Running head: TEI AND ACADEMIC PERFORMANCE

The Role of Trait Emotional Intelligence in Academic Performance during the University Transition: An Integrative Model of Mediation via Social Support, Coping and Adjustment

Harsha N. Perera

University of Southern Queensland

&

Michelle DiGiacomo

University of Technology Sydney

Harsha N. Perera, School of Linguistics, Adult and Specialist Education, University of Southern Queensland, Toowoomba, Australia; Michelle DiGiacomo, Faculty of Health, University of Technology Sydney, Sydney, Australia. Correspondence regarding this article should be addressed to Harsha N. Perera, School of Linguistics, Adult and Specialist Education, University of Southern Queensland, Toowoomba, Australia. Email: Harsha.Perera@usq.edu.au.

Please cite as Perera, H. N., & DiGiacomo, M. (2015). The role of trait emotional intelligence in academic performance during the university transition: An integrative model of mediation via social support, coping and adjustment. *Personality and Individual Differences*. doi: 10.1016/j.paid.2015.04.001

Abstract

The authors propose conceptual models linking trait emotional intelligence (TEI) with achievement both directly and indirectly via perceived social support (PSS), engagement coping (EC), and adjustment, in the context of the university transition. The models were tested in a multiwave design with a sample of incoming Australian undergraduates (N = 470). In structural equation analyses, TEI was found to be a direct predictor of higher PSS and the greater use of EC strategies. Further, mediation analyses revealed that TEI was indirectly associated with academic adjustment via EC and psychological adjustment via EC and PSS operating in parallel. TEI was also found to be indirectly associated with achievement via EC and academic adjustment linked serially in a three-path mediated sequence. These direct and indirect relations were robust when controlling for known confounding influences. The empirically supported mediating processes extend the literature by elucidating some of the pathways through which TEI is linked with better adjustment and achievement.

There is considerable interest in the role of trait emotional intelligence (TEI) in academic performance (AP). From the TEI theory perspective, TEI refers to affective dispositions and self-perceptions located at the lower stratums of personality frameworks. These dispositions and self-perceptions reflect typical patterns of feelings, thoughts and behaviors related to the perception, regulation, management, and expression of emotion-related information as well as self-control, self-motivation, and optimistic dispositions (Petrides, 2011). Higher TEI has been linked to AP across several educational settings (Perera & DiGiacomo, 2013) as well as specific educational stressors (Parker, Summerfeldt, Hogan, & Majeski, 2004). However, the pathways by which TEI is associated with AP have received only little investigation.

The present research is designed to address these gaps in the TEI literature. Specifically, we test a conceptual model linking TEI, perceived social support (PSS), engagement coping (EC), adjustment, and AP. The present model specification is conceptually predicated on models of personality processes in AP posited by Matthews, Zeidner, and Roberts (2006). According to these models, dispositional constructs influence the cognitive-social and self-regulative strategies that people use to manage environmental demands, which, in turn, influence their adjustment and AP. We test this model and plausible alternatives in the context of the university transition— a typically stressful life event, involving the experience of novel academic and social challenges in the first term of university study.

TEI and AP

Although TEI theory posits null effects of TEI on cognitive abilities, at least small associations of TEI with AP are expected as emotion-related personality traits may play a role in meeting the demands of educational environments (Petrides, Frederickson, & Furnham, 2004; Sanchez-Ruiz, Mavroveli, & Poullis, 2013). Consistent with this theorizing, meta-analytic evidence affirms that TEI and AP are modestly, but non-trivially, positively related

(Perera & DiGiacomo, 2013; Richardson, Abraham, & Bond, 2012). Furthermore, in the context of the university transition, and the university environment more generally, TEI has been found to be positively associated with GPA (Parker et al., 2004; Sanchez-Ruiz et al., 2013). This positive association may be attributed, in part, to a direct pathway involving emotion regulation dispositions. A propensity for regulating emotion among high TEI individuals may foster AP by minimizing susceptibility to the deleterious effects of negative emotions on cognitive functioning in stressful academic settings (Perera & DiGiacomo, 2013). Furthermore, emotional self-efficacy may play a role in emotional self-management in academic activities (Qualter, Gardner, Pope, Hutchinson, & Whiteley, 2012). Notwithstanding these arguments and evidence for a positive link, several studies have reported null or near null associations. However, inconsistent or null total effects do not preclude the possibility of important indirect relations.

Distal Mediational Pathways

TEI may be indirectly associated with AP during the university transition. One potential mediating mechanism linking TEI with AP is academic adjustment (AA). AA is defined as positive academic functioning, involving engagement in academic activities (e.g., preparing for exams and assignments, regular coursework study, organizing class information; Perera & McIlveen, 2014). There are at least two plausible explanations for an association: (a) it may be that TEI dispositions (e.g., self-motivation) foster the mobilization of effort to engage in tasks (Akhtar, Boustani, Tsivrikos, & Chamorro-Premuzic, 2015): and (b) self-control dispositions among high TEI individuals could offset the influence of externally-elicited motives on behavior, thereby sustaining engagement notwithstanding exposure to transition stressors (Perera & DiGiacomo, 2013). To the extent that people engage in academic activities, they may be expected to perform better than those who are less engaged (Credé & Niehorster, 2012).

Psychological adjustment (PA) to the transition may be a second pathway linking TEI and AP. PA is defined as optimal psychological functioning. Higher TEI has been consistently linked to indices of better PA (Jacobs, Sim, & Zimmerman, 2015; Martins, Ramalho, & Morin, 2010). TEI may moderate pathogenic biological responses and minimize susceptibility to mood deterioration under stressful condition, thereby preserving psychological functioning in the face of adversity (Mikolajczak, Petrides, Coumas, & Luminet, 2009). In addition, research suggests that individuals who are psychologically well-adjusted to the university transition perform academically better than those who are poorly adjusted (Credé & Niehorster, 2012).

Proximal Mediational Pathways

There may also be proximal mediating mechanisms by which TEI promotes adjustment and, in turn, achievement. Extant literature points to EC as a self-regulative mechanism that mediates the link from TEI to adjustment (Downey et al., 2010) and perhaps, in turn, achievement. EC refers to active attempts to manage a stressful situation, involving both primary and secondary control strategies (Connor-Smith & Flachsbart, 2007). Research demonstrates that high TEI individuals are more likely to report the use of engagement strategies (Mikolajczak, Nelis, Hansenne, Quoidbach, 2008; Petrides, Pita, & Kokkinaki, 2007). Among those high on TEI, an optimistic disposition may promote the greater use of primary control engagement strategies because positive expectancies for eventual success lead to greater engagement and increased effort to overcome adversity (Carver, Scheier, & Segerstrom, 2010). Biologically-based motivation systems underlying TEI dispositions (e.g., self-motivation, assertiveness) may also serve as regulatory guides for approach behavior and the engagement of attention, which may be psychologically manifested as EC efforts when confronting adversity. The greater use of EC, initiated by TEI in response to stress may lead to better AA and, conceivably, in turn, achievement (Leong, Bonz, & Zachar, 1997).

PSS constitutes a second proximal mediating pathway through which TEI may foster adjustment and, in turn, achievement (Kong, Zhao, & You, 2012). TEI has been consistently linked to greater PSS across university samples (Kong et al., 2012). These findings may be attributed to dispositional emotion expressivity and perception among those high on TEI, which sustains the flow of emotion-based communication between social partners in ways that enhance the individual's ability to identify, develop and maintain supportive social relationships (Perera & DiGiacomo, 2013). Furthermore, students reporting higher PSS have been shown to experience better PA (Brissette, Scheier, & Carver, 2002), which may, in turn, foster higher achievement.

The Hypothesized Model

Based on the preceding rationale and evidence reviewed, we specified and tested a mediation model implying the following hypotheses:

Hypothesis 1 (*H*1). TEI is directly associated with (a) PSS, (b) EC, (c) AA, (d) PA, and (e) AP.

Hypothesis 2 (*H*2). TEI is indirectly associated with PA via (a) PSS and (b) EC.

Hypothesis 3 (*H*3). TEI is indirectly associated with AA via EC.

Hypothesis 4 (*H*4). TEI is indirectly associated with AP via (a) EC and AA linked serially, (b) EC and PA linked serially, and (c) PSS and PA linked serially in three-path mediated sequences.

In addition, three alternative models were tested to assess the tenability of complete mediation of the relations of TEI with (a) AP, (b) PA and (c) AA. The retained model was further tested, controlling for the effects of extraversion and neuroticism, which share considerable conceptual ground with TEI (Petrides et al., 2007), that may also be implicated in the prediction of PSS, EC (Connor-Smith & Flachsbart, 2007), PA, and AA (Lidy & Kahn, 2006).

Method

Participants and Procedure

Participants were 470 freshmen enrolled at an Australian university. The mean age of the participants was 17.78 (SD = .72; 61.7% female). Data were collected in four waves consistent with the temporal ordering of constructs implied by the target model. Time one data were collected during the first week of the first semester via online measures of TEI and the covariates neuroticism and extraversion. Four weeks later (Time 2), online measures of PSS and EC were completed by the same participants. At mid-semester (Time 3), a third online battery of measures of AA and PA was administered. The final wave of measurement (Time 4) involved the retrieval of semester-end academic transcripts from the university registrar. The timing of the waves of measurement ensured that students had adequate time to develop relationships and encounter transition stressors.

Measures

TEI. Latent TEI was estimated as a second-order factor from items in the Trait Emotional Intelligence Questionnaire-Short-Form (TEIQue-SF) (Petrides, 2009). The TEIQue-SF is a 30-item self-report inventory, rated on a 7-point Likert-type scale, designed to measure global TEI in line with TEI theory, but can yield scores on the dispositional Well-being, Emotionality, Sociability, and Self-control subscales. The internal consistency for the 30-item composite in the present sample was good ($\alpha = .886$).

PSS. Latent PSS was estimated as a second-order factor from items in the Social Provisions Scale (SPS) (Cutrona & Russell, 1987). This 24 item inventory, rated on a 4-point Likert-type scale, measures the extent to which respondents perceive their social relationships as providing social support. The SPS yields a total PSS score as well as subscale scores on the following six social provisions: attachment; social integration; reassurance of worth;

reliable alliance; guidance; and opportunity for nurturance. The internal consistency for the 24-item total score in this sample was good (α = .921).

EC. Latent EC was estimated as a second-order factor using items from the Active Coping, Planning, and Positive Reinterpretation scales of the COPE inventory (Carver, Scheier, & Weintraub, 1989). The COPE is a 60-item self-report inventory, rated on a 4-point Likert-type scale, measuring 15 ways of coping with stressful events. In the current study, internal consistency reliabilities for the 4-item Active Coping (α = .774), Planning (α = .802) and Positive Reinterpretation (α = .739) scales were acceptable. As the context of this investigation is the university transition, items were prefaced with directions asking participants to "think about experiences of stressors related to university life in the first semester".

AA. Latent AA was estimated from all items in the Organization and Attention to Study (OAS) subscale of the College Learning Effectiveness Inventory (Kim, Newton, Downey, & Benton, 2010). The OAS consists of eight items, rated on a 5-point Likert-type scale, which operationalizes the extent to which individuals are engaged with academic work. In the current study, the internal consistency for the eight-item total score was good (α = .861).

PA. Latent PA was estimated using all items from the Warwick-Edinburgh Mental Well-Being Scale-Short Form (SWEMWBS; Stewart-Brown et al., 2009). The SWEMWBS is a seven-item instrument, rated on a five-point Likert-type scale, designed to measure psychological well-being over the preceding two weeks. In the present sample, the internal consistency for the seven-item composite was acceptable (α = .84).

AP. First semester GPA was used as a reliability-corrected single indicator of pseudo latent academic achievement. The best available estimate of the reliability of freshman GPA (α = .84), obtained from Bacon and Bean (2006), was used.

Covariates. The Big-Five Inventory (BFI) (John, Donahue, & Kentle, 1991) was used to measure extraversion and neuroticism as observed exogenous covariates. The internal consistencies for these scales in the current sample were acceptable (α = .87 for extraversion; α = .82 for neuroticism).

Statistical Analyses

Analyses involved confirmatory factor analysis and structural equation modeling using Mplus 7.3 (Muthén & Muthén, 1998-2014). A 19-factor CFA model was specified to test the postulated measurement structure underlying the indicators. For the indicators of TEI, 15 sets of correlated uniquenesses were specified to account for potential local dependence generated by item-clustering due to unmodeled facet structures (Perera, 2015). For the indicators of EC, AA and PA, two, one and six sets of correlated residuals were specified, respectively, to account for potential methods effects emerging from highly similar item-phrasings representing possible systematic covariance (e.g., "I find myself daydreaming when I study, I find my attention wandering in class"; a full list of correlated residuals is available from the first author by request). The structural models were subsequently tested.

Models were estimated using robust diagonal weighted least squares with a mean-and-variance adjusted test statistic. For model fit assessment, we did not rely on the χ^2 test given its sample size dependency and restrictive hypothesis test; rather, three fit indices were used as follows: comparative fit index (CFI) and Tucker-Lewis Index (TLI), > .90 and .95 for acceptable and excellent fit, respectively; and RMSEA, < .05 and < .08 for close and reasonable fit, respectively (Marsh, Hau, & Wen, 2004). For nested model comparisons, we relied on changes in the CFI (ΔCFI) and RMSEA (ΔRMSEA) because the corrected χ^2 difference test (MD χ^2) is sensitive to trivial differences in large samples. A decrease in the CFI and increase in RMSEA of less than .010 and .015, respectively, are indicative of support for a more parsimonious model (Chen, 2007). For tests of indirect associations, the bootstrap

procedure was implemented with 2000 resamples (Perera, 2013). Finally, covariate effects were controlled through the conduct of a separate conditioned model analysis in which the final unconditioned model was estimated conditioned on the observed exogenous covariates. Consistent with prior research, the covariates were included in the regression equations predicting PSS, EC, PA and AA; however, as per Mplus defaults, the covariate means, variances and covariances were not estimated model parameters.

Results

Diagnostics

There was a moderate amount of missing data due primarily to participant attrition (0.4%–25.3%). A test of the missing data without covariates revealed a haphazard mechanism underlying the missingness, χ^2 (3555) = 3865.747, $p > .05$. Accordingly, pairwise present methods were used in the unconditioned models. In the conditioned analysis, missingness was permitted to be a function of the observed covariates. Sample estimates of polychoric and polyserial correlations for the 84 manifest indicators can be obtained via request from the first author.

Measurement Model

The 19-factor measurement model provided an acceptable fit to the data, χ^2 (3188) = 4874.825, $p < .001$, RMSEA = .034 (90% CI = .032, .035), CFI = .918, TLI = .914. Ninety-four of the 95 standardized factor loadings were moderate to large and statistically significant (λ = .197–.974, $p < .001$, Mean = .690). Only the loading of SPS-7 on Opportunity for Nurturance was small (λ = .132, p = .060), though it did approach significance (the factor loading matrix can be obtained from the first author by request). Given the adequacy of the measurement model, the target and alternative parametric structures were examined.

Structural Model

The target structural model was specified with freely estimated disturbance covariances for the endogenous mediators because it was assumed that (a) PSS and EC and (b) PA and AA share at least one omitted "cause" not specified in the present model (Kline, 2012). As shown in Table 1, this model provided an acceptable fit to the data. The fit of this model was compared to a more parsimonious model, AM1, in which the direct path from TEI to AP was fixed to zero. AM1 also provided an acceptable fit to the data and, notably, did not result in a decrement in fit relative to the target structure, and was thus retained. Next, we compared the fit of AM1 to an even more restrictive model, AM2, in which the direct link from TEI to PA was constrained to zero. AM2 provided an acceptable fit to the data and no appreciable decrement in fit relative to AM1, and was thus supported. The retained AM2 solution was compared to a final alternative structure, AM3, specifying a null direct path from TEI to AA. The test of AM3 resulted in a reasonable fit to the data and no appreciable degradation in fit relative to AM2. On this basis, the more parsimonious solution was retained as the final model (see Figure 1). Support was found for H1a and H1b as TEI was directly and positively associated with PSS and EC, respectively. However, no support was found for H1c, H1d and H1e as an alternative structure constraining to zero the direct paths from TEI to AA, PA and AP was retained.

INSERT TABLE 1 ABOUT HERE

INSERT FIGURE 1 ABOUT HERE

Indirect Pathways

Four of the six hypothesized indirect associations were statistically significant as tested via the bootstrap procedure (see Table 2). Consistent with H2a and H2b, there were statistically significant positive indirect associations of TEI with PA via PSS and EC, respectively. Support was also found for H3 as higher TEI was indirectly and significantly associated with better AA via greater EC. Furthermore, in line with H4a, higher TEI was

indirectly and significantly associated with higher AP via the greater use of EC and better AA linked serially. However, H4b and H4c were not supported.

INSERT TABLE 2 ABOUT HERE

Conditioned Analysis

In the conditioned model analysis, TEI continued to show statistically significant and positive (standardized) associations with PSS ($\gamma = .474$, $p < .001$) and EC ($\gamma = .568$, $p < .001$), though these effects were smaller in magnitude relative to those obtained in the unconditioned solution. In terms of the indirect pathways, the standardized indirect associations of TEI with PA via PSS ($\gamma\beta = .138$, 95% BC CI = .064, .212) and EC ($\gamma\beta = .197$, 95% BC CI = .111, .283) remained statistically significant as did the mediated effect of TEI on AA via EC ($\gamma\beta = .329$, 95% BC CI = .211, .446). These effects were, however, weaker in magnitude relative to the unconditioned model estimates. Additionally, the standardized three-path mediated relation of TEI with achievement via EC and AA linked serially remained significant but was marginally weaker than the unconditioned estimate ($\gamma\beta\beta = .106$, BC CI = .039, .173).

Discussion

Despite interest in the role of TEI in AP, research on the mechanisms linking the constructs is limited. The current study represents the first systematic attempt to investigate the pathways through which TEI is related to AP during the university transition. The present study yielded important replicative data in support of the direct links of TEI with PSS and EC. Notably, these links were robust when controlling for neuroticism and extraversion. The present study also contributes to a growing body of literature examining mediators of the association between TEI and adjustment outcomes. Mediation analyses yielded a statistically significant indirect association of TEI with PA via PSS. This finding replicates recent data indicating that PSS constitutes a means through which TEI fosters higher well-being (Kong et

al., 2012a). The result also extends this work by demonstrating the robustness of the association when controlling for the confounding influence of neuroticism and extraversion.

The indirect pathways through EC are also informative. TEI was found to be indirectly associated with both PA and AA via EC. These findings held even after controlling for the effects of neuroticism and extraversion. The results accord with evidence indicating that active attempts to control, change, resolve or adapt to stressors play an important role in adjusting to the university transition (Leong et al., 1997). These findings extend the TEI literature by demonstrating for the first time that EC constitutes an intermediary mechanism through which TEI is linked to better adjustment to major educational transitions.

The present study also extends the TEI literature by illuminating key self-regulative processes that link TEI with AP. Higher TEI was found to be indirectly associated with better AP via EC and AA linked serially. The finding replicates previous work indicating that successful adjustment to the academic environment of university is associated with better AP (Crede & Niehorster, 2012). The finding also extends the meta-analytic results obtained by Perera and DiGiacomo (2013) and Richardson et al. (2012), and previous studies reporting on the TEI-achievement relationship, by empirically elucidating one of the pathways through which TEI is associated with AP. Beyond these implications for theory and research, the findings of this study raise the possibility that affective personality assessments may be useful for university administrators and counselors in detecting freshmen most likely to benefit from early social support and coping interventions designed to foster adjustment and achievement (Lidy & Kahn, 2006).

Despite the important advances made by this study, a few limitations warrant acknowledgement. First, as in other studies investigating the university transition (e.g., Brissette et al., 2002), the transition was assumed to be a global, normative stressful event. Although there is support for the view that the transition is an ongoing stressor (Feldman &

Newcomb, 1994), perceived stress was not appraised in this study. Second, our models relied almost exclusively on self-report data for empirical testing, raising the possibility of inflated covariances due to common-method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Finally, despite the use of time lags between the putative predictor, mediators and outcome, we did not control for initial levels of the mediators and outcomes. Thus, the data obtained in this study cannot determine whether TEI predicted changes in the mediators and outcome, which would constitute stronger evidence for the mediational processes theorized (Maxwell & Cole, 2007).

In summary, this study examined the pathways linking TEI with AP during the university transition. In doing so, the study yielded important replicative and novel data that contribute to the personality literature in at least four ways. First, the research replicates reported findings suggesting that TEI is directly associated with higher PSS and the greater use of EC. The present work also replicates recent findings indicating that at least one reason that those high on TEI report better PA is that they perceive greater social support. Third, this study extends the literature by demonstrating that TEI is indirectly associated with both PA and AA to the university transition via EC efforts. Finally, we extend the literature on the TEI-achievement link by disentangling an underlying pathway through which TEI is indirectly associated with AP via EC and AA linked serially. Taken together, the findings contribute to an understanding of the mechanisms linking TEI, adjustment and achievement. In addition, they highlight the need to examine these processes under exposure to specific transition stressors using a robust longitudinal design.

References

Akhtar, R., Boustani, L., Tsivrikos, D., & Chamorro-Premuzic, T. (2015). The engageable personality: Personality and trait EI as predictors of work engagement. *Personality and Individual Differences, 73,* 44-49. doi: 10.1016/j.paid.2014.08.040

Bacon, D. R., & Bean, B. (2006). GPA in research studies: An invaluable but neglected opportunity. *Journal of Marketing Education, 28*(1), 35-42. doi: 10.1177/0273475305284638

Brissette, I., Scheier, M. F., & Carver, C. S. (2002). The role of optimism in social network development, coping, and psychological adjustment during a life transition. *Journal of Personality and Social Psychology, 82*(1), 102-111. doi: 10.1037//0022-3514.82.1.102

Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review, 30,* 879-889. doi: 10.1016/j.cpr.2010.01.006

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: a theoretically based approach. *Journal of Personality and Social Psychology, 56,* 267-283. doi: 10.1037/0022-3514.56.2.267

Chen, F. F. (2007). Sensitivity of Goodness of Fit Indexes to Lack of Measurement Invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 14*(3), 464-504. doi: 10.1080/10705510701301834

Connor-Smith, J. K., & Flachsbart, C. (2007). Relations between personality and coping. *Journal of Personality and Social Psychology, 93*(6), 1080-1107. doi: 10.1037/0022-3514.93.6.1080.supp

Credé, M., & Niehorster, S. (2012). Adjustment to College as Measured by the Student Adaptation to College Questionnaire: A Quantitative Review of its Structure and Relationships with Correlates and Consequences. *Educational Psychology Review, 24*(1), 133-165. doi: 10.1007/s10648-011-9184-5

Cutrona, C. E., & Russell, D. (1987). The provision of social relationships and adaptation to stress. In W. H. Jones & D. Perlman (Eds.), *Advances in personal relationships* (pp. 37–67). Greenwich, CT: JAI Press.

Downey, L., Johnston, P., Hansen, K., Birney, J., & Stough, C. (2010). Investigating the mediating effects of emotional intelligence and coping on problem behaviours in adolescents. *Australian Journal of Psychology, 62*(1), 20-29. doi: 10.1080/00049530903312873

Kim, E., Newton, F. B., Downey, R. G., & Benton, S. L. (2010). Personal factors impacting college student success: Constructing College Learning Effectiveness Inventory (CLEI). *College Student Journal, 22*(1), 112-125.

Kong, F., Zhao, J., & You, X. (2012). Emotional intelligence and life satisfaction in Chinese university students: The mediating role of self-esteem and social support. *Personality and Individual Differences, 53*(8), 1039-1043. doi: 10.1016/j.paid.2012.07.032

Leong, F., Bonz, M., & Zachar, P. (1997). Coping styles as predictors of college adjustment among freshmen. *Counselling Psychology Quarterly, 10*(2), 211-220. doi: 10.1080/09515079708254173

Lidy, K. M., & Kahn, J. H. (2006). Personality as a predictor of first-semester adjustment to college: The mediational role of perceived social support. *Journal of College Counseling, 9*, 123–134. doi:10.1002/j.2161-1882.2006.tb00099.x

Marsh, H. W., Hau, K.-T., & Wen, Z. (2004). In Search of Golden Rules: Comment on Hypothesis-Testing Approaches to Setting Cutoff Values for Fit Indexes and Dangers in Overgeneralizing Hu and Bentler's (1999) Findings. *Structural Equation Modeling: A Multidisciplinary Journal, 11*(3), 320-341. doi: 10.1207/s15328007sem1103_2

Martins, A., Ramalho, N., & Morin, E. (2010). A comprehensive meta-analysis of the relationship between Emotional Intelligence and health☆. *Personality and Individual Differences, 49*(6), 554-564. doi: 10.1016/j.paid.2010.05.029

Matthews, G., Zeidner, M., & Roberts, R. D. (2006). Models of personality and affect for education: A review and synthesis. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (2nd ed.). Mahwah, NJ: Erlbaum.

Maxwell, S. E., & Cole, D. A. (2007). Bias in cross-sectional analyses of longitudinal mediation. *Psychological methods, 12*(1), 23–44. doi: 10.1037/1082-989X.12.1.23

Mikolajczak, M., Nelis, D., Hansenne, M., & Quoidbach, J. (2008). If you can regulate sadness, you can probably regulate shame: Associations between trait emotional intelligence, emotion regulation and coping efficiency across discrete emotions. *Personality and Individual Differences, 44*(6), 1356-1368. doi: 10.1016/j.paid.2007.12.004

Mikolajczak, M., Petrides, K, V., Coumans, N., & Luminet, O. (2009). The moderating effect of trait emotional intelligence on mood deterioration following laboratory induced stress. *International Journal of Clinical and Health Psychology, 9*(3), 455-477.

Muthén, L. K., & Muthén, B. O. (1998-2014). *Mplus user's guide*. Los Angeles, CA Muthén & Muthén.

Parker, J., Summerfeldt, L., Hogan, M., & Majeski, S. (2004). Emotional intelligence and academic success: examining the transition from high school to university. *Personality and Individual Differences, 36*(1), 163-172. doi: 10.1016/s0191-8869(03)00076-x

Perera, H. N. (2013). A novel approach to estimating and testing specific mediation effects in educational research: explication and application of Macho and Ledermann's (2011) phantom model approach. *International Journal of Quantitative Research in Education, 1*(1), 39-60. doi: 10.1504/IJQRE.2013.055640

Perera, H. N., & DiGiacomo, M. (2013). The relationship of trait emotional intelligence with academic performance: A meta-analytic review. *Learning and Individual Differences, 28*, 20-33. doi:

Perera, H. N., & McIlveen, P. (2014). The role of optimism and engagement coping in college adaptation: A career construction model. *Journal of Vocational Behavior, 84*(3), 395-404. doi: 10.1016/j.jvb.2014.03.002

Petrides, K. V. (2011). Ability and Trait Emotional Intelligence *The Wiley-Blackwell Handbook of Individual Differences* (pp. 656-678): Wiley-Blackwell.

Petrides, K. V., Frederickson, N., & Furnham, A. (2004). The role of trait emotional intelligence in academic performance and deviant behavior at school. *Personality and individual differences, 36*, 277-293. doi: 10.1016/S0191-8869(03)00084-9

Petrides, K. V., Pita, R., & Kokkinaki., F. . (2007). The location of trait emotional intelligence in personality factor space. *British Journal of Psychology, 98*, 273-289. doi: 10.1348/000712606X120618

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*, 879-93. doi: 10.1037/0021-9010.88.5.879

Qualter, P., Gardner, K. J., Pope, D. J., Hutchinson, J. M., & Whiteley, H. E. (2012). Ability emotional intelligence, trait emotional intelligence, and academic success in British secondary schools: A 5year longitudinal study. *Learning and Individual Differences, 22*(1), 83-91. doi: 10.1016/j.lindif.2011.11.007

Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological bulletin, 138*(2), 353-387. doi: 10.1037/a0026838

Sanchez-Ruiz, M.-J., Mavroveli, S., & Poullis, J. (2013). Trait emotional intelligence and its links to university performance: An examination. *Personality and Individual Differences, 54*(5), 658-662. doi: 10.1016/j.paid.2012.11.013

Table 1

Fit Statistics for the Structural Models

Model	χ^2	*df*	CFI	TLI	RMSEA	90% CI	MD χ^2	Δ*df*	ΔCFI	ΔRMSEA
Target	4855.705***	3191	.918	.915	.033	[.031, .035]				
AM1	4860.286***	3192	.918	.915	.033	[.031, .035]	6.140*	1	.000	.000
AM2	4977.739***	3193	.913	.909	.034	[.033, .036]	30.888***	1	–.005	+.001
AM3	4984.100***	3194	.912	.909	.035	[.033, .036]	4.719*	1	–.001	+.001

Note. * $p < .05$, ** $p < .01$, ***$p < .001$ *df* = degrees of freedom; Δ*df* = change in *df*; MD χ^2 = change in χ^2 relative to the preceding model computed using the Mplus DIFFTEST function; ΔCFI = change in comparative fit index; ΔRMSEA = change in root mean square error of approximation.

Table 2.

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

Predictor		Mediator Variable(s)		Outcome	ab_{cs}	BC 95% CI for mean ab[a]
TEI	→	PSS	→	PA	.223	[.096, .350]*
TEI	→	EC	→	PA	.330	[.168, .492]*
TEI	→	EC	→	AA	.400	[.284, .517]*
TEI	→	EC → AA	→	AP	.140	[.064, .216]*
TEI	→	EC → PA	→	AP	–.019	[–.082, .045]
TEI	→	PSS → PA	→	AP	–.013	[–.054, .029]

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

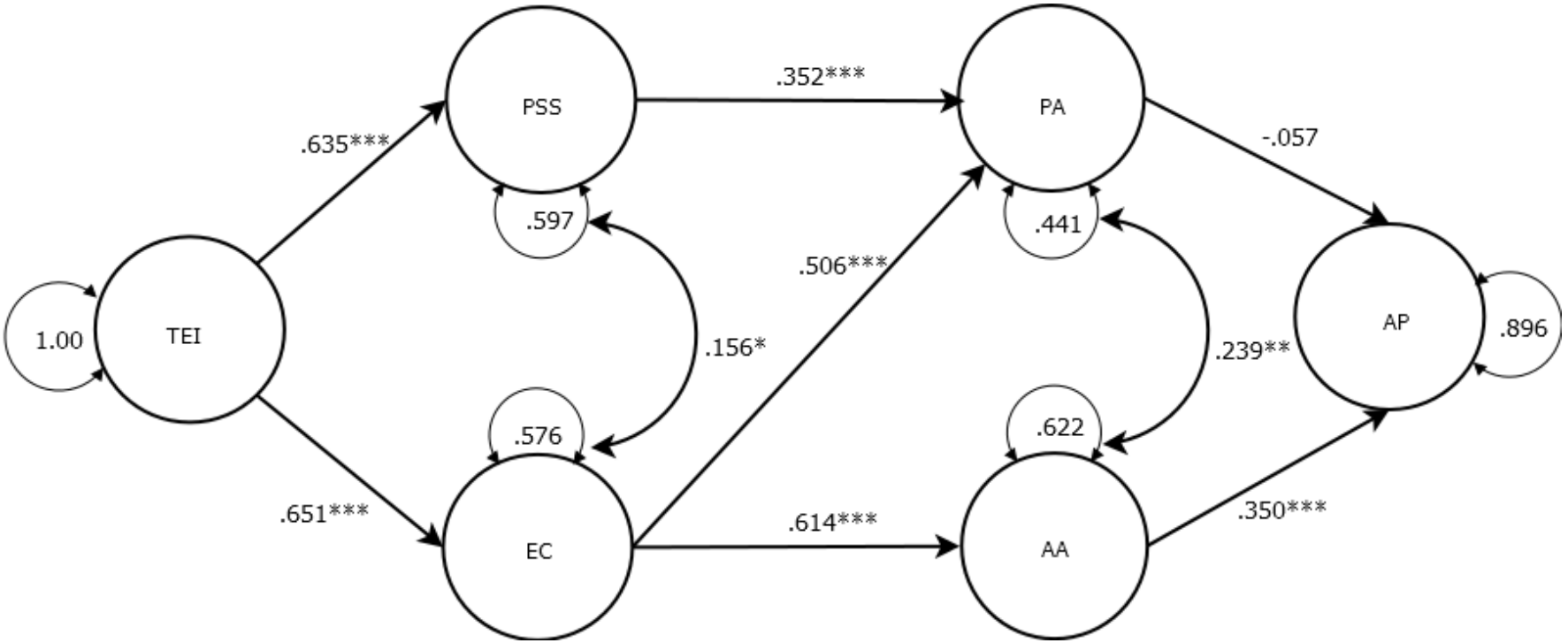

Figure 1. The final structural model with standardized path coefficients. * $p < .05$. ** $p < .01$. *** $p < .001$.