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EDUCATIONAL PSYCHOLOGY & COUNSELLING | RESEARCH ARTICLE

Positive psychological strengths and school engagement in primary school children

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Abstract: A sizeable body of research has investigated the impact of specific character strengths or traits on significant outcomes. Some recent research is beginning to consider the effects of groups of strengths, combined as a higher order variable and termed covitality. This study investigated the combined influence of four positive character traits, gratitude, optimism, zest and persistence, upon school engagement, within a sample of 112 Australian primary school students. The combined effect of these four traits, in defining covitality as a higher or second-order factor within a path analysis, was found to predict relatively higher levels of school engagement and pro-social behaviour.

Subjects: Educational Psychology; School Psychology; Teaching & Learning

Keywords: positive psychology; covitality; psychological strengths; school engagement; primary school

1. Introduction

1.1. Positive psychology

Psychological research in the past has enhanced our understanding of human behaviour and has guided the development of treatments and models for intervention. The vast majority of psychological research in the twentieth century was focused around mental illness, in order to gain

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PUBLIC INTEREST STATEMENT

This paper sought to explore the relationship between positive psychological human strengths, such as optimism, and school engagement in primary school-aged children. Its premise is that these human strengths do not work in isolation, but just as combining steel with concrete strengthens the foundations of a building, a combination of these strengths is needed to support young children's sense of well-being and school engagement.

understanding and insight into conditions and develop treatment options to alleviate the symptoms of sufferers (Snyder & Lopez, 2007). In 1998, Martin Seligman, as president of the American Psychological Association, called on researchers to conduct research into human strengths. Strengths refer to positive traits that are reflected in thoughts, feelings and/or behaviours and exist in varying degrees for each individual (Park, Peterson, & Seligman, 2004).

Some of the most comprehensive research into strengths has been conducted by Peterson and Seligman (2004) and their findings suggest that a number of universal strengths exist and can be operationalised and measured. Consequently, Peterson and Seligman developed the Character Strengths and Virtues Handbook (CSV), a handbook that defines positive human traits that contribute to positive life outcomes (Peterson & Seligman, 2004). The CSV is comprised of 24 character strengths termed “values in action” (VIAs). To reflect their core characteristic, VIAs are grouped into virtues, including wisdom and knowledge, courage, humanity, justice, temperance and transcendence (Peterson & Seligman, 2004).

When researching the relationship between VIAs and subjective well-being, Park et al. (2004) found that in adults, certain strengths were more strongly related to well-being, with hope and zest being most substantially positively related to higher levels of reported well-being, followed closely by gratitude, love and curiosity. Further studies led researchers to the conclusion that zest, gratitude, hope and love were most robustly associated with life satisfaction in adult and youth populations (Peterson & Park, 2006; Seligman, Steen, Park, & Peterson, 2005). Other researchers have reported similar results with Croatian (Brdar & Kashdan, 2010) and Chinese (Chan, 2009) adult populations. With studies showing that certain strengths contribute more to positive life outcomes than others, recent research is investigating how certain traits may coexist to provide a greater influence on subjective well-being than individual traits alone.

1.2. Covitality

Covitality refers to the co-occurrence of positive constructs, which, existing and interacting together, have a greater influence on positive life outcomes than individual traits have alone. Covitality was first used to describe the coexistence of positive constructs in reference to phenotypic or genetic correlations among positive traits observed in chimpanzees, such as confidence, health and well-being (Weiss, King, & Enns, 2002). Applied to human positive psychology, covitality describes how character strengths co-occur to produce increased levels of subjective well-being. Covitality could provide greater understanding around how strengths interact and could further inform intervention and prevention programmes.

Initial research on covitality has looked at how positive constructs relate to each other and their combined ability to comprise a higher order latent variable. Character traits that have been suggested in previous research to have relatively greater effects on positive outcomes have been investigated. For example, Luthans, Avolio, Avey, and Norman (2007) combined optimism, self-efficacy, hope and reliance into a higher order, latent variable called “psychological capital”, and found that this had a stronger relationship with job performance and satisfaction than the individual traits.

Rand (2009) found that combining hope and optimism traits to form a latent variable termed “goal attitude”, appropriately accounted for people’s attitudes about goals. Jones (2010) investigated the effects of hedonia (life satisfaction and happiness), optimism, self-efficacy, hope and gratitude on personal adjustment and emotional symptoms in 528 university students. She found that “co-vitality”, the combination of the above-mentioned traits applied as a single latent variable, had a greater impact on personal adjustment and emotional symptoms than each individual construct.

1.3. Covitality and school engagement

As the ground work for developing positivity in adults begins in childhood, it is important to investigate the effects of positive psychology traits in this developmental group (Diener & Diener, 2009).

Research conducted in the school setting has aimed to identify positive and negative factors that contribute to positive and negative life outcomes. One important factor, school engagement, has been suggested as being of high importance for reducing at-risk behaviours and enhancing positive developmental outcomes (Centers for Disease Control & Prevention, 2009). While many labels have been applied to the construct of school engagement, including school membership, attachment, bonding, connectedness and belonging (Blum & Libbey, 2004; Libbey, 2004), the current study considers school engagement as the individual's perception of feeling accepted, respected, included and supported by others, within the school context (Goodenow, 1993).

Within the USA, the National Longitudinal Study of Adolescent Health (Centers for Disease Control & Prevention, 2009), drawing on data from over 36,000 American youth in grades 7–12, found school engagement to be the main protective factor for reducing substance use, absenteeism, early sexual initiation and violence and also a protective factor against emotional distress, eating disorders and suicide thoughts or attempts. In addition, this research found a strong positive relationship between school engagement and school attendance, staying in school longer and school achievement. This research reflects findings of other studies on school engagement (Furlong et al., 2003; Hagborg, 1994; Israelashvili, 1997; Osterman, 2000). With research emphasising the importance of school engagement in achieving positive outcomes, it is useful to investigate how this concept relates to covitality.

Covitality has also been investigated within the educational setting, across different ages. Research by Furlong, You, Renshaw, Smith, and O'Malley (2014) found that for the adolescent population, positive individual traits can be categorised into the representative constructs of belief in self, belief in others, emotional competence and engaged living. These constructs combined as a higher order latent variable, covitality, have a significantly greater impact on well-being. Further to this, Furlong, You, Renshaw, O'Malley, and Rebelez (2013) investigated covitality in 1,995 middle primary school years with a combined mean age of 11 years. The findings of this study also support the concept of covitality, with the model proposed, combining character strengths of gratitude, optimism, zest and persistence as a second-order, latent trait. Covitality was also shown to have a significant, positive relationship with pro-social behaviour, school acceptance and caring relationships (Furlong et al., 2013). This current study uses the covitality model proposed by Furlong et al. (2013).

1.4. Covitality variables

1.4.1. Gratitude

Gratitude involves being aware of and thankful for good things that happen (Park & Peterson, 2009). Gratitude is the typical emotional response a person experiences when they receive an undeserved or unexpected gift or benefit from someone who has given out of good intention (Bono & Froh, 2009). Emmons (2007) defines gratitude simply as the response of thankfulness to any transactions that may occur within the person or with their surrounding environment. To possess gratitude requires the ability to recognise such occasions and to then respond with grateful emotion (McCullough, Emmons, & Tsang, 2002).

Gratitude in very young children has been difficult to conceptualise and measure, and is queried as social politeness (Bono & Froh, 2009); however, gratitude becomes evident after the age of four when the theory of mind stage occurs, that is, when children begin to understand the difference between mental constructs and physical entities (Wellman, 1990). Research has shown that gratitude is positively associated with positive mood, life satisfaction, optimism and spirituality, and those with higher levels of gratitude tend to report less depressive symptoms and envy (McCullough et al., 2002).

VIA research identifies gratitude as one of the positive traits most strongly associated with life satisfaction in youth populations (Peterson & Park, 2006). Other research into gratitude in the early adolescent population reflects these findings (Bono & Froh, 2009), suggesting that perceived

gratitude in youth is positively related with the provision of social support to others, perception of social support received, positive effect, social integration, life satisfaction and academic achievement (Froh et al., 2011).

1.4.2. Optimism

To be optimistic refers to having a general expectation for good outcomes for the future (Carver, Scheier, & Segerstrom, 2010; Scheier & Carver, 1985). Having optimism influences how people feel when they encounter problems; it encourages confidence and persistence, thereby increasing the chance of success in completing a desired goal (Carver et al., 2010). Optimism has been associated with better physical health, recovery from illness and subjective well-being (Boman, Furlong, Shochet, Lillies, & Jones, 2009; Carver et al., 2010). Optimism is positively related to social engagement, as it is associated with having larger social networks (Brissette, Scheier, & Carver, 2002) and participating in positive, supportive relationships (Srivastava, McGonigal, Richards, Butler, & Gross, 2006). Research in the educational context has found optimism to be associated with higher levels of academic interest, success and persistence, coping and adjustment and positive interpersonal relationships (Boman et al., 2009; Boman & Yates, 2001; Carver et al., 2010).

1.4.3. Zest

Zest is defined as approaching life with excitement and energy (Park & Peterson, 2009). Research has found that zest has a strong, consistent positive relationship with life satisfaction across all age groups (Park & Peterson, 2006). However, zest is considered to be a strength more common in youth rather than adults (Park et al., 2004). Park et al. (2004) suggest that along with gratitude, hope and love, zest is the most robust predictor of life satisfaction in the youth population. Research has suggested that zest has a positive relationship with health, emotional well-being, autonomy and positive interpersonal relationships (Peterson & Seligman, 2004). Research in the primary school context by Weber and Ruch (2012) found love of learning, gratitude, zest, perseverance and curiosity to be positively associated with school-related satisfaction.

1.4.4. Persistence

The VIA handbook of character strengths defines persistence as finishing what has been started (Park & Peterson, 2006). The notion of persistence has been considered in relation to concepts such as motivation, expectation, effort and self-regulation, with persistence stemming from being associated with or adding to the effects of these constructs (Feather, 1962; Kuhl, 1987, 1996; Volet, 1997). Vollmeyer and Rheinberg (2000) suggest that persistence increases learning, in that, it mediates the relationship between motivation and performance. Volet (1997) adapted prior notions of persistence to the educational setting and defined it as the maintenance of learning intentions, despite usual academic obstacles. Results of Volet's (1997) research suggest that, on an academic task, persistence had a strong effect on performance, particularly when there is a perceived lack of competence and interest on the task.

1.5. The current study

This study aims to support existing research around covitality in schools, as it investigates how positive psychological constructs relate to and predict school engagement and pro-social behaviour, within an Australian sample of primary school children. It is predicted that the four positive traits of gratitude, optimism, zest and persistence, termed covitality, will be positively related to school engagement. To further gauge the predictive ability of the Social Emotional Health Scale-Elementary (SEHS-E) variables, a pro-social variable, which was included as a sub-scale in the original development of the SEHS-E for the purpose of concurrent validity, was also included. It is also expected to be positively related to the covitality variables. Finally, as all the sub-scales showed full factor invariance across genders (Furlong et al., 2013), it is expected that gender will not strengthen the predictive value of the covitality variables on school engagement. However, it is expected that there will be a gender effect on pro-social behaviour, as research has indicated that pro-social behaviour is negatively related to boys' externalising problems when compared to girls (Pursell, Laursen, Rubin, Booth-LaForce, & Rose-Krasnor, 2008).

2. Method

2.1. Participants

Participants were a total of 112 students, aged 8–12 years, from a Catholic primary school, in Brisbane, Australia. The complete cohort of students (approximately 130 students) was given the opportunity to participate, with the sample included in the study being those students who gave consent, including parent consent, to the research. There were 45 boys (40.5%) and 66 girls (58.9%), with one participant not reporting gender.

2.2. Measures

The *SEHS-E* (Furlong et al., 2013) is a 20-item self-report measure of covitality for middle primary school children. Covitality in the *SEHS-E* is measured from 16 items, with 4 items each assessing gratitude, optimism, zest and persistence. An example item for gratitude is “I am lucky to go to my school”. An example item for optimism is “I expect good things to happen at my school”. An example item for zest is “I get excited when I learn something new at school”. An example item for persistence is “I keep working until I get my schoolwork right”.

Four additional concurrent validity check items in the *SEHS-E* provide a supplementary pro-social behaviour sub-scale score. An example item for pro-social behaviour is “I follow the classroom rules”. The four response options are “almost never”, “sometimes”, “often” or “very often”. Confirmatory factor analysis and latent means analysis suggests the *SEHS-E* appropriately measures the first-order constructs of gratitude, optimism, zest persistence and identifies a separate pro-social behaviour sub-scale (Furlong et al., 2013).

Psychological Sense of School Membership scale (PSSM) (You, Ritchey, Furlong, Shochet, & Boman, 2011). As a measure of school engagement, the shorter 12-item version of the *PSSM* was used. The 12-item version was developed from the original 18-item *PSSM* developed by Goodenow (1993), a measure that has been used widely in research to indicate student’s perceptions of support from others in school, and how accepted, respected and included they feel. The 12-item *PSSM* measures student engagement at school, with items based around the student’s perceptions of caring relationships, acceptance at school and rejection (You et al., 2011). Example items include, “Teachers at my school are not interested in people like me”, “I am included in lots of activities at my school” and “I can really be myself at my school”. Eight items are positively loaded and four are negatively loaded. The *PSSM* is a self-report, Likert-style measure, with response options of “not at all true”, “sometimes true”, “often true” or “completely true”. Use of the 12-item version of the *PSSM* is supported by confirmatory factor analysis research by You and colleagues (2011). The 12-item *PSSM* provides a total score for school engagement or scores can represent three constructs of school engagement: *Acceptance*, *Rejection* and *Caring Relationships*.

2.3. Procedure

The university Human Ethics Committee granted ethical approval for the study and the school authorities, through the School Board, agreed to participate. Information letters were sent home with students to be reviewed with their parents/carers. Signed consent forms by the students and their parents/carers were required for students to participate. Consenting students completed the questionnaire using school computers via an online survey powered by Zoomerang (SurveyMonkey, 2012). Data were collected between June and July, with each student completing the questionnaire during one sitting.

3. Results

3.1. Descriptive statistics and preliminary analyses

A total of 112 participants, out of 130 students, completed the questionnaire. A minimum of 92 participants were required for the study, based on the *G*Power 3* equation, with 5 predictor variables (Faul, Erdfelder, Lang, & Buchner, 2007). The means, standard deviations and psychometric

Table 1. Construct scale means and psychometric properties

	Possible range	Actual range	Mean (SD)	Skew	Kurtosis	Cronbach α
Gratitude	4–16	6–16	14 (2.0)	–1.5	2.9	.69
Zest	4–16	4–16	10.4 (2.9)	.0	–.6	.61
Optimism	4–16	6–16	12.8 (2.2)	–.8	.7	.68
Persistence	4–16	6–16	13.5 (2.2)	–1.3	2.1	.76
Covitality	16–64	26–64	50.8 (7.5)	–.8	1.2	.88

Notes: $n = 112$; significant gender differences were not found in any of the above variables; and the overall covitality construct does not have an alpha coefficient since it is articulated as a second-order factor in the PLS analysis.

properties for the four independent variables (gratitude, optimism, zest and persistence), covitality, the pro-social subscale and school engagement are provided in Table 1.

Gender differences were not significant on any of the covitality components or overall score. However, as predicted, a significant gender difference was found on the measure of pro-social behaviour. Whereas the overall mean was 14.3 (SD of 1.8), the boys mean was 13.8 and girls was 14.7, a significant effect, $F(1,111) = 8, p < .01$. There was a medium effect size (Cohen’s d) for gender difference at .54.

3.2. Correlations and average variance extracted

Bivariate correlations were used to assess relationships between the variables and are presented in Table 2. All correlations between the variables were positive and significant. There were large correlations between covitality and the individual variables ($r > .76$), suggesting the presence of a second-order factor as described by Furlong et al. (2013). Large correlations ($r > .5$) are also seen between gratitude and all other variables, except for pro-social which had a moderate relationship ($r(110) = .45, p < .001$). Optimism also shows a large correlation with persistence ($r(112) = .55, p < .001$) and school engagement ($r(109) = .57, p < .001$). All other correlations between variables are considered moderate, suggesting overall strong to moderate relationships occurring between the variables.

3.3. Partial least squares path modelling

The relationships between covitality and both school engagement and pro-social behaviour were examined using partial least squares (PLS) approach to structural equation modelling. Ringle, Wende, and Will’s (2005) SmartPLS software was used. In the PLS path models, the variance in the latent variable is explained through a maximisation process through the estimation of partial model relationships using an iterative sequence of ordinary least squares regressions (Monecke & Leisch, 2012). It is grounded in the assumption that all variance should be explored and make a contribution to the

Table 2. AVEs and intercorrelations for all measures

Constructs	1	2	3	4	5	6	7
Gratitude	.73	.63	.50	.55	na	.53	.45
Optimism		.71	.47	.55	na	.57	.43
Zest			.78	.48	na	.55	.33
Persistence				.76	na	.51	.51
Covitality					na	.69	.54
School engagement						.66	.35
Pro-social behaviour							.75

Notes: Numbers in bold on the diagonal represent the square root of AVE statistics used in PLS modelling; the figures to the right of the diagonal represent Pearson correlations; na means not applicable and all correlations shown are as $p < .01$.

model (Haenlein & Kaplan, 2004). PLS path modelling is also considered to be a soft-modelling technique as it places the least possible demands on scales and sample sizes (Monecke & Leisch, 2012).

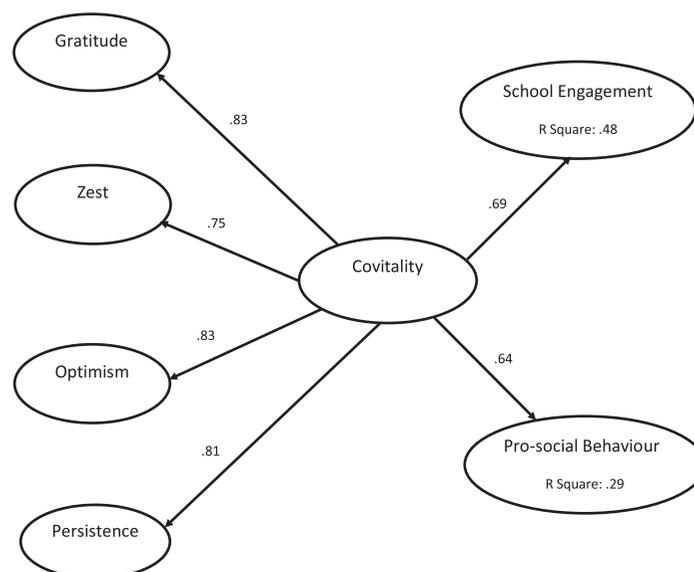
Within PLS modelling, the AVE statistic is a measure of both convergent and divergent validity. To index construct validity, the square root of the AVE should be greater than .5 and higher than correlations with other latent variables (Garson, 2014). Table 1 reveals that the AVEs for the latent independent variables meet this requirement. The latent variables in the following path models are gratitude, zest, optimism, persistence, covitality, school engagement and pro-social behaviour, where covitality was specified as a second-order or hierarchical component, defined through reflective-reflective procedures (see Hair, Hult, Ringle, & Sarstedt, 2014, p. 231).

To examine the effects of covitality on school engagement and pro-social behaviour, a path model was conducted. In relation to covitality, the 16 underpinning items of the 4 variables (gratitude, zest, optimism and persistence) mostly loaded above the accepted .70 level with only 4 of the 16 just below .67-.69, but still acceptable (Garson, 2014). In relation to the PSSM, an initial inspection of the 12 items in the current study revealed that the four reverse-scored loaded weakly onto the scale and were removed. Of these remaining eight items, three loaded acceptably above .70, while the rest loaded between .52 and .64 onto school engagement (Garson, 2014). This is not a surprising result as You et al. (2011) noted in their analysis of the PSSM that “many individual items exhibit a moderate amount of measurement error” (p. 14). However, the Cronbach alpha (Cronbach α) for all eight items was strong at .80. The pro-social sub-scale also had sound internal consistency (Cronbach’s $\alpha = .74$), with three items loading acceptably above .70 and one item loading at .64 (Garson, 2014).

The pathway from covitality to school engagement was significant and positive. Covitality accounted for 47.5% of the variance in school engagement (see Figure 1). That is, students high in covitality were more likely to have higher levels of school engagement. The pathway from covitality to pro-social behaviour was significant and positive. Overall, covitality accounted for 29% of the variance in pro-social behaviour. Overall, students with higher levels of covitality were more likely to exhibit pro-social behaviour.

The PLS modelling (via an option within SmartPLS) enabled gender to be assayed as a possible moderator of the relationship between covitality and pro-social behaviour. It was important to test for this possibility, given the manifest gender difference on the pro-social measure. This test was not significant which indicated that (1) covitality effects and gender had independent effects on

Figure 1. Path diagram showing the relationships between covitality and its underpinning variables and school engagement and pro-social behaviour.



pro-social behaviours, with path coefficients of .49 and .17, respectively, and (2) the magnitude of the relationship held equally well for both boys and girls.

4. Discussion

This study investigated the effect of gratitude, zest, optimism and persistence, termed covitality, on school engagement and pro-social behaviour using a sample of Australian primary school students. Correlation analysis demonstrated that the covitality variables, the pro-social sub-scale and the school engagement scores were all positively related to each other, suggesting that the measures used were together and independently reflecting positive constructs. Generally, gratitude was found to have a stronger relationship with the other positive psychological constructs and school engagement, while persistence had the strongest relationship with pro-social behaviour. The strong correlation effects of gratitude support previous research that suggests gratitude has a strong, positive relationship with well-being in youth populations (Bono & Froh, 2009; Froh et al., 2011; Peterson & Park, 2006).

In relation to the path model, covitality significantly predicted both school engagement and pro-social behaviour. It accounted for 47.5 and 29% of the variance in school engagement and pro-social behaviour, respectively. R squares of less than 25% are generally considered small, so these results suggest very sound predictive value (Nau, 2015). In relation to school engagement, it was strongly predicted by covitality. This contributes to the observation by You et al. (2011) that future research into school engagement needs to consider a range of latent traits that might “contribute to a broader understanding of how schools foster resilience in children’s lives” (p. 17). Furthermore, the ability of covitality to predict pro-social behaviour also adds to this broader understanding of what might be important factors in building school engagement. Generally, these results align with findings of Furlong et al. (2014), who used well-being as the dependent latent variable in relation to covitality for adolescents, where covitality was identified as a unique construct that strongly predicted well-being.

Overall, the concept of covitality as a particular combination of variables is supported when considering its predictive influence on school engagement and pro-social behaviour. This also supports research that suggests that some strengths, in isolation, can be ineffective and potentially detrimental to positive outcomes, and certain groups of character strengths are more effective in promoting health and well-being (Gillham et al., 2011; Schwartz & Sharpe, 2006). One other important result in this study was that gender did not affect the predictive influence of covitality. This aligns with Furlong et al.’s (2013) study on the development of the SEHS-E, where all the sub-scales showed full factor invariance across genders.

5. Limitations

Findings from this study are limited to the measures used and the sample of participants. Although the SEHS-E and PSSM measures have been validated in previous research as representations of the proposed constructs they assess, it needs to be considered when comparing results of this study with other findings that other research may have utilised different measures for representing similar constructs. Gratitude, optimism, zest, persistence and school engagement have had different labels and definitions and can be operationalised in slightly different ways in different surveys.

Participants in this study are a sample of those from one Catholic primary school. This may limit results, as students from this school may not reflect the diversity apparent in the wider Australian primary school community. Future research could include a more representative sample of Australian primary school students and use additional methods to self-report for measuring the variables.

6. Future research and practical application

Research has identified that positive character traits associated with beneficial outcomes are more or less predictive than others and can vary in their importance across age groups. Research by Gillham et al. (2011) directly extended on the character strengths model proposed in the VIA

handbook. They concluded that future research in the field of positive psychology in child and youth populations should explore the interactions among different strengths, to identify combinations of strengths that are most strongly associated with and predictive of well-being (Gillham et al., 2011). Covitality as a concept elaborates on existing knowledge and it makes connections between previous research findings in positive psychology that have identified the beneficial outcomes of character strengths. Research that focuses on the combined effects of character strengths, rather than the effects of single strengths alone, is the important next step for identifying which combinations of strengths are most effective for improving positive outcomes in different populations. As previous research has shown different effects for different ages, covitality should be extensively investigated in populations of varying ages, cultures and within different contexts. Covitality research that assesses combined psychological traits is valuable for increasing the knowledge around how character strengths promote positive outcomes, to support the development of more effective interventions in promoting mental health.

7. Conclusion

This research extends upon covitality research that suggests that the combination of character traits of gratitude, optimism, zest and persistence as a higher order factor predicts positive outcomes for children in the middle primary school years within a school context. More research is needed to further support this model, as this type of research is still in its early stages of development. Covitality can be seen as an important contributor to research into the interaction among different strengths. Being able to access different strengths, or combinations of strengths, may be more or less effective in predicting adaptation within different contexts.

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