The Role of Optimism and Engagement Coping in College Adaptation: A Career Construction Model

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Abstract

From the perspective of the career construction theory (Savickas, 2005, 2013), *adaptation* is fostered by *adapt-ability* resources via the process of *adapting.* Using this model, the current research tested hypotheses representing the conceptual formulation that academic and psychological adjustment (i.e., adaptation) are associated with optimism (i.e., an adapt-ability resource) via engagement coping (i.e., adapting). These hypotheses were tested in a short-term multiwave study with a sample of incoming college undergraduates (N = 236). The resultant data were largely consistent with the study's hypotheses. In structural equations analyses optimism was shown to be a direct predictor of the greater use of engagement coping, and better psychological adaptation to college transition. Further, empirical tests of mediation revealed that the relations of optimism with academic and psychological adaptation were mediated by engagement coping.

Keywords: optimism, college adaptation, coping, mediation, career construction theory

Adjustment to the first year of college challenges students because of a relatively lower level of academic structure and greater academic demands (Credé & Niehorster, 2012), increased time pressure (Park & Adler, 2003), and engagement in new relationships and social activities (Ross, Niebling, & Heckert, 1999). Failing to manage these stressors may result in diminished academic self-concept (Jackson, 2003), academic failure, distress, and attrition (Credé & Niehorster, 2012). In this paper, we address the role of optimism in adaptation to college, with a focus on factors that may mediate its potentially positive association with adaptation.

We view adaptation to college from the conceptual, integrative framework of the career construction theory (CCT) and its dimension of *career adaptability* (Savickas, 2005, 2013). Career adaptability is defined as "an individual's readiness and resources for coping with current and imminent vocational tasks, occupational transitions, and personal traumas" (Savickas, 2005, p. 51). According to CCT, career decision making, engagement, and satisfaction are influenced by a person's career adaptability. In this paper we report on research into career adaptability's contribution to students' transition to college life.

Career Adaptability and Concern

Career adaptability comprises four global dimensions and organizes them into a structural model. These dimensions represent general adaptability resources and strategies that individuals use to construct their careers as they cope with developmental tasks, occupational transitions, and work traumas. At the highest and most abstract level the four dimensions are called concern, control, curiosity, and confidence (Savickas, 2013). In this study, we chose to concentrate specifically on the concern dimension because it has traditionally been viewed as the fundamental dimension. Elements included in concern have a long-history in vocational psychology under various names such as future time

perspective, involvement, awareness, optimism, and planfulness. In more recent research, concern has been operationally-defined with a short six item scale that spans these elements (Savickas & Porfeli, 2012). However, for the present study we decided to operationally define career concern simply as optimism. Savickas and his colleagues (e.g., Savickas, Silling, & Schartz, 1984) have done this repeatedly in prior research using a scale designed to measure how optimistically individuals anticipate the future, named the Achievability of Future Goals Scales (Heimberg, 1961). Accordingly, in this paper we posit hypotheses and report on research into the direct and indirect relations of optimism—measured by a newer and better scale—with both academic and psychological adaptation to the college transition in a sample of Australian freshmen.

Optimism and Adaptation

Students who lack career concern, as optimism, should evince apathy, a lack of planning, and engagement in college life. Conversely, those students who demonstrate career concern, as optimism, should be aware of and engaged in the process of making successful occupational transitions. This should be reflected in students' academic and psychological adaptation.

Academic adaptation. We conceptualize academic adaptation as attention to and organization of study activities (Kim, Newton, Downey, & Benton, 2010). Optimism disposes an active approach towards the achievement of goals across multiple contexts (e.g., Geers, Wellman, & Lassiter, 2009; Solberg Nes, Segerstrom, & Sephton, 2005), including adjusting to college (Aspinwall & Taylor, 1992; Brissette, Scheier, & Carver, 2002) and deriving satisfaction from their studies (McIlveen, Beccaria & Burton, 2013). To the extent that optimism reflects generalized favorable outcome expectancies (Carver, Scheier, & Segerstrom, 2010), it may be expected to influence engagement and sustained effort toward successful organisation and attention to academic work.

Hypothesis 1. Optimism associates positively and directly with academic adaptation to the college transition.

Psychological adaptation. Psychological adaptation is conceptualized as affective-emotional and cognitive-evaluative well-being (Lent, 2004). Aspinwall and Taylor (1992) found that higher levels of optimism predicted higher psychological well-being and lower stress by semester's end. Furthermore, Brissette et al. (2002) reported that students higher in dispositional optimism reported smaller increases in levels of stress and depression during the first semester than their low optimism counterparts. These results have been attributed, at least in part, to (a) favorable expectancies for behavioral discrepancy reduction, thereby minimizing defeat-related negative affect, and (b) underlying attentional biases for positive stimuli (Carver et al., 2010; Isaacowitz, 2005).

Hypothesis 2. Optimism associates directly and positively with greater psychological adaptation to the college transition.

Mediational Pathways between Optimism and College Adaptation

Adapting entails active attempts to manage new career scenarios and cope with occupational transitions, effectively by deploying adaptability resources. Therefore, one pathway through which optimism may be associated with adaptation to the college transition is via engagement coping. In the terminology of CCT, *adaptation* is fostered by an *adapt-ability* resource via the process of *adapting*; in other words: academic and psychological adjustment are affected by optimism via engagement coping.

Engagement coping. There are modest-to-moderate positive associations between optimism and engagement coping in samples of first-year college students (e.g., Aspinwall & Taylor, 1992; Brissette et al., 2002). Additionally, in a recent meta-analytic review, Solberg Nes and Segerstrom (2006) obtained a modest weighted mean association between optimism and broad engagement coping (r = .15). According to Solberg Nes and

Segestrom, optimism may be a source of the disjunction between approach and avoidance behaviors, which resembles engagement and disengagement strategies. It may be that optimism promotes greater use of primary control engagement strategies because generalized positive expectancies for eventual success lead to greater engagement and increased effort to overcome adversity (Carver et al., 2010; Solberg Nes & Segerstrom, 2006). It may also be that optimists are more likely to use secondary control engagement strategies, such as cognitive restructuring, because they tend to frame even unfavorable events in a positive light (Scheier, Weintraub, & Carver, 1986). This is consistent with the dynamic interaction between vocational personality and career adaptability suggested by Savickas (2005).

Hypothesis 3. Optimism associates directly and positively with the use engagement coping.

The greater use of engagement coping may, in turn, promote better academic and psychosocial adaptation to the college transition. Although engagement coping has been consistently linked with better psychological adaptation to stressful educational transitions (e.g., Aspinwall & Taylor, 1992; Brissette et al., 2002), little attention has been paid to its role in academic adaptation. Engagement coping may reflect, in part, increased cognitive and behavioral efforts to control, change, resolve and adapt to stressors emerging from generalized expectancies for favorable adaptational outcomes (Carver et al., 2010; Scheier et al., 1986). Furthermore, specific secondary-control engagement strategies, such as cognitive reappraisal, may protect students from the pathogenic effects of acute transition stressors by modulating psychobiological responses to stressors initially appraised as threatening (Taylor & Stanton, 2007). These secondary-control strategies may also confer adaptive benefits by mobilizing more active coping efforts in response to stressful events (Carver, Scheier, & Weintraub, 1989).

Hypothesis 4. Greater use of engagement coping strategies is directly associated with better academic adaptation and with better psychological adaptation.

It is also inferred from the present evidence (taken with evidence for the link between optimism and engagement coping, as per hypothesis 3), that engagement coping may transmit the effect of optimism onto academic and psychological adaptation. These effects may be statistically evident in mediational pathways.

Hypotheses 5. Optimism associates indirectly with academic adaptation via engagement coping and with psychological adaptation via engagement coping.

The Present Study

The present study aimed to test these hypotheses in a working model derived from CCT. The model is one in which optimism is expected to associate with students' adaptation to college. Optimism should also relate to the adaptabilities of engagement coping. Theoretically, engagement coping should carry the effects of optimism to the adaptational outcomes. Thus, in the current model, engagement coping is posited to mediate the optimism-adaptation relations. In addition to empirically testing the target model reflecting partial mediation, two alternative models, nested within the target model, were specified to assess the tenability of complete mediation of the relations of optimism with academic adaptation. The first alternative model (AM1) is one in which the direct relation between optimism and academic adaptation is fixed to zero. The second alternative model (AM2) specifies a null direct relation between optimism.

Method

Sample size determination

MacCallum, Browne, and Sugawara's (1996) overall model-fit approach to sample size determination was used to estimate the minimum sample (N_{min}) required for the present covariance structure analysis. For the a priori model with 344 degrees of freedom,

given acceptable population data-model fit (i.e., root mean square error of approximation [RMSEA] = .07), 247 cases would be required to obtain adequate statistical power (π = .80) to reject the false H_0 of unacceptable fit defined as $RMSEA_0 \geq .08$.

Participants

Participants were 236 freshmen attending a medium-sized, metropolitan university in south- eastern Australia. Sixty-four percent of the participants were female. Participants were aged between 16 and 19 years, and the mean age of the participants was 17.74 years (*SD* = .68), which is demographically typical of the university's undergraduate cohort. The sample size approximates the N_{min} required as estimated using the MacCallum et al. (1996) overall fit approach. Of the 236 participants, 32.2% (*n* = 76) were matriculated in science and mathematics degree programs, 31.4% (*n* = 74) were enrolled in business degrees, 17.8% (*n* = 42) were enrolled in arts and communication degree programs, 12.7% (*n* = 30) were matriculated in nursing and midwifery degree programs, and 5.1% (*n* = 12) were enrolled in engineering and information Two participants did not report their degree program.

Procedure

Before the start of the academic year, incoming college students were recruited to participate in a longitudinal study on adjusting to the college transition. Students were advised that they would complete a series of password-protected electronic questionnaires at three time points over the first semester, corresponding to the effect priority implied in the hypothesized mediation model. During Week-One of the semester (Time 1 [T1]), an initial battery of questionnaires and electronic consent forms were administered to students. Four weeks thereafter at Week-Five of the semester (i.e., Time 2 [T2]), a second battery of questionnaires was completed, and the final battery of questionnaires was administered during mid-semester at Week-Nine (i.e., Time 3[T3]). The timing of

the measurement occasions ensured that participants had ample time to develop relationships, encounter transition stressors and cope with these stressors towards adjusting to the initial period of transition in line with the effect priority implied by the target model (Brooks & DuBois, 1995; Cutrona, 1982; Halamandaris & Power, 1997).

Measures

The substantive constructs in this study were operationalized as latent variables with between three and fourteen manifest indicators. Indicators of the latent variables are described below as a function of occasion of measurement.

Time 1

Optimism. Latent optimism was indicated using three items from the revised Life Orientation Test (LOT-R; Scheier, Carver, & Bridges, 1994). The LOT-R comprises 10 items of which six are scale items and four are filler items. Participants indicated the extent to which they agreed with each scale item on a 5-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). In the original study $\alpha = .78$; in the present sample, $\alpha = .81$. Although the LOT-R was designed to measure one dimension (optimism), recent psychometric studies of the LOT-R suggest that it is bidimensional, consisting of relatively independent optimism and pessimism factors (Herzberg, Glaesmer, & Hoyer, 2006). On the basis of this accumulating evidence, only the three positively-keyed items (items 1, 4, and 10), shown to index optimism, were used as indicators of latent optimism.

Time 2

Engagement coping. Latent engagement coping was indicated by three subscales from the COPE (Carver et al., 1989). The full-form COPE is a 60-item self-report inventory, which is responded to on a 4-point Likert-type scale ranging from 1 (*I haven't been doing this at all*) to 4 (*I have been doing this a lot*). Respondents indicate the extent

to which they have engaged in 15 different ways of coping with stressful events during a period up to the present administration. In the current study, the active coping, planning, and positive reinterpretation scales of the inventory served as manifest indicators of latent engagement coping. Because the focus of this investigation is the college transition, items were prefaced by directions asking participants to think about experiences of stressors related to college life in the first semester, such as preparing for and taking examinations or quizzes, preparing for assessment tasks, tutorials and lectures, making friends, interacting with faculty, delivering oral presentations, and class participation‖. In the original study α =.62 for active coping, α = .80 for planning, and α = .68 for positive reinterpretation. In the present sample, α =.79, α = .82, and α = .76, respectively.

Time 3

Academic adaptation. Latent academic adaptation was indexed by eight items of the Organization and Attention to Study (OAS) scale of the College Learning Effectiveness Inventory (Kim et al., 2010). The OAS consists of eight items that are rated on a five-point Likert-type scale ranging from 1 (*never*) to 5 (*always*). This self-report measure taps an academic functioning construct reflecting the extent to which respondents organize tasks and structure time to set goals, plan and attend to academic work. In the original sample α = .81; in the present sample α = .88. In the current study, participants were asked to consider their university experience over the past semester‖ in responding to the items to obtain a time-limited index of academic adjustment over the first semester extending to the present assessment.

Psychological adaptation. Latent psychological adaptation was assessed using the Warwick Edinburgh Mental Well-Being Scale (WEMWBS; Tennant, et al., 2007). The WEMWBS is a 14-item self-report measure designed to tap a single, global psychological functioning factor reflecting affective-emotional, cognitive-evaluative and

optimal functioning aspects of well-being. Respondents indicated the extent of their psychological functioning over the previous fortnight using a 5-point scale ranging from 1 (*none of the time*) to 5 (*all of the time*). Responses are summed across the 14 items to generate a total well-being score. In the original study $\alpha = .89$; in the present sample $\alpha = .92$. In the present study, all 14 items were used as manifest indicators of latent psychological adaptation.

Analytic protocol

The primary analyses in the present study involved confirmatory factor analysis (CFA) and structural equation modeling (SEM) conducted in line with the two-step modeling methodology recommended by Anderson and Gerbing (1988) using Mplus, Version 6.12 (Muthén & Muthén, 1998–2010). Robust maximum likelihood (MLR) was used to estimate all solutions, excepting bootstrapped solutions, because it produces standard errors and tests of model fit that are robust to non-normality in the presence of missing data (Yuan & Bentler, 2000). This estimation routine is appropriate where there are at least five response categories for any given scale and category thresholds are approximately symmetrical (Rhemtulla, Brosseau-Laird, & Savalei, 2012). The following indices were used to evaluate model fit: Tucker-Lewis index (TLI) and comparative fit index (CFI), > .90 and .95 for acceptable and excellent fit, respectively; RMSEA, < .05 and .08 for close and reasonable fit, respectively; standardized root mean residual (SRMR), ≤ .08 (Bentler, 1990; Hu & Bentler, 1999; Marsh, Hau & Wen, 2004). In addition, the MLR χ^2 test statistic is reported. The Satorra-Bentler scaled χ^2 difference test (TRd) was used for nested model comparisons with a stringent alpha criterion (< .01). A bootstrap procedure with 10,000 resamples was used for tests of mediation. In terms of testing the null hypothesis of no indirect effect using the bootstrap procedure, the H_0 is rejected at $\alpha = .05$ if zero is not included in the lower and upper bounds of the 95% bias-

corrected confidence interval (Perera, 2013).

Results

Preliminary Analyses

No univariate outliers across the 28 indicators were identified via inspection of standardized scores; however, the squared Mahalanobis distance showed one case to be a multivariate outlier ($D^2_{(28)} = 67.06$, $p < .001$), which was removed. Therefore, the final $N = 235$.Table 1 presents the means, standard deviations and zero-order correlations for these 28 observed variables. In addition, Table 1 shows the percentage of missing data across the observed indicators. In general, there was a moderate amount of missing data due primarily to participant attrition over the three waves of data collection. Little's (1988) omnibus statistical test of the tenability of the missing completely at random (MCAR) assumption, x^2 (196) = 181.556, $p = .76$, revealed that the pattern of missingness is consistent with the MCAR mechanism. Thus, the full information maximum likelihood (FIML) routine for missing data, operationalized via the Mplus MLR estimator, was used for model estimation (Schafer & Graham, 2002). Covariance coverage under the FIML routine ranged from 63% to 100%. Finally, Mardia's normalized multivariate kurtosis estimate exceeded the recommended cut-off of three (Mardia's coefficient = 8.83; Bentler & Wu, 2002) as did Yuan, Lambert, and Fouladi's (2004) normalized coefficient of kurtosis estimate of 40.16. Therefore, robust maximum likelihood estimation was used for fitting all models, excepting bootstrapped solutions.

INSERT TABLE 1 ABOUT HERE

Measurement Model

A four-factor CFA was conducted in which all latent variable covariances were freely estimated to establish the measurement model of the 28 indictors. The initial test of this model resulted in a marginally acceptable fit to the data (see Table 2). Inspection of

the standardized residual covariance matrix revealed three substantial areas of strain.

Specifically, the sample covariances between item six and item seven of the OAS scale and items 12 and nine and items 13 and four of the WEMWBS were not adequately explained by their latent factors. Modification indices (MI) supported this initial diagnosis, suggesting that model fit could be significantly improved via specification of error covariances for the items. Theoretically, these respecifications are plausible due to potential method effects emerging from highly, similarly-worded items, representing non-random error (Byrne, Shavelson, & Muthén, 1989) contained in the items (e.g., I find myself daydreaming when I study, I find my attention wandering in class, I've been feeling interested in other people, I've been interested in new things). The stepwise specification of each residual covariance resulted in statistically significant improvements in fit for each respecification (see Table 2). The final measurement model, with three error covariances, provided an acceptable fit to the data (Table 2). All 28 loadings of the manifest indicators on the four latent variables were uniformly moderate-to-high as shown in Table 3, suggesting that the latent variables appear to have been adequately operationalized by their respective indicators.

INSERT TABLE 2 ABOUT HERE

INSERT TABLE 3 ABOUT HERE

Structural Model

As expected, the initial, structurally saturated, a priori model reflecting partial mediation with direct paths from optimism to the adaptational outcomes and indirect paths through engagement coping provided an identical fit to the sample data as the final measurement structure. A disturbance covariance for the endogenous latent outcome was freely estimated because it was assumed that academic and psychological adaptation share at least one omitted cause not specified in the present model (Kline, 2012). The fit of the

target model was compared to a more parsimonious, theoretically-plausible, parametric structure AM1 in which the direct relation between optimism and academic adaptation was constrained to zero. Theoretically, this is an important model comparison because it elucidates whether engagement coping partially or fully mediates the association of optimism with academic adaptation. The restricted alternative model also provided an acceptable fit to the sample data, MLR χ^2 (342, N = 235) = 525.98, p < .001, RMSEA = .05 (90% CI = .04, .06), CFit = .66, CFI = .91, SRMR = .07, and notably did not result in a statistically significant decrement in fit relative to the more complex model, TRd (1, N = 235) = 2.07, p > .05. On this basis, the more parsimonious model was retained.

A second alternative parametric structure AM2 was examined to determine whether the specification of a completely mediated optimism-psychological adaptation link provides a better account of the observed covariances than the retained model. In this model, the direct path from optimism to psychological adaptation was constrained to zero. This alternative model also provided an acceptable fit to the data, MLR χ^2 (343, N = 235) = 558.42, p < .001, RMSEA = .05 (90% CI = .04, .06), CFit = .35, CFI = .90, SRMR = .08. However, a nested model comparison revealed a statistically significant decrement in the fit of this constrained solution relative to AM1, TRd (1, N = 235) = 2.07, p < .001. On the basis of this result, the less-restrictive AM1 solution was retained for further analysis and interpretation. The final structural model with standardized path coefficients is displayed in Figure 1.

No support was found for hypothesis 1 as the model solution constraining the optimism to academic adaptation path at zero did not result in a statistically significant decrement in fit relative to the more complex model freely estimating this path. However, consistent with hypothesis 2, greater optimism was directly associated with better psychological adaptation to the college transition. Support was also found for hypothesis 3

as greater optimism predicted the greater use of engagement coping. Further, in line with hypotheses 4 engagement coping prospectively predicted greater academic and psychological adaptation.

INSERT FIGURE 1 ABOUT HERE

Indirect relations. As shown in Table 4, both of the hypothesized indirect relations were statistically significant as tested via the bootstrap procedure. Consistent with hypothesis 5, higher optimism was indirectly associated with better academic and psychological adaptation via the greater use of engagement coping strategies.

INSERT TABLE 4 ABOUT HERE

Discussion

The results of this study replicated commonly reported findings suggesting that optimism is related to (a) the greater use of engagement coping to manage stressors (Solberg Nes & Segerstrom, 2006), and (b) better psychological adjustment to stressful events (Carver et al., 1993; Brissette et al., 2002). This study also found that greater optimism associated with better academic adaptation to college transition. In addition, the findings of the present study extend the coping and adaptation literature by showing that the freshmen who used more engagement coping strategies to manage collegiate transition stressors were more likely to report later academic adaptation. Conceptually, the results provide partial support for the career construction theory with respect to the purported relations among career adaptability, adapting, and adaptation. Specifically, engagement coping (as adapting) fully mediated the effect of an adapt-ability resource (i.e., concern/optimism) on academic adaptation, and partially mediated its association with psychological adaptation.

The present research also contributes to a growing body of literature examining mediators of the associations of optimism with adaptational outcomes (see e.g., Aspinwall

& Taylor, 1992; Brissette et al., 2002; Carver et al., 1993). Freshmen who were higher in optimism reported the greater use of engagement strategies to cope with collegiate stressors, which, in turn, predicted better academic adaptation to the college transition. Consistent with expectancy-value models of behavioral self-regulation, it may be that engagement coping reflects, in part, active engagement in efforts to attain high-priority academic goals mobilized by generalized positive expectancies when confronting adversity (Carver et al., 2010; Solberg Nes & Segerstrom, 2006). This result is important because it enriches an understanding of the mechanisms that drive the associations of optimism with adaptational outcomes. Further, this mediational result underpins the importance of coping as an antecedent of adaptation, and also as a potential portal for structured psychosocial interventions, such as coping- effectiveness training designed to optimize adaptation during key life transitions (Folkman & Moskowitz, 2004; Taylor & Stanton, 2007).

It is interesting to note that the retained structural model reflects a partial mediation of the optimism-psychological adaptation relationship. This result raises the possibility of further mediational mechanisms underlying the relation of optimism with psychological adaptation. Future investigators are encouraged to harness this finding and examine further plausible mediators of this relation, in the service of advancing understanding of the role of optimism in adjusting to stressful life events and occupational transitions.

Practice Implications

Considered from the perspective of career construction theory (Savickas, 2005, 2013), the results of this study confirm that optimism is an important because of its prospective associations with academic adjustment and psychological adjustment. Therefore, framing career counseling interventions within career construction theory may entail the enhancement of optimistic narratives that enable a person to better recruit his or

her adaptive resources for coping with the transition to college. Following Savickas's (2011) career counseling model, for example, and by using tools such as My Career Story (Savickas & Porfeli, 2012), a client may be encouraged to talk about and write about a success formula that includes an optimistic future orientation and affirmative statements of engaging behavior that progresses the client toward his or her goals. Thus, instead of just counsel the client to enhance coping skills per se, this approach includes the potential of his or her career optimism.

Limitations

The current study did not control for prior level of the mediators and adaptational outcomes. Although the relationships observed in this study are consistent with the directional hypotheses advanced, the present data cannot determine whether optimism predicted changes in coping and adaptation, which would provide stronger support for directional and even causal inferences (Maxwell & Cole, 2007). This is because initial or baseline measures of the endogenous mediators and outcomes were not administered to participants at T1.

Conclusion

In summary, the evidence acquired from the present study suggests that optimists experience better adaptation to the college transition, at least in part, as a result of the engagement coping strategies they use to manage stressors. Taken together, these findings extend previous studies on optimism by elucidating a key pathway through which optimism is linked with both academic adjustment and psychological adjustment to the college transition using empirical significance tests of mediation. Tests of alternative model specifications, reflecting completely versus partially mediated links, however, suggest that there are likely to be other mediators of the relationship of optimism with psychological adjustment. Greater insights into the role of optimism in adjusting to stressful life events will

likely emerge as researchers begin to examine further mediators of this relationship across a range of stressful events.

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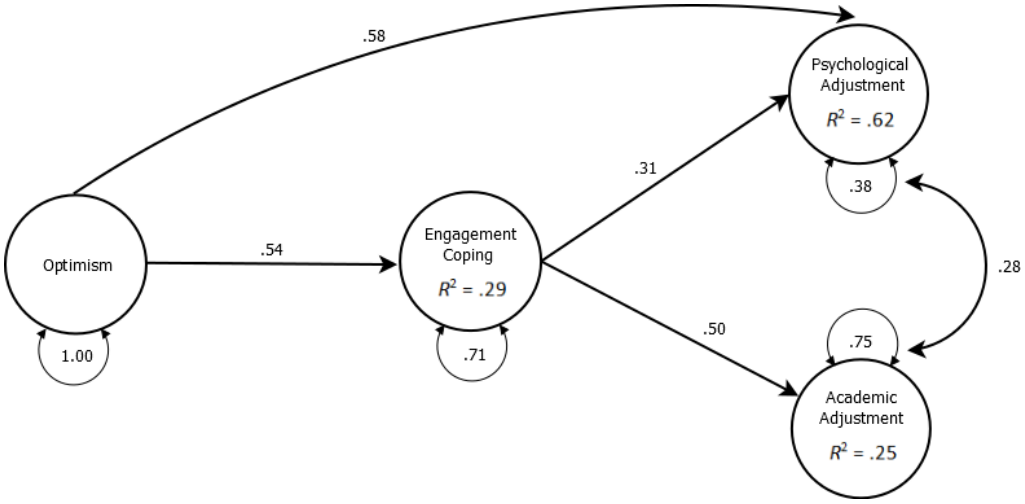

Figure 1. The retained structural model with standardized estimates. All paths are significant at $p < .01$.

Table 1

Descriptive Statistics, Percentage of Missing Data and Zero-Order Correlations for the 28 Observed Variables

Variable	M	SD	% Miss	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Lot 1	3.27	1.23	0.00	–															
2. Lot 4	3.93	1.08	0.00	.41	–														
3. Lot 10	3.81	1.18	0.00	.28	.47	–													
4. Active	10.06	2.73	19.57	.16	.35	.23	–												
5. Plan	10.35	2.97	18.72	.20	.28	.29	.62	–											
6. Positive	11.67	2.69	18.30	.25	.36	.25	.53	.66	–										
7. OAS–1	3.11	1.05	27.66	.02	.20	.17	.40	.29	.18	–									
8. OAS–2	2.92	1.01	27.66	.00	.24	.21	.42	.34	.29	.72	–								
9. OAS–3	3.26	1.12	27.66	–.04	.15	.22	.30	.18	.08	.64	.59	–							
10. OAS–4	3.20	1.06	27.66	.06	.30	.26	.28	.26	.18	.59	.62	.48	–						
11. OAS–5	2.80	1.06	28.09	.04	.31	.20	.42	.30	.27	.60	.59	.55	.49	–					
12. OAS–6	2.65	0.96	27.66	.05	.28	.14	.28	.10	.06	.51	.49	.41	.43	.57	–				

13. OAS–7	2.62	0.98	27.66	.07	.20	.01	.28	.07	.03	.33	.30	.31	.19	.44	.51	–		
14. OAS–8	3.35	1.06	27.66	.13	.31	.29	.36	.23	.22	.43	.49	.26	.42	.37	.36	.33	–	
15. WEM–1	3.70	0.91	27.66	.21	.60	.46	.32	.30	.45	.26	.32	.16	.35	.37	.26	.17	.36	–
16. WEM–2	3.39	0.95	27.66	.17	.45	.41	.40	.39	.54	.37	.43	.27	.31	.43	.33	.19	.30	.68
17. WEM–3	2.99	0.99	28.09	.15	.42	.30	.21	.12	.29	.25	.20	.18	.22	.31	.25	.24	.23	.53
18. WEM–4	3.66	0.89	27.66	.05	.32	.22	.38	.34	.39	.16	.26	.05	.16	.20	.03	.10	.30	.48
19. WEM–5	3.01	1.04	27.66	.04	.23	.26	.27	.17	.22	.21	.13	.14	.14	.18	.14	.07	.17	.39
20. WEM–6	3.43	0.91	27.66	.19	.39	.39	.16	.17	.33	.22	.30	.18	.28	.26	.21	.11	.29	.44
21. WEM–7	3.44	0.84	28.08	.10	.40	.30	.32	.25	.35	.46	.37	.35	.38	.48	.40	.31	.32	.58
22. WEM–8	3.45	0.94	27.66	.21	.52	.42	.42	.36	.53	.24	.32	.20	.26	.35	.25	.20	.25	.63
23. WEM–9	3.49	0.97	27.66	.12	.40	.26	.42	.37	.45	.17	.29	.11	.22	.28	.14	.12	.34	.51
24. WEM–10	3.41	0.96	27.66	.29	.50	.41	.43	.37	.47	.19	.29	.13	.17	.28	.21	.23	.23	.57
25. WEM–11	3.69	1.01	27.66	.07	.25	.38	.27	.29	.25	.18	.27	.25	.26	.34	.29	.20	.26	.44
26. WEM–12	3.65	1.11	28.51	.06	.42	.31	.35	.24	.31	.15	.22	.16	.18	.24	.16	.18	.26	.45
27. WEM–13	3.63	1.03	27.66	–.02	.35	.28	.25	.36	.36	.19	.27	.09	.27	.20	.07	.11	.24	.54
28. WEM–14	3.63	0.88	27.66	.15	.47	.35	.24	.20	.30	.15	.23	.16	.25	.20	.25	.20	.22	.61

Variable	17	18	19	20	21	22	23	24	25	26	27	28
17. WEM–3	–											
18. WEM–4	.27	–										
19. WEM–5	.46	.24	–									
20. WEM–6	.46	.21	.31	–								
21. WEM–7	.54	.29	.43	.52	–							
22. WEM–8	.57	.44	.40	.47	.61	–						
23. WEM–9	.40	.54	.35	.41	.40	.52	–					
24. WEM–10	.52	.39	.33	.42	.55	.69	.57	–				
25. WEM–11	..33	.24	.28	.27	.46	.49	.38	.43	–			
26. WEM–12	.37	.44	.26	.24	.32	.49	.62	.47	.46	–		
27. WEM–13	.39	.51	.27	.29	.36	.41	.48	.35	.31	.47	–	
28. WEM–14	.53	.38	.40	.34	.49	.70	.53	.59	.45	.53	.45	–

Note. N = 235. Active = Active coping indicator; Plan = Planning indicator; Positive = Positive reinterpretation indicator; % Miss = percentage of missing data for each indicator. Means, standard deviations and correlations are FIML sample statistics. Absolute values of correlations

greater than .13 were significant at $p < .05$.

Table 2

Summary of Model-Data fit for the Measurement Model

Model	MLR χ^2	*df*	TRd	Δ*df*	Sig.	RMSEA	90% CI	CFit	CFI	SRMR
Null model	2488.75	378								
Initial 4-factor model	577.82	344				.05	.05, .06	.20	.89	.07
4-factor with $\theta_{26,23}$ free	556.49	343	21.97	1	< .001	.05	.04, .06	.37	.90	.07
4-factor with $\theta_{13,12}$ free	537.09	342	18.35	1	< .001	.05	.04, .06	.55	.91	.07
4-factor with $\theta_{27,18}$ free	523.73	341	10.13	1	< .01	.05	.04, .06	.67	.91	.07

Note. *N* = 235. MLR = robust maximum likelihood estimation; TRd = Satorra-Bentler scaled χ^2 differences text; Δ*df* = degrees of freedom change; Sig = significance level associated with the TRd; RMSEA = root mean square error of approximation; 90% CI = confidence interval for the RMSEA; CFit = statistical test of close fit associated with the RMSEA; CFI = comparative fix index; SRMR = standardised root mean square residual.

Table 3

Factor Loadings for the Observed Indicators

Latent variable and indicators	λ	λ_{cs}	*SE*[a]	*Z*[a]
Optimism (*H*[c] = .74)				
Lot 1	1.00[b]	.45	.07	6.09
Lot 4	1.62	.82	.06	14.65
Lot 10	1.28	.60	.06	9.34
Engagement coping (*H* = .83)				
Active coping	1.00[b]	.74	.06	13.26
Planning	1.21	.82	.04	20.48
Reinterpretation	1.04	.78	.04	17.69
Academic Adjustment (*H* = .90)				
OAS–1	1.00[b]	.84	.03	26.88
OAS–2	0.96	.84	.03	27.17
OAS–3	0.88	.70	.04	16.08
OAS–4	0.85	.71	.04	16.66
OAS–5	0.89	.74	.04	18.61
OAS–6	0.68	.63	.05	12.94
OAS–7	0.46	.42	.07	5.80
OAS–8	0.64	.54	.06	8.76
Psychological Adjustment (*H* = .93)				
WEM–1	1.00[b]	.80	.03	24.15
WEM–2	0.98	.75	.04	18.24

WEM–3	0.91	.67	.05	13.66
WEM–4	0.67	.54	.06	8.64
WEM–5	0.73	.51	.08	6.60
WEM–6	0.69	.55	.07	7.92
WEM–7	0.84	.72	.05	15.13
WEM–8	1.08	.84	.03	28.71
WEM–9	0.89	.67	.04	15.31
WEM–10	1.02	.77	.04	21.47
WEM–11	0.80	.58	.06	9.70
WEM–12	0.93	.61	.06	10.86
WEM–13	0.81	.57	.05	10.99
WEM–14	0.91	.75	.04	18.91

Note. $N = 235$. λ = unstandardized factor loading; λ_{cs} = completely standardized factor loading. [a] These values are based on standardized estimates. [b] These loadings were fixed to 1.00 to establish the metric of the latent variable. [c] H = Hancock and Mueller's (2001) maximal construct reliability coefficient. All factor loadings are significant at $p < .001$.

Table 4

Bootstrap Estimates of the Indirect Effects and associated Bias-Corrected 95% Confidence Intervals

Effect	Predictor		Mediator Variable		Outcome	ab_{cs}	*ab*	BC 95% CI for mean *ab*[a]
$\gamma_{11}\beta_{21}$	Optimism	→	Engagement coping	→	Academic Adjustment	.27	0.43	0.22, 0.82*
$\gamma_{11}\beta_{31}$	Optimism	→	Engagement coping	→	Psychological Adjustment	.17	0.21	0.06, 0.43*

Note. N = 235. *ab* = unstandardized indirect association; ab_{cs} = completely standardised indirect association; BC = bias corrected; CI = confidence interval. [a] The values are based on unstandardized path coefficients. * This 95% confidence interval excludes zero; therefore, the indirect relation is significant at $p < .05$.