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RESEARCH PAPER

Strengths and Subjective Wellbeing in Adolescence: Strength-Based Parenting and the Moderating Effect of Mindset

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Abstract Recent research suggests that *strength-based parenting*—the tendency for parents to see and encourage children to use their strengths—relates to lower stress and higher life satisfaction in adolescents. The current study tests whether strength-based parenting, in conjunction with a teenager's strengths use, influences the teenager's subjective wellbeing, and whether a growth mindset moderates the relationship between strength-based parenting and strengths use. Three hundred and sixty three adolescents (M_{age} = 13.74, 51% female) completed questionnaire measures of strength-based parenting, strengths use, subjective wellbeing (life satisfaction, positive affect, and negative affect), Extraversion, Neuroticism, and two aspects of growth mindset. A hierarchical regression using latent variables found that strengths use and strength-based parenting were both significant independent predictors of subjective wellbeing, over and above the effects of extraversion and neuroticism. A mediation analysis found that strengths use partially mediated the relationship between strength-based parenting and subjective wellbeing. Finally, a novel measure of strengths mindset significantly moderated the relationship between strength-based parenting and strengths use. These results suggest that adolescents who see their parents as strength-based report greater strengths use (especially when they have a growth mindset about their strengths) and greater subjective wellbeing.

Keywords Strength-based parenting · Strengths use · Subjective wellbeing · Growth mindset

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1 Introduction

Adolescence is a significant transitional period. This life stage can be marked by mental illness and declining life satisfaction (Andersen and Teicher 2008; Aquilino and Supple 2001), but can equally be an "age of opportunity" (Steinberg 2014) from which a young person emerges with thriving mental health and a positive identity in adulthood (Keyes 2006; Park 2004). Research has indicated that parenting can influence adolescents' mental health trajectories (Schwartz et al. 2012a, b, 2014). In particular, positive parenting practices such as being warm, responsive, and autonomy-granting are related to higher self-esteem, enhanced life satisfaction, and greater wellbeing in teens (Baumrind 1991; DeVore and Ginsburg 2005; Milevsky et al. 2007; Sanders et al. 2003; Whittle et al. 2014).

In recent years, a series of studies have found promising indications that children and adolescents have greater wellbeing when they have parents who identify and encourage their *strengths* (Waters 2015a, b). The current study extends this line of inquiry by testing whether an adolescent's mindset (Dweck 2006) may moderate the relationship between strength-based parenting (SBP) and strengths use. In addition, we test whether a strength-based approach to parenting predicts incremental variance in the adolescent's subjective wellbeing, above and beyond well-established personality trait predictors of wellbeing.

1.1 Strengths and Subjective Wellbeing

Strengths have been a core topic of research in positive psychology since the field's inception (Seligman and Csikszentmihalyi 2000). Strengths are defined as capacities, characteristics, and processes that are energising and authentic (Seligman and Csikszentmihalyi 2000; Sheldon and King 2001), and are manifested through patterns of thoughts, feelings, and behaviour (Govindji and Linley 2007; Quinlan et al. 2015). Strengths can be considered moral virtues such as honesty, talents such as creative writing ability, or Big Five personality traits such as conscientiousness (King and Trent 2013; Peterson and Seligman 2004; Rath 2007; Sheldon et al. 2015). They are stable over time like a trait, but also dynamic and alterable by environmental influences and effort (Biswas-Diener et al. 2011; Peterson 2006).

Researchers have directed the study of strengths to the differential effects that *knowing your strengths* versus *using your strengths* may have on wellbeing (Govindji and Linley 2007; Seligman et al. 2005). Although both aspects are important, when considering the relative contribution of both towards adolescent life satisfaction, Waters (2015a) found that strengths use was a stronger predictor than strengths knowledge. When Govindji and Linley (2007) entered strengths knowledge and use as simultaneous predictors in a multiple regression analysis with college students, only strengths use remained a statistically significant predictor. They concluded that "it is more important to use your strengths than simply to know what they are" (p. 150). Similarly, Quinlan et al. (2012) noted that strengths interventions with school students "are like medicines; they work only when you take them" (p. 1158). Numerous researchers have focused on the "use" facet of strengths and have shown that using one's strengths is significantly related to a host of wellbeing indicators, including happiness in adult samples (Seligman et al. 2005), subjective well-being, self-esteem, self-efficacy, and life satisfaction in college samples (Allan and Duffy 2014; Douglass and Duffy 2015; Proctor et al. 2011), life satisfaction and self-esteem in adolescents (Proctor et al. 2011; Suldo et al. 2014; Waters 2015a), as well as hope and positive coping in child samples (Madden et al. 2011; Waters 2015b). The current study

considers the relationship between SBP, strengths use, and subjective wellbeing in adolescents.

Subjective wellbeing maps roughly onto the way "happiness" is used in lay language (Park 2004), and is commonly operationalized as three components: high life satisfaction, high positive affect, and low negative affect (Diener 1984; Diener et al. 1999). Subjective wellbeing is an important outcome variable in its own right (Ben-Zur 2003; Katja et al. 2002; Pretty et al. 1996; Valkenberg et al. 2006), but also predicts a range of other positive outcomes such as gratitude, health, and longevity (Diener and Chan 2011; Froh et al. 2009; Park 2004; Watkins et al. 2003).

Research has found a significant relationship between strengths use and composite measures (Govindji and Linley 2007; Proctor et al. 2011) or individual components of subjective wellbeing (e.g., for life satisfaction see Allan and Duffy 2014; Douglass and Duffy 2015; Park et al. 2004; Proctor et al. 2011a, b; and for positive affect see Quinlan et al. 2015). These associations may be mediated by goal progress and psychological need satisfaction (Linley et al. 2010), harmonious passion (Forest et al. 2012), and self-esteem (Douglass and Duffy 2015).

However, to date, relatively little research has considered either the *antecedent* factors that may enhance a young person's strengths use, or the possibility that the construct of *mindset* may moderate the link between a strength-based approach to parenting and strengths use. Each of these themes will be addressed in the following sections.

1.2 Strength-Based Parenting

The apparent benefits that are associated with using one's strengths have prompted interest in uncovering the factors that may cultivate strengths use in adolescents. A common pathway to develop strengths use in schools has centred on teaching students how to recognise and use their strengths—often by completing a survey such as the Values in Action Inventory (Peterson and Seligman 2004; Proctor et al. 2011; Seligman et al. 2009). In addition to learning how to use strengths through educational programs at school, adolescents may learn to use their strengths through strength-based reflections and feedback from others. There is a long tradition of research suggesting that self-knowledge is influenced by our perception of others (Cooley 1902; Mead 1934; see Srivastava 2012, for a review), and supporting these perspectives in the domain of strengths, Spreitzer et al. (2009) found that feedback on their "best self" from mentors and teachers helped adolescents to better recognise and use their strengths. In a more recent example, Waters (2015a) found that when parents provided strength-based feedback it was significantly related to strengths use in their adolescent sons and daughters. Given these results, and given the myriad ways that parents connect with their children every day, it is reasonable to predict that parents will be able to provide consistent and reliable strengths feedback. In this study, we posit that parents' encouragement to use strengths will predict strengths use in adolescents, with downstream effects on subjective wellbeing.

SBP is a style of parenting that seeks to "identify and cultivate positive states, positive processes and positive qualities" in children (Waters 2015a, p. 690). Specifically, strength-oriented parents both (a) acknowledge the things that their child is able to do well, and (b) encourage their child to use and develop their realised and unrealised strengths (Waters & Sun in press).

SBP is a relatively new construct that has thus far been the focus of three studies (Waters 2015a, b, Studies 1 and 2). SBP has been found to be significantly related to adolescents' strengths use, as well as to their life satisfaction up to a year later (Waters

2015a). In late childhood, SBP has been found to be related to use of strengths when coping with minor stress, and lower levels of stress (Waters 2015b).

Although these studies give promising indications of the value that SBP may provide in understanding the contributing factors toward adolescent wellbeing, the nascent nature of this construct leaves open further research questions to explore regarding the conditions under which it may be effective. In particular, there has been no research on potential moderators of the relation between SBP and adolescent subjective wellbeing.

1.3 The Moderating Effect of Mindset

In the current study, we asked whether *growth mindset* qualifies the relationship between strength-based parenting and an adolescent's strengths use. A substantial body of research has indicated that young people's implicit beliefs about the world (i.e., *mindset*), can influence psychological and academic outcomes (Blackwell et al. 2007; Burnette et al. 2013). This individual difference describes the tendency to believe that an attribute is stable (a *fixed mindset*, or *entity view*) or malleable (a *growth mindset*, or *incremental view*). There is mounting evidence that when students encounter challenging situations, those with a growth mindset about their intelligence are more highly motivated to engage with the task, learn from mistakes, accept failure, and ultimately reach higher levels of achievement, whereas those with a fixed mindset about intelligence are more likely to be concerned with their own performance, feel helpless, and avoid situations where they might fail (Dweck 1975; Dweck and Leggett 1988; Hong et al. 1999; Mangels et al. 2006).

The above research focuses on the implicit theories that young people hold about the nature of intelligence, but people can hold mindsets across a range of domains including artistic ability, personality, moral qualities, and social skills (Burnette et al. 2013). In addition, rather than having a general, all-encompassing mindset, people can have different mindsets across different domains: for example, believing that intelligence is fixed but that sports prowess is malleable (Dweck et al. 1995). Given this potential heterogeneity across domains, rather the treating implicit theories as a generic construct, Dweck et al. (1995) contend that researchers should assess the specific mindsets that are relevant to the construct they are testing. In the current study we therefore examine the moderating effects of mindsets that adolescents hold about the nature of strengths: whether adolescents believe that strengths are fixed or that they can be grown.

Biswas-Diener et al. (2011) suggest that different approaches to strengths development can result in either fixed or growth mindsets about strengths: some may see strengths as a fixed entity that they are born with, while others may think that strengths are dynamic and can be altered with practice. Biswas-Diener and his colleagues further argue that these views of strengths have implications for further strengths development and use: if an individual has a fixed mindset about strengths development, then labelling their strengths may lead to stagnation, or use only in a limited range of ways. Moreover, people with fixed mindsets will not devote time trying to develop a strength (through use) because they see it as something that cannot be changed. On the other hand, those who hold a growth mindset in relation to strengths may be more likely to use their strengths more often and in more diverse ways. To date, however, this theoretical perspective has not been empirically tested.

In the current study we seek to test whether mindset moderates the relationship between SBP and strength use. More specifically, we contend that the association between SBP and strengths use may depend upon the mindset that the adolescent holds. SBP may have little

impact on strengths use in adolescents with a fixed "strengths" mindset, who may not believe that using their strengths will lead to strengths growth or development. In contrast, adolescents who have a growth mindset toward strengths may be more receptive to listening and acting on the strengths-based feedback that they hear from their parents, suggesting a stronger relationship between SBP and strengths use for those adolescents who have a growth strengths mindset.

1.4 The Present Study

The current study explores the relationships between strengths, mindset, and wellbeing in a sample of adolescents. We aim to investigate (1) whether there are relationships between adolescent strengths use, SBP, and subjective wellbeing, (2) what the direct and indirect effects are between SBP, strengths use, and subjective wellbeing, and (3) whether a growth mindset moderates the relationship between SBP and the adolescent's strengths use.

This study serves several secondary purposes. As SBP is an emerging construct, we aim to further establish the psychometric properties and incremental validity of this measure. Importantly, we will see whether the link between SBP and subjective wellbeing is still present when accounting for the variance explained by the personality traits *Extraversion* and *Neuroticism*, as these are both substantial predictors of wellbeing (Steel et al. 2008).

All hypotheses, as well as the methodology and data analysis plans, were preregistered on the Open Science Framework (https://osf.io/w5u9f/). We made the following predictions from this study (visually depicted in Fig. 1):

1. Adolescents' strengths use will be positively correlated with subjective wellbeing;
2. SBP will be positively correlated with adolescents' strengths use;
3. Strengths use will explain additional variance in adolescent subjective wellbeing beyond that accounted for by extraversion and neuroticism, and SBP will explain additional variance in adolescent subjective wellbeing beyond that accounted for by extraversion, neuroticism and strengths use;
4. SBP will be directly associated with subjective wellbeing, and will also be indirectly associated with subjective wellbeing through its effects on the adolescent's strengths use;
5. The effects of SBP on the adolescent's strength use will be moderated by the adolescent's mindset.

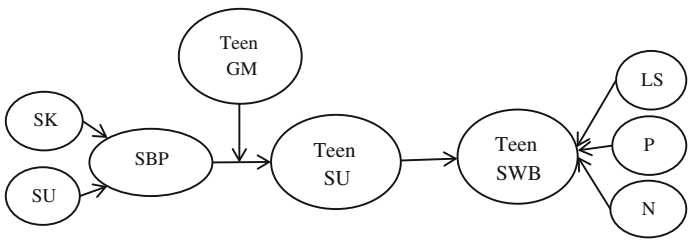

Fig. 1 Conceptual model of the proposed relations between SBP, strengths use and components of subjective wellbeing, with growth mindset as a moderator. *SBP* strength-based parenting, *teen GM* teenage growth mindset, *teen SU* teenage strengths use, *LS* life satisfaction, *PA* positive affect, *NA* negative affect, *teen SWB* teenage subjective wellbeing. Note that the direct effect of SBP upon subjective wellbeing is also proposed, but omitted for readability

2 Method

2.1 Participants and Procedure

Adolescents ($N = 363$, $M_{age} = 13.74$, $SD_{age} = 1.39$; range 12–20; 51% female) were drawn from a large public high-school located in Victoria, Australia, that is marginally below average on the Australian Index of Community Socio-Educational Advantage. Participants completed a 180-item survey online using Qualtrics™ survey platform during school hours, including measures described below. All recruitment and procedures in this study complied with the National Statement on Ethical Conduct in Human Research and were approved by the University's Human Research Ethics Committee.

It is important to note that the sample contained in this study comprises part of the full group of 741 participants who were recruited for the larger study. The full sample was split using pseudo-randomly generated numbers, with one half allocated to the current study, and the other half allocated to a different study of SBP and wellbeing being undertaken in our lab. All analyses conducted in this study are drawn from one half of the sample.

2.2 Measures

2.2.1 Strengths Use

Adolescents completed an adapted version of the strengths use scale originally developed by Govindji and Linley (2007). The strengths use scale has a clear single factor structure, and also demonstrates evidence of criterion validity, correlating with theoretically related constructs such as measures of self-efficacy, self-esteem, and subjective wellbeing (Proctor et al. 2011). For the present study, we simplified the wording to be more comprehensible and developmentally appropriate. In addition, we removed items that referred specifically to goal attainment. This decision was made because Linley et al. (2010) found evidence that goal attainment is an outcome of strengths use rather than an inherent component. The strengths use scale consisted of a 7-item measure [e.g., "I can often think of ways to use my strengths"; ω[1] = .92, 95% CI (.90, .93)], with responses anchored to a 7-point scale from *strongly disagree* to *neither agree nor disagree* to *strongly agree*. The final items are shown in "Appendix".

2.2.2 Strength-Based Parenting

We adapted the SBP-knowledge and SBP-use scales from Waters (2015a, b) to produce 7-item measures of SBP-knowledge [e.g., "My parents see the things I do best" ω = .95, 95% CI (.94, .96)] and SBP-use [e.g., "My parents suggest I should use my strengths every day"; ω .95, 95% CI (.94, .96)]. Questions were presented on a 7-point scale ranging from *strongly disagree* to *neither agree nor disagree* to *strongly agree*. Exploratory factor analysis was used to see whether a one or two factor solution was preferable. The factor analysis and final items are presented in the supplementary material and show that a two factor solution seemed to best represent the data and to also be theoretically sensible. Due to these results, and given that there is an a priori theory of strengths consisting of the two

[1] We used coefficient omega (ω) with 1000 bootstrapped confidence interval estimates for reliability in place of Cronbach's α. Omega makes fewer assumptions than the latter and is less likely to encounter problems with inflated or attenuated internal consistency estimations (Dunn et al. 2014).

components of knowledge and use (Govindji and Linley 2007) we retained the two factor model.

2.2.3 Subjective Wellbeing

We followed Diener et al.'s (1999) conceptualisation of subjective wellbeing by assessing positive affect, negative affect, and life satisfaction. To measure positive and negative affect, we used the 10-item shortened Positive and Negative Affect Schedule for Children (Ebesutani et al. 2012). Adolescents rated the extent to which they generally felt positive affect [e.g., *joyful*, *happy*; ω = .90, 95% CI (.88, .92)] and negative affect [e.g., *miserable*, *afraid*; ω = .82, 95% CI (.76, .85)] on a 5-point scale ranging from *very slightly or not at all* to *extremely*. To measure life satisfaction, the 5-item Satisfaction with Life Scale for Children was employed (Gadermann, Schonert-Reichl, and Zumbo 2010). Adolescents rated statements [e.g., "In most ways my life is close to the way I would want it to be"; ω = .89, 95% CI (.87, .91)] on a 5-point scale from *disagree a lot* to *agree a lot*. Evidence of convergent and discriminant validity has been observed for these three components of subjective wellbeing (Ebesutani et al. 2012; Gadermann et al. 2010).

2.2.4 Extraversion and Neuroticism

Adolescents completed the 8-item Extraversion [e.g., "Is talkative"; ω = .77, 95% CI (.73, .81)] and Neuroticism {e.g., "Can be moody"; ω = .81, 95% CI (.78, .84)] subscales from the Big Five Inventory adapted for adolescents (John and Srivastava 1999) anchored on a 5-point scale from *disagree strongly* to *agree strongly*. Adolescent self-reports of Big Five traits have been found to have good structural validity, with a clear five-factor structure observable from the age of 10 (Soto et al. 2008).

2.2.5 Mindset

Dweck et al. (1995) have claimed that domain-specific measures of mindset offer more precise assessment of specific implicit theories, relative to general measures. For comparative purposes, we employed the 3-item *implicit person scale*, as well as an author-constructed *strengths mindset* scale. The implicit person scale assesses mindset in relation to a person's capacity to change in general [e.g., "People can do things differently, but the important parts of who they are can't really be changed"; ω = .82, 95% CI (.77, .86)]; anchored on a 7-point scale from *strongly disagree* to *neither agree nor disagree* to *strongly agree*. This measure shows good convergent and discriminant validity with other measures of mindset (Dweck et al. 1995). We derived a more specific measure of mindset towards strengths by adapting the implicit person scale to create a novel 3-item measure of *strengths mindset* [ω = .81, 95% CI (.75, .85)]. Participants responded to the following three items, anchored on a 7-point scale from *strongly disagree* to *neither agree nor disagree* to *strongly agree*: (1) "A person's strengths are something very basic about them and they can't be changed very much", (2) "A person's strengths are deeply ingrained in their personality. They cannot be changed very much", and (3) "There is not much that can be done to change a person's strengths". In the present sample, correlations between the three strengths mindset items were all above .55, whereas the strengths mindset items correlated with the implicit person items on average $r = .43$ (SD = .03). This provides

some evidence of convergent and discriminant validity for the novel strengths mindset measure.

Although we are interested in the effects of a growth mindset, responses to growth mindset-phrased questions may be confounded by the socially-desirable nature of these phrases, as even participants who strongly endorse a fixed mindset will score highly on these items (Hong et al. 1999). At the same time, disagreement with fixed mindset-oriented items has been strongly related to agreement with growth-mindset beliefs (Dweck et al. 1995). Thus, in line with Hong et al. (1999) the items on both scales are worded such that agreement implies a fixed mindset. We will operationalise higher growth mindset as stronger disagreement with these fixed mindset items. In our analysis, items have been reverse-coded for ease of interpretation.

2.3 Data Analysis

Data cleaning was undertaken using SPSS, whereas descriptive and inferential analyses were undertaken using SPSS and R (version 3.2.5). Within R, the lavaan package (Rosseel 2012) was used for structural equation modelling. As incremental validity claims can be misleading, with substantially-inflated Type I error rates when observed variables are used (Westfall and Yarkoni 2016), we used latent variables for these analyses.

3 Results

3.1 Descriptive Statistics and Correlations

Table 1 displays the correlation matrix for all variables of interest. The strongest correlations were between life satisfaction and positive affect ($r = .69$), Neuroticism and negative affect ($r = .64$), positive affect and strength use ($r = .61$), and life satisfaction and strengths use ($r = .61$). SBP was also significantly and substantially correlated with wellbeing variables (life satisfaction $r = .56$, positive affect $r = .47$, negative affect $r = -.29$). The two mindset scales were not significantly correlated with any variables apart from each other ($r = .60$).

3.2 Hierarchical Regression of Strengths Processes and Mindset

A hierarchical regression was undertaken to explore incremental validity of strengths and mindsets controlling for personality variables Extraversion and Neuroticism, which are well-established correlates of wellbeing (Steel et al. 2008). As can be seen in Table 2, when Extraversion and Neuroticism were entered into the model at Step 1, Neuroticism, but not Extraversion, was a significant predictor of subjective wellbeing. At Step 2, strengths use was added to the model, and significantly predicted subjective wellbeing. At Step 3, SBP was added to the regression, and also contributed significantly to predicting subjective wellbeing. At Step 4, growth mindset was added to the regression. Neither the implicit person nor the strengths mindset scale significantly predicted subjective wellbeing, and the estimates for the four other predictors changed minimally with this addition.

An equivalent regression using observed variables was conducted in order to compare results with the latent version (this can be viewed in the Supplementary Material). Interestingly, although SBP and strengths use remained significant predictors of subjective

Table 1 Zero-order correlations of observed variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. SBP	5.19	1.34								
2. Strengths use	5.08	1.11	**.61**							
3. Positive affect	3.62	0.90	**.47**	**.61**						
4. Negative affect	2.04	0.83	−.29	**−.43**	**−.41**					
5. Life satisfaction	3.58	0.97	**.56**	**.61**	**.69**	**−.54**				
6. Extraversion	3.28	0.70	**.32**	**.43**	**.51**	−.28	**.32**			
7. Neuroticism	3.02	0.82	−.27	**−.44**	**−.47**	**.64**	**−.48**	**−.30**		
8. Mindset (implicit person)	3.54	1.33	−.13	−.15	−.03	−.05	−.09	−.02	−.05	
9. Strengths mindset	3.92	1.41	−.04	−.04	.03	−.15	−.01	.05	−.14	**.60**

Correlations ≥|.30| are highlighted in bold, whereas correlations ≥|.16| are significant at $p < .05$, Bonferroni-corrected for multiple comparisons

SBP strength-based parenting

Table 2 Unstandardised coefficients (b) and standardised beta coefficients (β) predicting subjective wellbeing from Extraversion, Neuroticism, strengths use, and mindset latent variables

Latent predictors	*b*	*β*	SE	*Z*	*p* value
Step 1					
Extraversion	2.88	0.40	1.62	1.78	.074
Neuroticism	−0.70	−0.62	0.08	−8.71	<.001
Step 2					
Extraversion	1.93	0.28	1.21	1.60	.109
Neuroticism	−0.56	−0.57	0.07	−8.03	<.001
+*Strength use*	0.28	0.42	0.03	8.67	<.001
Step 3					
Extraversion	1.61	0.22	1.05	1.53	.126
Neuroticism	−0.56	−0.55	0.07	−8.04	<.001
Strength use	0.20	0.28	0.03	6.40	<.001
+*SBP*	0.15	0.25	0.03	4.62	<.001
Step 4					
Extraversion	1.61	0.22	1.05	1.53	.125
Neuroticism	−0.57	−0.55	0.07	−8.02	<.001
Strength use	0.19	0.27	0.03	6.33	<.001
SBP	0.15	0.25	0.03	4.50	<.001
+*Mindset (implicit person)*	−0.01	−0.01	0.03	−0.25	.801
OR + *strengths mindset*	−0.01	−0.02	0.03	−0.41	.683

Test statistics relate to the unstandardised coefficients. Note that the values for extraversion, neuroticism, strengths use, and SBP have been omitted when considering strengths mindset, as they were almost identical to results obtained when considering mindset (implicit person)

SBP strength-based parenting, *SE* standard error of the unstandardised *b*

wellbeing, the personality results differed: Extraversion was a significant predictor throughout, while Neuroticism ceased to be significant. This may be due to measurement unreliability that can appear when incremental validity claims are assessed with observed variables (Westfall and Yarkoni).

Finally, Table 3 illustrates the R^2 values and change in R^2 for the three components of subjective wellbeing. As can be seen, Extraversion and Neuroticism explain a substantial portion of the variance in positive affect, negative affect, and life satisfaction. The addition of strengths use explains additional variance in all three components, with the largest increase for life satisfaction. When SBP is added in Step 3, this explains an additional 5% of variance in life satisfaction, but none in positive or negative affect. Finally, neither of the mindset variables explain any additional variance in subjective wellbeing.

3.3 Mediation Analyses

Having found support for the incremental validity of strengths use and SBP above and beyond the variance accounted for by Extraversion and Neuroticism, we then examined whether the relationship between SBP and subjective wellbeing was partially mediated by strengths use. This analysis allowed us to test the hypothesis that SBP has both a direct and indirect effect on adolescent subjective wellbeing (Hypothesis 4). First testing each hypothesised link in the model in separate analyses, SBP (considered as a second-order latent factor comprised of SBP-knowledge and SBP-use) was a significant predictor of subjective wellbeing ($b = 0.51$, SE $= 0.04$, $Z = 11.67$, $p < .001$) and strengths use ($b = 0.57$, SE $= 0.05$, $Z = 12.00$, $p < .001$), and strengths use was a significant predictor of subjective wellbeing ($b = 0.64$, SE $= 0.05$, $Z = 12.29$, $p < .001$).

When entered together into the mediation with 10,000 bootstrapped standard errors, each of these links remained significant: SBP significantly predicted subjective wellbeing ($b = 0.18$, SE $= 0.06$, $Z = 2.80$, $p = .005$) and strengths use ($b = 0.54$, SE $= 0.06$, $Z = 8.58$, $p < .001$), and strengths use significantly predicted subjective wellbeing ($b = 0.53$, SE $= 0.07$, $Z = 7.61$, $p < .001$). Figure 2 depicts the mediation model, in which there was a significant total effect of SBP on subjective wellbeing ($b = 0.47$, SE $= .05$, $Z = 9.84$, $p < .001$), as well as a significant indirect effect via strengths use ($b = 0.29$, SE $= 0.05$, $Z = 5.64$, $p < .001$) that explained 62% of the total effect. Model fit was reasonable, CFI $= .93$, RMSEA $= .062$, SRMR $= .057$, which were close to Hu and Bentler's (1999) benchmarks of CFI $\geq .95$, RMSEA $\leq .06$, and SRMR $\leq .08$.

Table 3 R^2 values for models predicting latent subjective well-being variables from latent extraversion, neuroticism, strengths use, SBP, and mindset variables

Latent predictors	PA	NA	LS
Step 1			
Extraversion, Neuroticism	.55	.63	.42
Step 2			
+Strengths use	.59 (.04)	.64 (.01)	.54 (.12)
Step 3			
+Strength-based parenting	.59 (.00)	.64 (.00)	.59 (.05)
Step 4			
+Mindset (implicit person)	.59 (.00)	.64 (.00)	.59 (.00)
Step 5			
+Strengths mindset	.59 (.00)	.64 (.00)	.59 (.00)

Change in R^2 shown in parentheses

PA positive affect, *NA* negative affect, *LS* life satisfaction

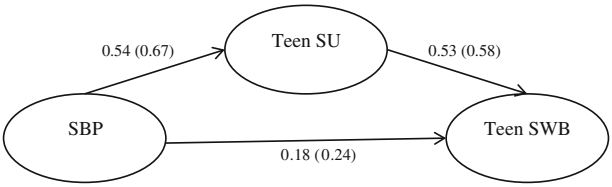

Fig. 2 Mediating effect of strengths use on subjective wellbeing. *SBP* strength-based parenting, *teen SU* teenage strength use, *Teen SWB* teenage subjective wellbeing. Parentheses contain standardised estimates. $p < .05$ for all paths

3.4 Moderation Analyses

To test the hypothesis that mindset moderates the relationship between SBP and strengths use, a regression was undertaken on observed, mean-centred variables calculating the interaction effect of SBP and growth mindset when assessed by either (a) the implicit person scale or (b) the strengths mindset scale. In this instance we used the SPSS PROCESS macro (Hayes 2013).

First, considering the general effect of SBP on strengths use, in accordance with the latent variable mediation analysis presented above, SBP explained a significant proportion of variance in strengths use, $b = 0.50$, SE $= 0.03$, $t = 14.54$, $p < .001$, $R^2 = .369$.

The more general implicit person measure of mindset did not significantly moderate the effect of SBP on strengths use, $b = -0.01$, SE $= 0.03$, $t = 0.47$, $p = .637$, $R^2 = .376$, $\Delta R^2 = .007$. However, the specific *strengths mindset* measure did significantly moderate the effect of SBP on strengths use, $b = 0.05$, SE $= 0.02$, $t = 2.04$, $p = .042$, $R^2 = .377$, $\Delta R^2 = .008$. As shown in Fig. 3, the relation between SBP and strengths use is slightly stronger at higher levels of strengths mindset. For example, at the 10th percentile of strengths mindset, the relationship between SBP and strengths use was $b = 0.41$, 95% CI

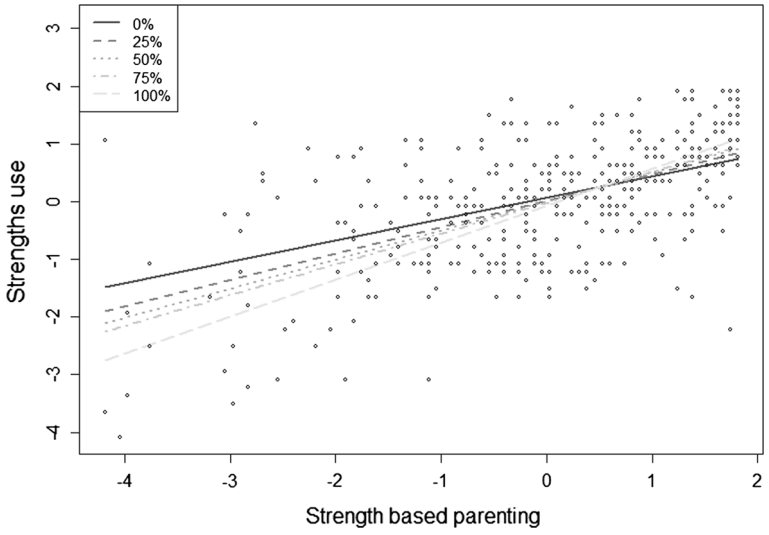

Fig. 3 Regression slopes for strengths use on SBP at different levels (quantiles) of the moderator *strengths mindset*

(0.30, 0.52), $t = 7.40$, $p < .001$; while at the 90th percentile of strengths mindset, the relationship between SBP and strengths use was $b = 0.60$, 95% CI (0.48, 0.71), $t = 10.50$, $p < .001$.

3.5 Moderated Mediation: An Integrated Model

Finally, given the significant results of the mediation and moderation, we aimed to integrate these findings by examining whether there was a conditional indirect path from SBP to subjective wellbeing via strengths use at different levels of the moderator strengths mindset. Like the simpler moderation analysis above, this analysis used the PROCESS macro and was conducted on observed variables. Note that this hypothesis was not preregistered, and is therefore exploratory.

A moderated mediation with 10,000 bootstrapped confidence intervals indicated that, as expected, there was a significant direct effect of SBP on subjective wellbeing, $t(360) = 4.75$, $p < .001$ (Fig. 4). A significant effect of strengths use on subjective wellbeing was also observed, $t(360) = 6.24$, $p < .001$. The indirect effect via strengths use tended to be greater at higher levels of strengths mindset. For example, at low levels of the indirect effect, strengths mindset, the conditional indirect effect from SBP to subjective wellbeing was $b = 0.07$, 95% CI (0.04, 0.11). At the mean of strengths mindset, the conditional indirect effect was $b = 0.08$, 95% CI (0.05, 0.12); and at high levels of strengths mindset, the conditional indirect effect was $b = 0.09$, 95% CI (0.06, 0.13). However, the test of moderated mediation was not significant, with a 95% CI for the index of moderated mediation that just captured zero [$b = 0.007$, 95% CI (-0.004, 0.02); Fig. 4].

4 Discussion

The current study explored the relationships between strengths, mindset, and wellbeing in a sample of adolescents. We hypothesised (1) that we would find significant correlations between strengths use, SBP, and subjective wellbeing, (2) that strengths use and SBP would explain additional variance in adolescent subjective wellbeing beyond that accounted for by Extraversion and Neuroticism, (3) that SBP would be directly associated with subjective wellbeing, and would also be indirectly associated with subjective

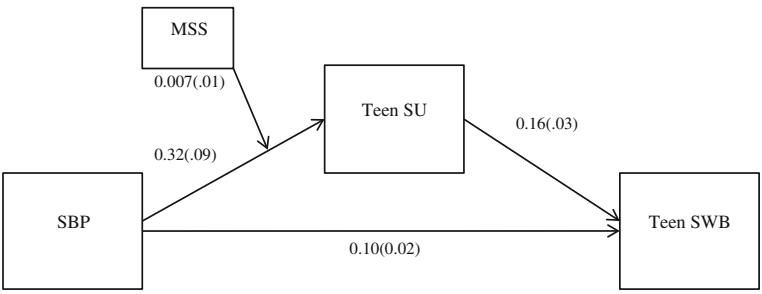

Fig. 4 Full moderated mediation model. *SBP* strength-based parenting, *MSS* strengths mindset, *teen SU* teenage strength use, *teen SWB* teenage subjective wellbeing. Values depict the *b* value of each path, with standard error of *b* inside parentheses. All paths were significant with the exception of the conditional indirect path

wellbeing through its effects on the teenager's strength use, and (4) that the effects of SBP on the teenager's strengths use would be moderated by the teenager's mindset.

Our hypotheses were supported. First considering zero-order correlations presented in Table 1, significant correlations exist between all of strengths use, SBP, and the components of subjective wellbeing (life satisfaction, positive affect, and negative affect). These results are consistent with previous research assessing the correlates of strengths use (Govindji and Linley 2007; Proctor et al. 2011; Wood et al. 2011), and with existing studies of SBP (Waters 2015a, b).

Interestingly, the two mindset scales were not significantly correlated with any variables apart from each other. Although certain studies have found correlations between growth mindset (towards intelligence) and aspects of subjective wellbeing (e.g., Chan 2012; Kern et al. 2015), other studies found no relationship (Romero et al. 2014). Most studies have examined the effects of mindset on motivation and achievement outcomes (Burnette et al. 2013; Gunderson et al. 2013), rather than happiness. This study therefore contributes to the scant and mixed existing literature on mindset by suggesting that in a large adolescent cohort, implicit person and strengths mindsets appear to have no significant direct connection with subjective wellbeing. However, as discussed below, there remains a role for growth mindset as a moderator of the relation between SBP and strengths use.

Next considering the latent variable hierarchical regression, strengths use remained a significant predictor of subjective wellbeing when entered into a model that included Extraversion and Neuroticism, two robust predictors of wellbeing (Steel et al. 2008). Furthermore, when SBP was added to this regression in the third step, it explained an additional 5% of variance in life satisfaction, although no extra variance in positive or negative affect. These results are consistent with those obtained by Waters (2015a), who found that parent-rated SBP predicted adolescents' life satisfaction above and beyond the adolescent's own strengths use. By considering positive affect, negative affect, and life satisfaction, we provide a more fine-grained analysis of how the full subjective wellbeing construct relates to SBP. Namely, the positive effects of SBP may be most beneficial for increasing an adolescent's life satisfaction, rather than their levels of positive or negative affect.

Unexpectedly, we did not find that Extraversion was a significant predictor of subjective wellbeing in our sample, despite its high standardised beta coefficient (see Table 2). This appeared to be due to relatively high measurement unreliability, which causes the standard error to become large when constructs are considered as latent rather than observed variables (Westfall and Yarkoni 2016).[2] Although this 8-item measure of Extraversion is part of a well-established and frequently used measure that has previously demonstrated good reliability and validity (Soto et al. 2008), future studies may wish to consider whether it would be appropriate to use a longer measure of Extraversion (e.g., DeYoung et al. 2007) to gain a more accurate representation of this construct.

Moving to the mediation analysis, we found that the relationship between SBP and subjective wellbeing was partially, but not completely, mediated by strengths use: that is, SBP transmits its effect on subjective wellbeing partially through strengths use, and

[2] As mentioned in the Results section, when we analysed the hierarchical regression using observed variables rather than latent variables, SBP and strengths use remained significant predictors of subjective wellbeing, but personality results were flipped: Extraversion remained a significant predictor throughout, while Neuroticism ceased to be significant (this table can be viewed in the supplementary material). Westfall and Yarkoni (2016) argue that measurement unreliability can artificially inflate results when analysed with observed variables, and this is what appears to have happened here. These results lend strong support to the argument for using latent rather than observed variables in tests of incremental validity.

potentially through other mechanisms. These results support the conceptualisation of SBP as a construct that is theoretically similar to, yet distinct from, strengths use, as has been suggested by earlier studies (Waters 2015a). What else could explain the association between SBP and subjective wellbeing? One possibility is that SBP may lead the parent and child to foster a strong bond of warmth and caring, which has been found to positively impact adolescent adjustment (DeVore and Ginsburg 2005). Positive parenting practices can also promote self-efficacy (Schunk and Meece 2005), so it is conceivable that SBP may be one means to greater self-efficacy in adolescents. These are intriguing possibilities to investigate in future research.

We also found that mindset moderated the relationship between SBP and strengths use: that is, adolescents with a growth mindset were more likely than adolescents with a fixed mindset to use their strengths when their parents employed a strength-based approach to parenting. Importantly, this moderating effect was only significant when assessed by the novel strengths mindset scale, but not by the original implicit person scale. This outcome is not overly surprising, as previous research has indicated that mindsets are domain-specific, and that precise scales more accurately assess an individual's mindset for a particular domain (Dweck et al. 1995). Note here that the effect was small: SBP consistently had a positive effect on strengths use, even for those with high levels of fixed mindsets.

Given that our mediation and moderation results were significant, we integrated these findings by conducting an exploratory analysis to see whether there was a conditional indirect path from SBP to subjective wellbeing via strengths use at different levels of strengths mindset. We found that the indirect effect via strengths use was greater at higher levels of strengths mindset. However, the test of moderated mediation was not significant, with a 95% CI for the index of moderated mediation that just captured zero. It is possible that a greater sample size would have the power to detect this apparently small effect, and as such, future researchers may wish to investigate whether the effect size remains with a larger sample of participants.

Biswas-Diener et al. (2011) theorised that if an individual has a fixed mindset about strengths development, then labelling their strengths could lead to stagnation: these individuals would not dedicate as much time trying to develop their strengths because they would perceive them to be set like cement. On the other hand, those who hold a growth mindset in relation to strengths could be more likely to use their strengths more often, as they would believe them to be malleable. To our knowledge, this is the first study to consider the moderating effect of mindset in an empirical analysis of strengths and well-being, and our results support the theoretical perspective held by Biswas-Diener and colleagues.

The implication for parents is that it is important to not only encourage children to use their strengths, but also to cultivate a growth mindset towards these strengths. Extensive research indicates that mindsets are malleable, as they can be manipulated experimentally by phrasing of language or by quasi-education (e.g., Levy et al. 1998; Mueller and Dweck 1998). One simple way that has been found to manipulate a child's mindset is through the type of praise given (Gunderson et al. 2013). If a parent praises children by telling them that they are smart, this may be interpreted by the child as a sign that their success is due to innate traits; whereas if parents frame their praise such that the "process" of the act is emphasised (e.g., "Well done, you tried really hard!") children may interpret this to mean that their success is due to effort (Gunderson et al. 2013). In this case we would suggest that parents provide feedback to their teens not only about what strengths the teenager has, but also how they can use their strengths in dynamic ways. Parents can do this by praising

the process (i.e., *how* the child is using their strengths) rather than simply focusing on the outcome of the adolescent's strengths.

Thus, parents could play a part in promoting a growth mindset in their children, which could boost the impact of their SBP on their child's strength use, and ultimately on their subjective wellbeing.

4.1 Limitations and Future Directions

In this study, we obtained adolescent reports of their parent's SBP. Hence, we must interpret our results as reflecting the teen's *perceptions* of the extent that their parents acknowledge and encourage them to use their strengths. There is reason to argue that this may be an acceptable approach: intuitively, a teenager will be more likely to use their strengths if they perceive that their parents are strength-based, regardless of the degree to which parents are objectively strength-based. However, it would also be beneficial to obtain parent or other ratings of SBP. Waters (2015a) studied parent-teen dyads and found that parent-rated SBP predicted additional variance in adolescent life satisfaction than adolescent strengths knowledge and use alone. However, Waters (2015a) did not assess adolescent ratings of SBP. To date, no study has looked at the correlation between the adolescent's perception of their parent's SBP and the parent's own beliefs. There is evidence that indicates these ratings might be similar: Haimovitz and Dweck (2016) found that parent's views of whether failure is debilitating or enhancing can be accurately perceived by their children, and thus it is possible that this could also be the case in the domain of strengths. However, there is also evidence that these ratings could be different: a meta-analysis by Upton et al. (2008) found that when assessing their child's health-related quality of life, parent reports were higher than child reports in children without clinical issues, but parent reports were lower than child reports when children had health conditions. Thus, obtaining an estimate of this parent–child reliability would be useful to understand the similarity of parent–child ratings in the domain of strengths.

Additionally, our survey asked participants to consider whether their "parents" (measured as a plural) were strength-based. However, this phrasing could produce conflicting results if students have one strength-based parent and one non-strength-based parent. Future research may wish to ask children to consider the parent who is "most supportive in their life".

As discussed in our preregistration document, we believed that it would be possible to obtain 750 participants in our school sample. However, due to upcoming exams, the participating school decided not to include year 11 and 12 students in the study, and thus the sample remained at 363. While still large, Bentler and Chou (1988) recommend that SEM should include five cases per parameter. In our models, between 68 and 130 parameters were estimated, and thus for the models with more than 80 parameters (hierarchical regressions 2, 3, and 4), the stability of parameter estimates could be compromised (Worthington and Whittaker 2006). However, in terms of these incremental validity claims, Westfall and Yarkoni (2016) have provided simulation evidence that a sample as large as the current study is sufficiently powered to detect an effect. Ultimately, to provide greater certainty about our results, it would be beneficial to obtain a larger sample of participants and re-test whether these effects still hold, and are as strong.

Finally, we employed a cross-sectional design in the present study, precluding strong statements of cause and effect. It is possible that children who have higher subjective wellbeing are more likely to rate their parents are strength-based. It is also possible that children who have higher subjective wellbeing are more likely to use their strengths, due to

a potential positive bias toward exploration and activity that can be a result of positive emotions (Fredrickson 2001). To resolve this ambiguity, longitudinal or experimental designs are necessary.

5 Conclusion

The current study provides further evidence that a strength-based approach to parenting is an important predictor of adolescent subjective wellbeing, and that mindset may moderate the relationship between SBP and strengths use. Although we have acknowledged the limitations of this study above, we nonetheless believe that the results presented herein are an encouraging indication of the positive outcomes that co-occur when parents recognise and encourage their children to use their strengths. This suggests that among the multitude of positive parenting practices available, one promising approach to promote subjective wellbeing in adolescents is to be a strength-based parent.

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Conflict of interest The last author is due to launch a book on strength-based parenting in 2017 and has been an invited Keynote speaker on this topic at the 2nd Positive Education Schools Association Conference (pro-bono), the 3rd Canadian Positive Psychology Conference, (speaker honorarium) and the Festival of Positive Education (pro-bono). The last author is co-founder of The Strengths Exchange, a website offering free strength-based resources and tools to parents (http://www.the-strengths-exchange.com.au).

Appendix: The Strengths Use Scale

See Table 4.

Table 4 Final strengths use items employed for the current study

Item
1. I am regularly able to do what I do best
2. I always play to my strengths
3. I always try to do what I'm good at
4. I use my strengths every day
5. I have lots of opportunities to use my strengths
6. I can often think of ways to use my strengths
7. I am able to use my strengths in lots of different situations

References

Allan, B. A., & Duffy, R. D. (2014). Examining moderators of signature strengths use and well-being: Calling and signature strengths level. *Journal of Happiness Studies, 15,* 323–337. doi:10.1007/s10902-013-9424-0.

Andersen, S. L., & Teicher, M. H. (2008). Stress, sensitive periods and maturational events in adolescent depression. *Trends in Neurosciences, 31*(4), 183–191. doi:10.1016/j.tins.2008.01.004.

Aquilino, W. S., & Supple, A. J. (2001). Long-term effects of parenting practices during adolescence on well-being outcomes in young adulthood. *Journal of Family Issues, 22*(3), 289–308.

Baumrind, D. (1991). Effective parenting during the early adolescent transition. In P. E. Cowan & E. M. Hetherington (Eds.), *Advances in family research* (2nd ed., pp. 111–163). Hillsdale, NJ: Lawrence Erlbaum Associates.

Bentler, P. M., & Chou, C. (1988). Practical issues in structural modeling. In J. S. Long (Ed.), *Common problems/proper solutions: Avoiding error in quantitative research* (pp. 161–192). Newbury Park, CA: Sage.

Ben-Zur, H. (2003). Happy adolescents: The link between subjective well-being, internal resources, and parental factors. *Journal of Youth and Adolescence, 32*(2), 67–79.

Biswas-Diener, R., Kashdan, T. B., & Minhas, G. (2011). A dynamic approach to psychological strength development and intervention. *The Journal of Positive Psychology, 6*(2), 106–118. doi:10.1080/17439760.2010.545429.

Blackwell, K. L., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development, 78*(1), 246–263.

Burnette, J. L., O'Boyle, E. H., VanEpps, E. M., Pollack, J. M., & Finkel, E. J. (2013). Mind-sets matter: A meta-analytic review of implicit theories and self-regulation. *Psychological Bulletin, 139*(3), 655–701. doi:10.1037/a0029531.

Chan, D. W. (2012). Life satisfaction, happiness, and the growth mindset of healthy and unhealthy perfectionists among Hong Kong Chinese gifted students. *Roeper Review, 34*(4), 224–233. doi:10.1080/02783193.2012.715333.

Cooley, C. H. (1902). The looking-glass self. *Human nature and the social order* (pp. 179–185). New York, NY: Scribner's.

DeVore, E. R., & Ginsburg, K. R. (2005). The protective effects of good parenting on adolescents. *Current Opinion in Pediatrics, 17*(4), 460–465. doi:10.1097/01.mop.0000170514.27649.c9.

DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the Big Five. *Journal of Personality and Social Psychology, 93*(5), 880–896. doi:10.1037/0022-3514.93.5.880.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, *95*(3), 542–575.

Diener, E., & Chan, M. Y. (2011). Happy people live longer: Subjective well-being contributes to health and longevity. *Applied Psychology: Health and Well-Being, 3*(1), 1–43. doi:10.1111/j.1758-0854.2010.01045.x.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*(2), 276–302.

Douglass, R. P., & Duffy, R. D. (2015). Strengths use and life satisfaction: A moderated mediation approach. *Journal of Happiness Studies, 16,* 619–632. doi:10.1007/s10902-014-9525-4.

Dunn, T. J., Baguley, T., & Brunsden, V. (2014). From alpha to omega: A practical solution to the pervasive problem of internal consistency estimation. *British Journal of Psychology, 105*(3), 399–412. doi:10.1111/bjop.12046.

Dweck, C. S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology, 31*(4), 674–685.

Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York, NY: Random House.

Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit theories and their role in judgments and reactions: A world from two perspectives. *Psychological Inquiry, 6*(4), 267–285.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*(2), 256–273. doi:10.1037//0033-295X.95.2.256.

Ebesutani, C., Regan, J., Smith, A., Reise, S., Higa-McMillan, C., & Chorpita, B. F. (2012). The 10-item positive and negative affect schedule for children, child and parent shortened versions: Application of item response theory for more efficient assessment. *Journal of Psychopathology and Behavioral Assessment, 34*(2), 191–203. doi:10.1007/s10862-011-9273-2.

Forest, J., Mageau, G. A., Crevier-Braud, L., Bergeron, É., Dubreuil, P., & Lavigne, G. L. (2012). Harmonious passion as an explanation of the relation between signature strengths' use and well-being at work: Test of an intervention program. *Human Relations*, *65*(9), 1233–1252.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology. *American Psychologist, 56*(3), 218–226. doi:10.1126/scisignal.2001449.Engineering.

Froh, J. J., Yurkewicz, C., & Kashdan, T. B. (2009). Gratitude and subjective well-being in early adolescence: Examining gender differences. *Journal of Adolescence, 32*(3), 633–650.

Gadermann, A. M., Schonert-Reichl, K. A., & Zumbo, B. D. (2010). Investigating validity evidence of the satisfaction with life scale adapted for children. *Social Indicators Research, 96*(2), 229–247. doi:10.1007/s11205-009-9474-1.

Govindji, R., & Linley, P. A. (2007). Strengths use, self-concordance and well-being: Implications for strengths coaching and coaching psychologists. *International Coaching Psychology Review, 2*(2), 143–153.

Gunderson, E. A., Gripshover, S. J., Romero, C., Dweck, C. S., Goldin-Meadow, S., & Levine, S. C. (2013). Parent praise to 1- to 3-year-olds predicts children's motivational frameworks 5 years later. *Child Development, 84*(5), 1526–1541. doi:10.1111/cdev.12064.

Haimovitz, K., & Dweck, C. S. (2016). What predicts children's fixed and growth intelligence mind-sets? Not their parents' views of intelligence but their parents' views of failure. *Psychological Science*. doi:10.1177/0956797616639727.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.

Hong, Y., Chiu, C. Y., Dweck, C. S., Lin, D. M. S., & Wan, W. (1999). Implicit theories, attributions, and coping: A meaning system approach. *Journal of Personality and Social Psychology, 77*(3), 588–599.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55.

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). New York: The Guilford Press.

Katja, R., Paivi, A.-K., Marja-Terttu, T., & Pekka, L. (2002). Relationships among adolescent subjective well-being, health behavior, and school satisfaction. *The Journal of School Health, 72*(6), 243–249.

Kern, M. L., Waters, L. E., Adler, A., & White, M. A. (2015). A multidimensional approach to measuring well-being in students: Application of the PERMA framework. *The Journal of Positive Psychology, 10*(3), 262–271. doi:10.1080/17439760.2014.936962.

Keyes, C. L. M. (2006). Mental health in adolescence: Is America's youth flourishing? *American Journal of Orthopsychiatry, 76,* 395–402.

King, L. A., & Trent, J. (2013). Personality strengths. In I. B. Weiner (Ed.), *Handbook of psychology, Personality and social psychology* (vol 5, 2nd ed, pp. 197–222). Hoboken, NJ: Wiley.

Levy, S. R., Stroessner, S. J., & Dweck, C. S. (1998). Stereotype formation and endorsement: The role of implicit theories. *Journal of Personality and Social Psychology, 74*(6), 1421–1436. doi:10.1037/0022-3514.74.6.1421.

Linley, P. A., Nielsen, K. M., Gillett, R., & Biswas-Diener, R. (2010). Using signature strengths in pursuit of goals: Effects on goal progress, need satisfaction, and well-being, and implications for coaching psychologists. *International Coaching Psychology Review, 5*(1), 6–15.

Madden, W., Green, S., & Grant, A. M. (2011). A pilot study evaluating strengths-based coaching for primary school students: Enhancing engagement and hope. *International Coaching Psychology Review*, *6*(1), 71–83. Retrieved from http://ezproxy.umsl.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=59578546&site=ehost-live&scope=site.

Mangels, J. A., Butterfield, B., Lamb, J., Good, C., & Dweck, C. S. (2006). Why do beliefs about intelligence influence learning success? A social cognitive neuroscience model. *Social Cognitive and Affective Neuroscience, 1*(2), 75–86. doi:10.1093/scan/nsl013.

Mead, G. H. (1934). *Mind, self, and society*. Chicago: University of Chicago Press.

Milevsky, A., Schlechter, M., Netter, S., & Keehn, D. (2007). Maternal and paternal parenting styles in adolescents: Associations with self-esteem, depression and life-satisfaction. *Journal of Child and Family Studies, 16*(1), 39–47. doi:10.1007/s10826-006-9066-5.

Mueller, C. M., & Dweck, C. S. (1998). Praise for intelligence can undermine children's motivation and performance. *Journal of Personality and Social Psychology, 75*(1), 33–52. doi:10.1037/0022-3514.75.1.33.

Park, N. (2004). The role of subjective well-being in positive youth development. *The Annals of the American Academy of Political and Social Science, 591*(1), 25–39. doi:10.1177/0002716203260078.

Park, N., Peterson, C., & Seligman, M. E. P. (2004). Strengths of character and well-being. *Journal of Social and Clinical Psychology, 23*(5), 603–619.

Peterson, C. (2006). *A primer in positive psychology*. New York, NY: Oxford University Press.

Peterson, C., & Seligman, M. E. (2004). *Character strengths and virtues: A handbook and classification*. New York: Oxford University Press.

Pretty, G. M. H., Conroy, C., Dugay, J., Fowler, K., & Williams, D. (1996). Sense of community and its relevance to adolescents of all ages. *Journal of Community Psychology, 24*(4), 365–379.

Proctor, C., Maltby, J., & Linley, P. A. (2011a). Strengths use as a predictor of well-being and health-related quality of life. *Journal of Happiness Studies, 12,* 153–169. doi:10.1007/s10902-009-9181-2.

Proctor, C., Tsukayama, E., Wood, A. M., Maltby, J., Fox, J., & Linley, P. A. (2011b). Strengths gym: The impact of a character strengths-based intervention on the life satisfaction and well-being of adolescents. *The Journal of Positive Psychology, 6*(5), 377–388. doi:10.1080/17439760.2011.594079.

Quinlan, D., Swain, N., & Vella-Brodrick, D. A. (2012). Character strengths interventions: Building on what we know for improved outcomes. *Journal of Happiness Studies*, *13*, 1145–1163.

Quinlan, D. M., Swain, N., Cameron, C., & Vella-Brodrick, D. A. (2015). How "other people matter" in a classroom-based strengths intervention: Exploring interpersonal strategies and classroom outcomes. *The Journal of Positive Psychology, 10*(1), 77–89. doi:10.1080/17439760.2014.920407.

Rath, T. (2007). *StrengthsFinder 2.0*. New York, NY: Gallup Press.

Romero, C., Master, A., Paunesku, D., Dweck, C. S., & Gross, J. J. (2014). Academic and emotional functioning in middle school: The role of implicit theories. *Emotion, 14*(2), 227–234. doi:10.1037/a0035490.

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*(2), 1–36. doi:10.18637/jss.v048.i02.

Sanders, M. R., Markie-Dadds, C., & Turner, K. M. T. (2003). Theoretical, scientific and clinical foundations of the Triple P Positive Parenting Program: A population approach to the promotion of parenting competence. In *Parenting Research and Practice Monograph 1*. Brisbane: University of Queensland.

Schunk, D. H., & Meece, J. L. (2005). Self-efficacy development in adolescences. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents* (pp. 71–96). Greenwich, CT: Information Age Publishing.

Schwartz, O. S., Byrne, M. L., Simmons, J. G., Whittle, S., Dudgeon, P., Yap, M. B. H., et al. (2014). Parenting during early adolescence and adolescent-onset major depression: A 6-year Prospective Longitudinal Study. *Clinical Psychological Science, 2*(3), 272–286. doi:10.1177/2167702613505531.

Schwartz, O. S., Dudgeon, P., Sheeber, L. B., Yap, M. B. H., Simmons, J. G., & Allen, N. B. (2012a). Parental behaviors during family interactions predict changes in depression and anxiety symptoms during adolescence. *Journal of Abnormal Child Psychology, 40*(1), 59–71. doi:10.1007/s10802-011-9542-2.

Schwartz, O. S., Sheeber, L. B., Dudgeon, P., & Allen, N. B. (2012b). Emotion socialization within the family environment and adolescent depression. *Clinical Psychology Review, 32*(6), 447–453. doi:10.1016/j.cpr.2012.05.002.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55,* 5–14. doi:10.1037/0003-066X.55.1.5.

Seligman, M. E., Ernst, R. M., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive education: Positive psychology and classroom interventions. *Oxford Review of Education, 35*(3), 293–311.

Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *The American Psychologist, 60*(5), 410–421. doi:10.1037/0003-066X.60.5.410.

Sheldon, K. M., Jose, P. E., Kashdan, T. B., & Jarden, A. (2015). Personality, effective goal-striving, and enhanced well-being: Comparing 10 candidate personality strengths. *Personality and Social Psychology Bulletin, 41*(4), 575–585. doi:10.1177/0146167215573211.

Sheldon, K. M., & King, L. (2001). Why positive psychology is necessary. *The American Psychologist, 56*(3), 216–217. doi:10.1037/0003-066X.56.3.216.

Soto, C. J., John, O. P., Gosling, S. D., & Potter, J. (2008). The developmental psychometrics of big five self-reports: Acquiescence, factor structure, coherence, and differentiation from ages 10 to 20. *Journal of Personality and Social Psychology, 94*(4), 718–737. doi:10.1037/0022-3514.94.4.718.

Spreitzer, G., Stephens, J. P., & Sweetman, D. (2009). The Reflected Best Self field experiment with adolescent leaders: Exploring the psychological resources associated with feedback source and valence. *The Journal of Positive Psychology, 4*(5), 331–348.

Srivastava, S. (2012). Other people as a source of self-knowledge. In S. Vazire & T. D. Wilson (Eds.), *Handbook of self-knowledge* (pp. 90–104). New York, NY: The Guilford Press.

Steel, P., Schmidt, J., & Shultz, J. (2008). Refining the relationship between personality and subjective well-being. *Psychological Bulletin, 134*(1), 138–161.

Steinberg, L. (2014). *Age of opportunity: Lessons from the new science of adolescence*. New York, NY: Houghton Mifflin Harcourt.

Suldo, S. M., Savage, J. A., & Mercer, S. H. (2014). Increasing middle school students' life satisfaction: Efficacy of a positive psychology group intervention. *Journal of Happiness Studies, 15,* 19–42. doi:10.1007/s10902-013-9414-2.

Upton, P., Lawford, J., & Eiser, C. (2008). Parent–child agreement across child health-related quality of life instruments: A review of the literature. *Quality of Life Research, 17*(6), 895–913.

Valkenberg, P. M., Peter, J., & Schouten, A. P. (2006). Friend networking sites and their relationship to adolescents' well-being and social self-esteem. *CyberPsychology & Behavior, 9*(5), 584–590.

Waters, L. (2015a). Strength-based parenting and life satisfaction in teenagers. *Advances in Social Science Research Journal, 2*(11), 158–173.

Waters, L. (2015b). The relationship between strength-based parenting with children's stress levels and strength-based coping approaches. *Psychology, 6*(6), 689–699.

Waters, L., & Sun, J. (in press). Can a brief strength-based parenting intervention boost self-efficacy and positive emotions in parents? International Journal of Applied Positive Psychology.

Watkins, P. C., Woodward, K., Stone, T., & Kolts, R. (2003). Gratitude and happiness: Development of a measure of gratitude, and relationships with subjective well-being. *Social Behavior and Personality, 31*(5), 431–452.

Westfall, J., & Yarkoni, T. (2016). Statistically controlling for confounding constructs is harder than you think. *PLoS ONE, 11*(3), 1–22. doi:10.1017/CBO9781107415324.004.

Whittle, S., Simmons, J. G., Dennison, M., Vijayakumar, N., Schwartz, O., Yap, M. B. H., et al. (2014). Positive parenting predicts the development of adolescent brain structure: A longitudinal study. *Developmental Cognitive Neuroscience, 8,* 7–17. doi:10.1016/j.dcn.2013.10.006.

Wood, A. M., Linley, P. A., Maltby, J., Kashdan, T. B., & Hurling, R. (2011). Using personal and psychological strengths leads to increases in well-being over time: A longitudinal study and the development of the strengths use questionnaire. *Personality and Individual Differences, 50*(1), 15–19. doi:10.1016/j.paid.2010.08.004.

Worthington, R. L., & Whittaker, T. A. (2006). Scale development research: A content analysis and recommendations for best practices. *The Counseling Psychologist, 34*(6), 806–838. doi:10.1177/0011000006288127.