so on. It is possible that those students experiencing more difficulty with their wellbeing may have been more likely to be in this group due to any of the reasons discussed above (e.g., students experiencing difficulty are more likely to be absent, etc.).

Although there were no differences between the groups on parental marital and employment status in Year 7, this does not tell us whether there were changes over the 12-month period prior to the second survey, or indeed any in-depth information about their home situation. Although these differences between dropouts and full participants in the study are a limitation, it does not necessarily follow that these differences had a meaningful impact on the results. All that this tells us is that the students who dropped out after Year 7 were at the less positive end of the spectrum on some variables. The purpose of this study was to look at the longitudinal relationship between the positive thinking variables and the emotional wellbeing variables, rather than whether they were high or low, and so there is no clear reason to believe that this negatively affected the validity of the results.

Neither Study 1 nor Study 2 address the issue of spuriousness (the third variable problem), and this is a useful focus for further research. The possibility that a third (or other) variable may lead to changes in both positive thinking and emotional wellbeing cannot be dismissed without further study. Possible variables may come from biological (e.g., genetic factors, neurological differences), social (e.g., parenting style, social support) or psychological domains (e.g., other aspects of personality or temperament such as rumination or extraversion, or cognitive factors such as problem-solving ability). However, Study 2 does help to advance our understanding of the importance of

different ways of thinking about the world and the contribution this makes to emotional wellbeing.

4.4.3 Summary

The first hypothesis was largely supported, with higher levels of self-esteem predicting lower levels of sadness and fear (although not hostility), suggesting that positive thoughts about self worth are likely to decrease distressing feelings. In support of the second hypothesis, high trait hope predicted higher levels of joviality – suggesting that hopeful thinking (and presumably the achievement of goals) is associated with greater feelings of enthusiasm and energy over time. In partial support of the third hypothesis, a more positive explanatory style was associated with lower feelings of hostility, but had no effect on the other aspects of emotional wellbeing. This is consistent with the attributional reformulation of learned helplessness theory, which suggests that pessimistic explanatory style will result in helplessness and accompanying negative emotions (including hostility).

The combination of Study 1 and Study 2 contributes to the body of research by providing some support for a relationship between positive thinking and emotional wellbeing over time – specifically in demonstrating an association between the variables, as well as their temporal sequence. This may have important implications for the design of early intervention and prevention programs, allowing them to target at-risk adolescents, and to individually tailor programs and hopefully increase the currently limited success of such attempts. These clinical implications, as well as suggestions for further research, will be discussed in the next chapter.

However, neither study addresses the issue of spuriousness, that is, whether the relationship between the two sets of variables may be due to a third (or more)

unmeasured variable which affects both. Further research will be crucial in clarifying the nature of the relationship between positive thinking, emotional wellbeing, and mental health across the critical years of adolescence.

Chapter 5: General Discussion

The current research contributes to the literature by demonstrating that positive thinking may contribute to enhanced emotional wellbeing in adolescence. In addition, specific types of positive thinking appear to have unique aspects, and may contribute to specific facets of emotional wellbeing. These results have implications for theory, research, treatment of mental disorders, and prevention and early intervention programmes in the mental health arena. This chapter will discuss the findings in detail, as well as their implications. The focus will be on broader issues than those discussed in Chapters 3 and 4, and will involve further detail on the state of current research in prevention and early intervention and the ways in which research such as this may contribute to improved success for these programmes.

5.1 Distinctiveness of self-esteem, trait hope, and explanatory style

One of the aims of this thesis was to examine the distinctiveness of the three positive thinking variables, as this issue has not previously been examined in the research literature. Judge et al., (2002) highlight the importance of examining the discriminant validity of variables that are conceptually similar, and this thesis provides some evidence on the potential overlap between or distinctiveness of self-esteem, explanatory style, and trait hope.

Study 1 had four hypotheses, three of which will be discussed in the next section. For the remaining hypothesis, the analyses in Study 1 go some way to

examining discriminant validity. The low to moderate correlations between the positive thinking variables in Study 1 suggest that the existence of a common factor is possible. However, the fourth hypothesis was that a three factor model of the positive thinking variables would be a better fit to the data than a one factor model. This hypothesis received some support from the data, although difficulties with the fit of the individual positive thinking variables do not allow firm conclusions.

Study 2 examined the effects of the three positive thinking variables on changes in emotional wellbeing over one year, and found unique variance for each variable in the prediction of changes in both positive and negative affect. These results will be discussed in more detail in the following section, but in summary the generally broad effects of each of the three positive thinking variables on the four emotional states became more specific when the analyses included the other variables. The results of Study 2 therefore have some bearing on discriminant validity, suggesting that the effects of the three variables are distinct, and that each predicts unique variance in different aspects of emotional wellbeing.

Overall, the results of this thesis suggest that there appears to be both common and unique factors across the three positive thinking variables, at least as they relate to emotional wellbeing. Potential explanations for this will be discussed below.

5.2 Positive thinking and emotional wellbeing

There was at least partial support for all four hypotheses. Where there was partial support, this was because the effects of the different types of positive thinking were more specific than originally hypothesised from existing theory and research evidence. The first three hypotheses were the same in both Study 1 and Study 2, while

the fourth hypothesis relates only to Study 1. The first hypothesis was that global self-esteem would predict changes in all four affective variables, with high self-esteem predicting increased joviality and decreased sadness, fear, and hostility. This hypothesis was supported when looking at the cross-sectional data in both Year 7 and Year 8, and the simple longitudinal analyses. However, when all Time 1 positive thinking variables were taken into account in the complex structural equation model, the effect was restricted to sadness and fear only. The effects of global self-esteem on both fear and sadness were of equal size.

The second hypothesis, that trait hope would be predictive of changes in positive affect only, with high hope predicting increased joviality was supported by the data. In the cross-sectional analyses high trait hope also predicted decreased hostility in Year 7, and decreased sadness in Year 8. Both these effects were small, and were not consistent across the two years. The simple longitudinal analysis found that high trait hope predicted low hostility and high joviality. However, the complex structural equation model including all Time 1 variables showed a positive relationship between trait hope and joviality only. Overall, the relationship between joviality and trait hope is a consistent result, and fits well with the theoretical model.

The third hypothesis, that explanatory style would predict changes in the three negative affective variables, with positive explanatory style predicting decreased sadness, fear, and hostility was partially supported by the data. In the Year 7 cross-sectional data optimistic explanatory style predicted decreased hostility and sadness, and increased joviality although all the effect sizes were small. Given the low reliability of the CASQ-R, the structural equation models where measurement error is included should be the most reliable. In the simple longitudinal analyses, explanatory style predicted hostility and fear only. In the complex structural equation model, explanatory

style predicted hostility only, and this finding is consistent across all the analyses. The link between explanatory style and hostility is consistent with the attributional reformulation of the learned helplessness model, in which pessimistic explanatory style is associated with the emotional component of helplessness (including hostility, fear, and sadness). However, the absence of a link with the other two negative emotional states is not consistent with this model, and requires further examination.

Prior to discussing each variable in detail, it is worth reflecting on the size of the effects found in this study and how meaningful they may be for treatment and prevention. Hemphill (2003) reviewed published results in psychological assessment and concluded that one third of correlation coefficients are less than .20, another third are between .20 and .30, and the final third are above .30. While correlation coefficients of less than .30 have been regarded as trivial, Abelson (1985) argues that it is the cumulative effect over time of some variables that is most meaningful. Therefore, the size of a correlation coefficient (or effect size in the current research) may be misleading in certain circumstances, where it is “the *process* through which variables operate in the real world that is important” (Abelson, 1985, p. 133). In the case of self-esteem, explanatory style, and trait hope, we would expect that their effects would occur not just for the year studied, but also throughout adolescence and into adulthood. In this case, the small effect observed in any one year would be repeated over time leading to a cumulative effect that would become of increasing clinical significance.

In a large study, comparing the size of correlation coefficients across medical and psychological research, Meyer et al. (2001) found correlations in the medical literature in the range found in the current research. These included the effect of antihypertensive medication on risk of stroke (.03), smoking on the incidence of lung cancer (.08), the effect of nonsteroidal anti-inflammatory drugs (e.g., ibuprofen) on pain

reduction (.14), clozapine and clinical improvement in schizophrenia (.20), electroconvulsive therapy and improvement for depression (.29), and the effects of Viagra on male sexual functioning (.38). Thus, significant disability and mortality in the case of stroke can be avoided by the use of antihypertensive medication, with a smaller effect size than the variables in the current research. Swann et al. (2007) make a similar argument that the small effect sizes typically found in research on self-esteem should not be discounted. The effect sizes found in the medical research described above are similar to those found over a 12-month period in the current research, as will be highlighted in the discussion of each individual positive thinking variable to follow. The effects of positive thinking are likely to accumulate over time, so the findings of this study suggest that the improvement in emotional wellbeing explained by positive thinking (even over a one-year period) has meaningful implications for adolescent wellbeing.

5.2.1 Global self-esteem

The multivariate analyses in both Year 7 and Year 8 found a broad effect for self-esteem, with greater self-esteem predicting lower sadness, fear, and hostility, and higher joviality. The simple structural equation model using self-esteem alone found the same pattern of results. However, once explanatory style and trait hope were included in the model, self-esteem no longer predicted any variance in hostility or joviality. That is, self-esteem contributed unique variance to fear and sadness. This suggests that self-esteem has effects on specific emotional states. The theories of self-esteem described in Chapter 2 do not adequately account for this finding.

As discussed above, global self-esteem predicted both fear and sadness in the expected direction, with an effect size of .16 for both over the 12 months of the study.

This is a clinically significant effect, greater than that associated with common painkillers such as ibuprofen (see Meyer et al., 2001). In addition, this is the effect over a relatively short period, and if equal effects were to occur in subsequent years this would accumulate over time to create a substantial difference in emotional wellbeing.

This result is consistent with the strong links in the literature between self-esteem and depression (e.g., Baumeister et al., 2003; Trzesniewski et al., 2006) and to a lesser extent with anxiety (e.g., Trzesniewski et al., 2006). The link between self-esteem and happiness (including life satisfaction, high positive affect, and low negative affect) found in some studies (e.g., Cheng & Furnham, 2002; Cheng & Furnham, 2003) was not replicated in the longitudinal aspect of the current research when all three positive thinking variables were included in the model. However, the simple self-esteem model (i.e., not including the effects of explanatory style or trait hope) did show a relationship. As discussed previously, it has been suggested that there may be a general positive response style reflected in different measures such as explanatory style and optimism, and this is partially supported by the moderate correlations between the three positive thinking variables found in Study 1. These correlations may be due to shared variance between the positive thinking variables, such that it is possible there is a component of a general positive response style in each variable, as well as some unique aspects. In that case, the relationship previously found between self-esteem and positive affect may be due a general positive response style shared between positive thinking variables, rather than to unique variance explained by self-esteem alone.

Alternatively, there may be some lower-level common factors shared by specific positive thinking variables where one variable captures the factor better than the other. For example, there may be some commonality between self-esteem and trait hope, where trait hope better captures the link between positive thinking and positive affect.

Self-esteem measures perceptions about self-worth, whereas trait hope measures perceptions about the ability to pursue goals. As the measure of positive affect in this study captures feelings of energy and enthusiasm, this may relate best to an active sense of self that is better captured by a concept such as agency and pathways thinking rather than self-worth. It is possible that this is the reason that the relationship between self-esteem and positive thinking was no longer statistically significant when trait hope was included in the analysis. Similarly, explanatory style may better account for hostility as it includes evaluations of the effect of the outside world, which is absent in our measure of global self-esteem. This possibility will be discussed in more detail in the section on explanatory style.

Anxiety and depression are closely related conditions – they are often comorbid and untreated anxiety disorders often progress toward depression after a period of time (Dozois & Westra, 2004). If self-esteem is related to both conditions through specific effects on the everyday emotional states of fear and sadness, this may provide a common risk factor and a potential focus for treatment and prevention of mental disorders. This follows logically from the tripartite model in which negative affect is common to both anxious and depressive conditions.

5.2.2 Explanatory style

The multivariate analyses for Year 7 found that a more positive explanatory style predicted decreased hostility and sadness, and increased joviality. The simple structural equation model in Study 2 also found that Year 7 explanatory style predicted hostility and joviality (but not sadness). However, when the other positive thinking variables were included in the model, explanatory style only predicted hostility. The relationship with joviality in Year 7 and 8 is consistent with the literature on depression

and explanatory style (e.g., Joiner & Wagner, 1995; Nolen-Hoeksema & Girgus, 1995), as low joviality (or positive affect) is similar to anhedonia. Referring back to the tripartite model, it is low positive affect that distinguishes depression from anxiety, so this would suggest that explanatory style may be related only to the anhedonia component of depression and would therefore be unrelated to clinical anxiety (as is further suggested by the lack of a relationship with fear as an affective state). A diagnosis of depression requires either dysphoria or anhedonia as a central symptom (although both may occur), so it is possible that explanatory style may only be related to a subset of depressive disorders as is suggested by the theory of hopelessness depression. However, the fact that explanatory style did not predict joviality when trait hope was included in the model suggests that whatever component of explanatory style is related to joviality is better captured by trait hope. One potential explanation is similar to that used when discussing self-esteem previously, in that trait hope may better capture an active sense of self and a belief in a positive future, while explanatory style focuses on past events.

Explanatory style had a consistent relationship with hostility in both the cross-sectional and longitudinal components of the current research. The effect size in the final structural model was .21, which is greater than the effect of clozapine on clinical improvement in schizophrenia ($r = .20$, cited in Meyer et al., 2001). The attributional reformulation of the learned helplessness model (Peterson & Seligman, 1984) states that a pessimistic explanatory style will lead to helplessness and its associated emotions (including sadness, fear, and hostility), so the fact that a more optimistic explanatory style predicted decreased hostility from Year 7 to Year 8 is consistent with the theory. However, the lack of relationship between explanatory style and fear and sadness is not, and requires further research and explanation. It seems that the effects of explanatory

style may be more specific than suggested by either the attributional reformulation of the learned helplessness model or the hopelessness depression model.

This finding of a link between hostility and explanatory style is consistent with models proposed by Dodge (2006) and McNiel, Eisner, and Binder (2003) to account for the development of aggressive behaviour. In Dodge's (2006) model, people are born with a hostile attributional bias but (ideally) learn more benign attributions. For people who maintain the hostile attributional bias, negative events may result in a cognitive attribution that the intent of the other person must be consistent with the outcome and therefore must be hostile. In Dodge's (2006) model this attribution then leads to aggressive behaviour. Inserting an extra step, it is reasonable to suppose that the hostile attribution would then lead to defensive feelings of hostility toward the perceived perpetrator, in line with the findings of the current research. Similarly, McNiel et al. (2003) suggest a hostile attributional bias consisting of several components, one of which is an external attributional style for negative events. Their study of psychiatric patients found support for this model. In short, both Dodge (2006) and McNiel et al. (2003) suggest that the external dimension of attributional style for negative events should relate to hostility and aggression, and this is in line with the results of the current study. It is therefore possible that the internal-external dimension of explanatory style is responsible for contributing unique variance to the prediction of hostility in the current study.

5.2.3 Trait hope

The multivariate analyses of the cross-sectional data in Year 7 found that trait hope predicted hostility and joviality, while in Year 8 it predicted sadness and joviality. In the simple structural equation model, trait hope predicted sadness, hostility, and

joviality. When the other two positive thinking variables were included trait hope uniquely predicted joviality only. Therefore, trait hope had a consistent relationship with joviality in the cross-sectional and longitudinal components of the research, with an effect size of .18 in the final structural model. The finding that trait hope uniquely predicts joviality is consistent with Snyder's (2002) view that goal attainment will lead to positive emotions.

The potential for a common factor between self-esteem and trait hope has already been discussed, in order to explain why self-esteem did not predict joviality when trait hope was included in the model. However, now we have seen that trait hope no longer predicts sadness when self-esteem is included in the model. This again suggests that there may be a common factor that is best captured by self-esteem. Self-esteem focuses on perceptions of the worth of the self, so it may be that it is this more passive assessment of worth that leads to sadness, rather than the active engagement in pursuing goals captured by trait hope. Further research and theory could help to clarify this and the other issues described here.

The link between trait hope and hostility in the earlier analyses is worth some consideration. It seems possible that it may be perceptions of the controllability of events that may be common to explanatory style and trait hope. That is, the internal/external dimension of explanatory style is about whether an individual believes that the causes of events are due to their own efforts or qualities, as opposed to something imposed upon them by an external source over which they have no control. More pessimistic attributions involve less perceived control, and more optimistic attributions involve greater perceived control (Shatté, Reivich, Gillham, & Seligman, 1999). This is similar in some respects to the agency component of trait hope, which is about people's belief in their own ability to successfully pursue their goals and thereby

control their future. Both these factors seem to be about controllability, and aggression and hostility are often used with the intention of reasserting control over a situation (see for example, Dodge, 2006). It may be that in the final analysis, the controllability dimension was captured by explanatory style and thus the relationship between trait hope and hostility was no longer statistically significant. This again suggests some common factors in the three positive thinking variables, although it is not clear whether this is a single common positive response style, or whether there are a number of overlapping lower order common factors.

5.2.4 Gender differences

Gender predicted three affective states in both Year 7 and Year 8, although the effect sizes were small. In both years, female gender predicted higher levels of fear, sadness, and joviality. Further research is needed to see whether this is a consistent result, as Watson and Clark (1994) report inconsistent results in relation to gender differences in adults on the PANAS-X scales. This is potentially an interesting result as females appeared to experience increased negative and positive affect. It is possible that their emotional life may be more varied than adolescent males, or, alternatively, perhaps they are more aware of their emotional states and this is reflected in their self-reports. That is, at this age there may be differences in the prevalence of alexithymia across gender. However, the developmental trajectory of alexythymia has not been studied comprehensively so it is difficult to draw any firm conclusions at this time. Finally, it could be that these differences reflect a difference in the developmental pathways for males and females, and that the differences found in this study may change over time.

In contrast, gender did not consistently predict positive thinking. Females had a more positive explanatory style in Year 7, but not in Year 8. Males had higher self-

esteem in Year 8, but not in Year 7. As the study concentrates on a one year period, it is difficult to draw any conclusions from this result. A longer study looking at the development of positive thinking over time would be informative in this regard. The correlations between the positive thinking variables and the affective states were not significantly different for males and females in either year of the study. Similarly, tests of the structural equation models found structural invariance across gender – that is, the pattern of results was similar for males and females. This is a useful finding as it suggests that the same interventions should be appropriate for both genders.

5.2.5 Stability of self-esteem and trait hope

The stability of self-esteem and trait hope was moderate. The correlations between Year 7 and Year 8 self-esteem were .62 for males and .53 for females, and the correlations between Year 7 and Year 8 trait hope were .53 for males and .57 for females. These results are broadly similar to values for trait consistency found in previous research, which have been around .46-.54 for adolescents aged 12 to 13 years, depending on the time interval studied (e.g., Trzesniewski, Donnellan, & Robins, 2003; Roberts & DelVecchio, 2000; Fraley & Roberts, 2005). Unfortunately, as self-esteem and trait hope were only measured at two time points, and explanatory style only once, it is impossible to say anything about the developmental patterns of stability and change in these variables or the factors that may influence these developmental patterns (Fraley & Roberts, 2005).

5.3 Clinical implications of the current research

The findings of this study suggest that not all positive thinking is the same, and that different ways of thinking may have different effects on emotional wellbeing. The clinical implications of these findings are significant, as they suggest that it may be possible to tailor the nature of cognitive interventions to the particular emotional states the client is experiencing. For example, low self-esteem is common in depression, and focusing on self-esteem interventions for those whose predominant symptom pattern is a sad or blue mood may be helpful. In addition, these findings may be of particular relevance to the development of prevention programmes.

The success of cognitive-behavioural therapies in treating depression and anxiety and reducing relapse rates in adults and children has led to one of the most promising avenues for prevention programmes (Gilham, Hamilton, Freres, Patton, & Gallop, 2006). By addressing unhelpful cognitive appraisals it may be possible to address anxiety and dysphoria before it develops into a clinically significant problem. The results of this thesis support the idea that positive thinking may be a worthwhile target for prevention programmes with adolescents. If increasing positive thinking does strengthen positive affect and decrease negative affect, then this may provide a way to improve adolescent wellbeing and prevent or delay the onset of mental illness.

Recent reviews of prevention and early intervention programs have been mixed, with some writers concluding that preventing depression is not currently viable (e.g., Merry, 2007; and Merry & Spence, 2007), while others have found that prevention programs do have a small to moderate effect (e.g., Cuijpers, van Straten, Smit, Mihalopoulos, & Beekman, 2008; Horowitz and Garber, 2006). One of the better known interventions is the Penn Resiliency Program (PRP) that takes a cognitive-behavioural approach to increasing coping skills in adolescents at risk for anxiety and depression

(e.g., Gilham, Hamilton, Freres, Patton, & Gallop, 2006). Similar cognitive-behavioural approaches have been taken by other prevention researchers (e.g., Clarke et al. 1995; Seligman, Schulman, & Tryon, 2007; Stice, Rohde, Seeley, & Gau, 2008).

There is a large research literature on prevention programmes, including several cognitive-behavioural programmes aimed at preventing anxiety or depression in early adolescence in the Australian context. These include the Queensland Early Intervention and Prevention of Anxiety Project (Dadds, Spence, Holland, Barrett, & Laurens, 1997; Dadds et al, 1999), the Problem Solving for Life Program (Spence, Sheffield, & Donovan, 2003, 2005), MoodGYM (O’Kearney, Gibson, Christensen, & Griffiths, 2006), and the Penn Resiliency Program (Roberts, Kane, Bishop, Matthews, & Thomson, 2004; Roberts, Kane, Thomson, Bishop, & Hart, 2003). Overall, the findings were consistent with overseas research, as the programs had positive effects in the short-term, but these were not sustained over longer-term follow-up. This suggests that prevention programmes need further development in order to become an effective means of decreasing the global burden of disease from condition such as anxiety and depression.

Horowitz and Garber (2006) suggest that future research needs to identify any risk factors that moderate the relationship between the prevention program and the outcome, adapt interventions for different target groups, design interventions to investigate the mediating variables that influence outcome, use an explicit theory to guide interventions, ensure long-term follow-ups, and ensure outcome measures are a good indication of change (e.g., including diagnostic interviews). In relation to the current study, prevention research could investigate whether increasing positive thinking resulted in positive changes in affect (increasing positive affect, or decreasing

negative affect), and whether this was associated with a decreased risk of developing depression or anxiety.

5.4 Future directions for research and theory

This thesis has examined the effects of self-esteem, explanatory style, and trait hope on the emotional wellbeing of early adolescents over one year. Further research could concentrate on two broad areas — replicating and addressing some of the limitations of the current research, or extending the research to address additional questions. In addition, there is a need for further theoretical developments in the area to develop our understanding of the structural relationships between different aspects of positive thinking; the effect of different types of appraisal on different emotional states; and the causal links between positive thinking, emotional wellbeing, and psychopathology. Finally, conducting prevention and early intervention studies may help to clarify some of the issues discussed above.

5.4.1 Further research

The limitations of the current study could be addressed in a variety of ways. This could include extending the research over a longer period to examine the developmental path of the relationship between positive thinking and emotional wellbeing, including variables that are theoretically related to the key constructs in order to address the issue of spuriousness, and collecting additional non-self report measures to further inform the predictors of affect. In addition, further research is needed to both replicate and extend the current study. This could involve including additional positive thinking variables,

additional emotional states, a longer time period, possible third variables, and different age groups. These possibilities are discussed in more detail below.

Firstly, this thesis has identified that different types of appraisals seem to add unique variance to emotional wellbeing. It is possible that additional positive thinking variables may add even more variance in the prediction of emotional wellbeing. Further research including a broader range of positive thinking variables may help to clarify both the structure of positive thinking and the precise relationships to emotional states. These variables could include such constructs as optimism (e.g., the Life Orientation Test – Revised [LOT-R], Scheier, Carver, & Bridges, 1994), locus of control, self-efficacy, self-concept, and dimensional measures of self-esteem.

Including other positive thinking variables would allow further investigation of the notion of a positive response style — perhaps some positive thinking variables overlap more than others, or some variables predict a wider or narrower range of emotional states. It may be that there are some positive thinking scales that cluster together, with more than one superordinate factor (similar to the structure of affectivity which has two superordinate factors – positive and negative affect). There may also be interactions between positive thinking variables, or variables that moderate or mediate the effect of positive thinking. The current debates around the distinctiveness of different measures of optimism (e.g., Gillham et al., 2001) would benefit from more research on this issue. An understanding of the links between positive thinking variables in relation to a possible structural model would also benefit theoretical developments in the area.

Secondly, the positive thinking variables were related to specific emotional states. Additional research could include additional specific emotional states (such as interest, guilt, etc.) in order to determine if emotional states that were not included in the

current research may be related to specific types of positive thinking. It would be particularly useful to examine the effect of positive thinking on emotional wellbeing over a longer time-span, and by implication, with a broader range of ages. This could include replicating the research with children and adolescents at different ages to see the nature of developmental effects and any gender differences that may emerge. Studies on adults would also be useful to see if the same sorts of relationships between positive thinking and emotional wellbeing occur later in life.

The inclusion of other data would also be useful to look at the implications of positive thinking for other outcomes such as school retention, academic results, and so on. In particular, non self report measures such as teacher, parent or peer ratings, academic results and so on would be useful. Clinical measures and life events scales, qualitative techniques such as interviews, and measures of broader life outcomes would also broaden our understanding of the contribution of positive thinking to adolescent wellbeing. The inclusion of clinical measures in addition to measures of affect, particularly in longitudinal designs, would also help to clarify the relationship between positive thinking, everyday affect, and mental health or illness. This is especially important in light of recent arguments that emotional wellbeing and psychopathology are on a continuum (see for example, Clark, et al., 1999; Watson et al., 2005; Watson et al., 2006).

The current research does not address the third variable problem (spuriousness). For example, positive thinking may have a moderating or mediating effect between a third variable and emotional wellbeing. So positive thinking could act to increase or decrease the effect of another variable on emotional wellbeing (moderation), or it may be that another variable has an indirect effect on emotional wellbeing through its effect on positive thinking (mediation). These questions are

important as they have implications for prevention strategies. Potential third variables include parenting, genetic factors, temperament, social environment, early trauma or loss, peer group, school, local area, and so on.

5.4.2 Intervention studies

Theoretical developments and clarification of the effects of the different positive thinking variables may provide more targets for early intervention or prevention measures, as well as tailoring clinical interventions for each individual. In addition, there seems no reason to conclude that the four emotional states included in the current research are the only ones affected by positive thinking, so including additional emotional states would allow further investigation of this issue. Finally, examination of other age groups would help to establish whether positive thinking and emotional wellbeing are associated across the lifespan or only at critical developmental periods. Again, this could inform intervention and treatment strategies. There is a developmental progression in psychopathology (Dozois & Dobson, 2004), and it would be unwise to assume that a prevention programme designed for one age group would be appropriate across age groups (Dobson & Dozois, 2004).

Although it has been argued that we do not currently know enough about the risk factors for mental illness to design prevention programmes, research on prevention could be useful in improving our understanding of the factors influencing the development of psychopathology (Mrazek & Haggerty, 1994). For example, research on the risk factors for physical illnesses such as heart disease was at a preliminary stage when the first interventions were designed and the process of intervention itself helped to clarify the risk factors (Mrazek & Haggerty, 1994).

One avenue of research that may address some of these problems is to design an intervention around improving positive thinking and see whether the expected effects on emotional wellbeing and psychopathology actually occur. Therefore, intervention studies and prevention programmes could be designed in order to see whether increasing positive thinking results in improved emotional wellbeing over time, whether this varies from a normal developmental trajectory, and whether improved emotional wellbeing leads to decreased rates of mental illness and increased positive outcomes compared to a control group.

5.4.3 Theoretical developments

While there has been some debate about the possibility of a general positive response style and the need for a structural model of personality and psychopathology, there have not been any models proposed to accommodate this idea. It is unclear whether the apparent overlap in the variables in this study, or the conceptual overlap in variables such as optimism and explanatory style (Gillham et al., 2001), are due to a general positive response style or due to a range of other factors that are common to some variables. For example, there could be a factor around perceived control shared between trait hope and explanatory style. This may also overlap with locus of control or some other variables (e.g., Judge et al., 2002).

As has been discussed previously, the literature on self esteem is fragmented, without a dominant model. The results of this study suggest that global self esteem predicts unique variance in fear and sadness, yet this is not accounted for by existing theories of self esteem. Further developments in the theory of self-esteem would assist in providing a framework for research, as would an empirical understanding of the links between domains of self esteem and specific emotional states. Similarly, it would be

useful to understand why self esteem is a better predictor of fear and sadness than explanatory style, despite the fact that the attributional reformulation of the learned helplessness model provides a rationale for why these emotions would be linked to pessimistic explanatory style.

A structural model of positive thinking, incorporating the different types of positive thinking and their relationships to each other, would be an invaluable guide to further research. In addition, clarification of the links between positive thinking and emotional wellbeing in general, as well specific emotional states, would provide a guide for research and for prevention programmes. A theory that specified the emotional consequences of different habits of thinking would provide a guide for clinical interventions with individuals, as well as a potential way to improve emotional wellbeing, and prevent or delay the onset of mental disorders in adolescence.

5.5 Summary and conclusion

This is the first time that self esteem, trait hope, and explanatory style have been combined in a single longitudinal study that has examined their effects on specific aspects of emotional wellbeing. The results indicate that these three positive thinking variables have unique effects on emotional wellbeing in adolescence, providing a potential target for early intervention and prevention programmes with this age group.

Prevention of mental health problems is a more humane approach that would do more to decrease the global burden of disease than focussing on treatment alone. However, the success of prevention efforts rests on the existence of a clear understanding of the risk and vulnerability factors for disorders, and on an effective means of intervention to address these risk factors (Dobson & Dozois, 2004). Neither of these requirements is entirely satisfied by the state of the current research. It is to be

hoped that research such as the current study may assist in clarifying the operation of modifiable risk and protective factors.

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