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Internalizing emotions: Self-determination as an antecedent of emotional intelligence



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ABSTRACT

An extensive body of literature indicates that people differ in the extent to which they attend to, process, and regulate emotions. The present research sought to build on this knowledge by examining whether general self-determination (GSD) could account for individual variation in emotional intelligence (EI) and psychological well-being (PWB). A simple and multiple mediation model using bootstrap analyses tested these relationships in a sample of students (Study 1, N = 283) and workers (Study 2, N = 265). Results supported the hypothesized mediating role of EI in the relationship between GSD and PWB across both studies. When the inter-related facets of EI were considerately separately, indirect effects emerged for mood regulation/optimism and social skills across both studies as well as for utilization of emotions, albeit negatively, in Study 2. Our findings support and extend past work on the antecedents of EI and have important implications for human functioning across a variety of settings.

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1. Introduction

A wealth of scientific evidence indicates that people vary in the extent to which they use emotion-related information in their day to day lives. Mayer, Salovey, and Caruso (2000) refer to this capacity as emotional intelligence (EI) which they formally define as "the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and in others" (p. 396). To these authors, EI is therefore a set of abilities and should be assessed with maximum performance measures much like traditional intelligence tests (e.g., Mayer, Salovey, & Caruso, 2002; Petrides, 2011; Petrides & Furnham, 2000a). A distinct but complementary conceptualization of this construct (Schutte, Malouff, & Bhullar, 2009) defines EI as a set self-perceptions, dispositions, and motivations that are affective in nature and that share some common variance with major personality traits (Petrides, Pita, & Kokkinaki, 2007; Petrides, Pérez-Gonzalez, & Furnham, 2007). Unlike the ability-model, this trait model of EI captures the inherent subjectivity underlying one's emotional experience and should therefore be assessed via self-report measures (e.g., Petrides & Furnham, 2000a; Petrides & Furnham, 2000b; Schutte et al., 1998).

Notwithstanding these divergent operationalizations, EI has emerged as a viable and important construct in the literature evidenced by the accumulation of handbooks, book chapters, review papers, and meta-analyses on the subject. For instance, those who score high on measures of EI perform better at work (e.g., O'Boyle, Humphrey, Pollack, Hawver, & Story, 2011) and in school (e.g., Petrides, Frederickson, & Furnham, 2004); they also report more positive relationships (e.g., Mavroveli, Petrides, Rieffe, & Bakker, 2007) and better physical health (e.g. Costa, Petrides, & Tillmann, 2014). However, it's the enhancement of emotional health and well-being wherein lies the construct's greatest potentiality and interest. For instance, EI is negatively related to several indices of psychopathology (Malterer, Glass, & Newman, 2008) such as personality disorders (Petrides, Pérez-González, et al., 2007) and anxiety disorders (Summerfeldt, Kloosterman, Antony, McCabe, & Parker, 2011) as well as self-harm (Mikolajczak, Petrides, & Hurry, 2009) and externalizing behaviors in adolescents (Downey, Johnston, Hansen, Birney, & Stough, 2010). In non-clinical samples, EI correlates positively with a variety of well-being indices such as life satisfaction, happiness, optimism, self-esteem, and decreased negative affect (for reviews see Brackett, Rivers, & Salovey, 2011; Petrides, 2011) with a meta-analytic correlation of .34 (Martins, Ramalho, & Morin, 2010).

But why do some people attend to, process, and regulate their emotions with greater ease than others? In other words, what accounts for the individual variation in El? Consistent with the trait-

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model of EI (e.g., Petrides, Pita, et al., 2007), higher-order personality factors are purported to shape people's affective self-perceptions. For instance, trait EI mediated the relationship between each of the Big Five personality traits and self-reported mental health and well-being (e.g., Johnson, Batey, & Holdsworth, 2009). Other research suggests that trait EI may stem from dispositional differences in quality of attention. Schutte and Malouff (2011) observed that the relationship between mindfulness and various indicators of subjective well-being (i.e., positive affect, negative affect, and life satisfaction) were mediated by trait El. Significant indirect effects for a specific subcomponent of EI, namely mood regulation have also been documented. For example, Kämpfe and Mitte (2010) observed that mood repair accounted for the relationship between extraversion and life satisfaction as well as between extraversion and happiness. Other research found cognitive reappraisal of emotion to partially explain the relationship between secure attachment and well-being (Karreman & Vingerhoets, 2012), Together, these findings suggest that the ability to perceive and manage one's emotions is partly due to stable individual differences such as one's personality, attachment style (i.e., secure attachment), and mindfulness. In the present research, we investigated self-determination as a plausible antecedent of EI that contributes to psychological well-being (Bhullar, Schutte, & Malouff, 2013).

At the core of self-determination theory (Deci & Ryan, 1985) lays a motivational perspective of the self which is endowed with integrative capacities toward increasing organization and coherence (Ryan, 1993). The expression of this coalescence is reflected in the degree of perceived autonomy or self-determination underlying the regulation of action. For instance, behaviors which are initiated out of inherent interest and enjoyment for their own sake (intrinsic regulation) are experienced as the most self-determined followed by reasons to act in accordance with one's deepest values (integrated regulation), and then by personal identification with the activity (identified regulation). However, not all behaviors are experienced as authentic and freely chosen; many are initiated out of pressure and obligation to bolster or protect one's sense of self-worth (introjected regulation), to comply with external demands (external regulation) or without any intention (amotivation). These behaviors are experienced as controlling and coercive because the underlying self operates in a fragmented and compartmentalized manner. These six styles of behavior regulation can be combined into a single index, whereby higher scores reflect greater self-determination which is linked to healthier functioning and well-being (e.g., see Deci & Ryan, 2008 for a review).

The integrative capacity for effective and adaptive self-regulation of action is also reflected in the manner with which one meets their moment to moment experiences. According to Hodgins and Knee (2002), greater self-determination endows a person with more openness and less defensiveness toward potentially threatening and difficult events. For instance, when primed with selfdetermination, people report less desire to escape and engage in fewer self-serving attributions in response to failure (Hodgins, Yacko, & Gottlieb, 2006). Autonomously-oriented individuals also exhibit better emotional regulation and integration of negative affect after viewing a traumatic film clip (Weinstein & Hodgins, 2009) and retrospectively recalling negative life events and identities (Weinstein, Deci, & Ryan, 2011). However, little is known on the skills utilized by those with greater self-determination which promote effective assimilation of emotionally-laden experiences into a more unified and cohesive self. We propose that these skills are attributed in part to the inter-related abilities of El.

The objective of the present research was to investigate individual variation in EI by examining the determining role of self-determination which was assessed at the dispositional or general level indicative of a more enduring motivational orientation toward the environment (Guay, Mageau, & Vallerand, 2003). To this end,

the inter-related abilities of EI were hypothesized to mediate the relationship between general self-determination (GSD) and psychological well-being (PWB). These relationships were initially tested with a sample of undergraduate students (Study 1) and then replicated with a sample of working adults (Study 2).

2. Study 1

2.1. Method

2.1.1. Participants and procedure

A sample of 283 undergraduate students of which the majority were female (n = 226) took part voluntarily in this two-phase study ($M_{\rm age} = 18.95$ years, $SD_{\rm age} = 1.75$). Participants were recruited from a campus subject pool and received course credit in exchange for their participation. Measures of GSD and EI were completed at the beginning of the semester (Phase 1) while a measure of PWB was completed three months later (Phase 2).

2.1.2. Measures

GSD was assessed with the 18-item General Motivation Scale (GMS; Guay et al., 2003). The six subtypes of motivation proposed by Deci and Ryan (1985) are each represented by three items. Respondents rated the extent to which each item (e.g., "...because I like making interesting discoveries"; intrinsic regulation) corresponded to their reasons as to "why they do things in general" on a scale from 1 (does not correspond to my reasons at all) to 7 (corresponds exactly to my reasons). Internal consistency estimates ranged from .68 to .84 across subscales. Mean subscale ratings were combined to form a GSD index whereby higher scores indicate greater GSD: +3*(intrinsic)+2*(integrated)+1*(identified) - 1*(introjected) - 2*(external) - 3*(amotivation). Cronbach's alpha for the entire scale was .81.

El was measured using the Assessing Emotions Scale (AES: Schutte et al., 1998) where responses were rated from 1 (*strongly disagree*) to 7 (*strongly agree*). As to its structure, some suggest the existence of a single global El factor (e.g., Schutte, Malouff, Simunek, McKenley, & Hollander, 2002) while others propose the existence of four sub-factors (e.g., Petrides & Furnham, 2000a; Saklofske, Austin, & Minski, 2003). Cognizant of this debate, El was represented by a global El factor derived by averaging scores across all 33 items as well as by four sub-factors derived by averaging scores across each subscale's respective items. The subscales were derived from the work of Petrides and Furnham (2000a). Internal consistency estimates ranged from .72 to .84 across subscales (α = .91 for the entire scale).

PWB was assessed using Ryff's (1989) short form Scales of Psychological well-being (SPWB) which tap six different facets of positive psychological functioning. Responses were rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*) and then averaged across all 18 items to represent PWB (α = .84).

2.2. Results

2.2.1. Descriptive statistics

Descriptive statistics are reported in Table 1. As predicted, positive relationships emerged between GSD, EI, and PWB. On the bivariate level, age did not correlate with any variable. However, gender differences did emerge for certain facets of EI with women scoring higher than men on 'appraisal of emotions' and 'social skills'. Regardless of these observations, both gender and age were controlled for in subsequent analyses for theoretical reasons (e.g., Mavroveli et al., 2007; Petrides & Furnham, 2000b).

Table 1Descriptive statistics for Study 1 and Study 2.

Construct	1	2	3	4	5	6	7	8	9
M	8.69	4.96	5.04	4.84	5.04	4.84	5.21	18.95	
SD	6.37	0.64	0.8	0.89	0.71	0.86	0.66	1.75	
1. General self-determination (GSD)	_	0.35**	0.42**	0.23**	0.28**	0.12*	0.35**	0.11	0.06
2. Global emotional intelligence (GEI)	0.31**	_	0.78**	0.85**	0.87**	0.56**	0.55**	0.01	0.1
3. Mood regulation-optimism (MR-O)	0.37**	0.76**	_	0.48**	0.54**	0.34**	0.59**	0.03	-0.07
4. Appraisal of Emotions (AE)	0.21**	0.81**	0.44**	_	0.68**	0.36**	0.41**	-0.04	0.18**
5. Social skills (SS)	0.24**	0.88**	0.56**	0.62**	_	0.39**	0.46**	0.03	0.18**
6. Utilization of emotions (UE)	0.11	0.56**	0.31**	0.27**	0.43**	_	0.17**	0.01	-0.05
7. Psychological well-being (PWB)	0.49**	0.49**	0.58**	0.37**	0.41**	0.02	-	0.01	0.01
8. Age	0.2**	-0.13*	0	-0.1	-0.16**	-0.18**	0.09	_	_
9. Gender	0	0.19**	0.07	0.16**	0.21**	0.13**	-0.05	_	_
M	11.60	3.60	3.76	3.41	3.69	3.45	4.69	32.93	
SD	7.46	.46	.55	.63	.52	.72	.57	12.32	

*Note 1: *p < .*05, ***p < .*01.

Note 2: Descriptive statistics for Study 1 are above the diagonal and those for Study 2 are below the diagonal.

2.2.2. Mediation analyses

The hypothesized mediating role of EI in the relationship between GSD and PWB was tested using the SPSS macro, INDIRECT (Preacher & Hayes, 2008). The macro relies on the resampling method of bootstrapping; a procedure that provides an estimate of the indirect effect in the population by resampling the dataset *k* times in order to obtain the indirect effect's sampling distribution and confidence intervals (CI). An estimate is considered statistically significant if its 95% CI does not include zero.

Testing a simple mediation model, a direct effect emerged for GSD on PWB (B=.019, p<.001) as did an indirect effect through global EI with a point estimate of .0177, 95% CI [.0111, .0254]. The magnitude of this indirect effect was represented by an index of mediation (Preacher & Kelley, 2011) which was equal to .171. Thus, for every 1 SD increase in GSD, PWB would increase by .171 SDs through global EI. Effect size was estimated using Kappa²; a ratio of the *obtained* estimate over the *maximum possible* estimate of the indirect effect (Preacher & Kelley, 2011). In this case, Kappa² = .18. Overall, GSD accounted for 33% of the variance in PWB both directly and indirectly through EI, B=.037, p<.001, F(4,278) = 34,86, p<.001.

To understand which facet of EI accounts for the relationship between GSD and PWB, a multiple mediation model (MMM) was tested with each of the four sub-factors of EI. These results are reported in Table 2. Indirect effects emerged for 'mood regulation-optimism' and 'social skills'. Pairwise contrasts revealed that the former was greater than the latter. The index of mediation for each

indirect effect indicates that for every 1 SD increase in GSD, PWB would increase by.188 and .043 SDs through 'mood regulation-optimism' (Kappa² = .20) and 'social skills' (Kappa² = .05), respectively. In the MMM, GSD accounted for 40% of the variation in PWB both directly and indirectly through the four facets of EI, F(7,275) = 25.80, p < .001.

3. Study 2

3.1. Method

3.1.1. Participants, measures and procedure

This community sample was comprised of 265 working adults recruited from multiple work environments using a snowballing strategy, of which 46% were employed in the private sector and the remaining 54% were employed in the public sector. The majority were women (n = 184) and the sample ranged from 18 to 58 years (M = 32.93, SD = 12.32). Participants took part in this cross-sectional study voluntarily and were invited to complete a questionnaire comprised of the same self-report measures described in Study 1 with the exception of the SPWB for which a mid-length version of the scale was used whereby each factor was represented by nine items instead of three (GMS: α s ranged from .66 to .84 across subscales, with a Cronbach's alpha for the entire scale of .82; AES: α s ranged from .69 to .81 across subscales and was equal to .88 for the entire scale; SPWB: $\alpha = .92$ for the entire scale).

Table 2 Indirect effects of GSD on PWB through EI for Study 1 and Study 2.

	Study 1				Study 2				
	Product of coefficients		Bootstrapping BCa 95% CI		Product of coefficients		Bootstrapping BCa 95% CI		
	Point estimate	SE	LL	UL	Point estimate	SE	LL	UL	
	Indirect effects				Indirect effects				
MR-O	.0195	.0040	.0125	.0282	.0111	.0025	.0070	.0170	
AE	.0022	.0017	0007	.0061	.0016	.0010	.0000	.0041	
SS	.0045	.0022	.0009	.0097	.0033	.0015	.0010	.0068	
UE	0012	.0010	0041	.0001	0024	.0012	0051	0005	
TOTAL	.0250	.0042	.0171	.0338	.0137	.0027	.0088	.0193	
	Contrasts				Contrasts				
MR-O vs. AE	.0173	.0042	.0098	.0265	.0095	.0027	.0050	.0155	
MR-O vs. SS	.0150	.0048	.0065	.0258	.0079	.0031	.0023	.0148	
MR-O vs. UE	.0207	.0042	.0134	.0301	.0135	.0029	.0083	.0199	
AE vs. SS	0023	.0033	0092	.0039	0017	.0020	0061	.0018	
AE vs. UE	.0034	.0021	0001	.0080	.0040	.0016	.0014	.0077	
SS vs. UE	.0057	.0026	.0014	.0115	.0057	.0022	.0021	.0107	

Note: BCa, bias corrected and accelerated; CI = confidence interval; LL = lower limit, UL = upper limit, k = 5000.

3.2. Results

3.2.1. Descriptive statistics

Descriptive statistics are reported in Table 1. Bivariate relationships between all constructs were consistent with predictions with the exception of 'utilization of emotions' which was not significantly related to GSD $(r=.11,\ p>.05)$ nor to PWB $(r=.02,\ p>.05)$. Age and gender emerged as significant correlates of GSD and EI. Consistent with the results of Study 1, women's EI scores were higher than men's on the global factor as well as on all facets of EI except 'mood regulation-optimism'. Age and gender were controlled in subsequent analyses.

3.2.2. Mediation analyses

Testing a simple mediation model, a direct (B = .027, p < .001) and indirect effect with a point estimate of .0100, 95% CI [.0065, .0144] emerged for the global factor of EI with an index of mediation of .131 (Kappa² = .14). GSD accounted for 36% of the variance in PWB both directly and indirectly through EI, (B = .037, p < .001), F(4,260) = 37.59, p < .001.

Next, a MMM was tested, the results of which are reported in Table 2. Indirect effects emerged for all facets of EI with the exception of appraisal of emotions. Pairwise contrasts revealed that the indirect effect through 'mood regulation-optimism' was the greatest, followed by 'social skills' and then by 'utilization of emotions'. The index of mediation for these indirect effects indicates that for every 1 SD increase in GSD, PWB would increase respectively by .146 and .043 SDs through 'mood regulation-optimism' (Kappa² = .16) and 'social skills' (Kappa² = .05). Contrarily, for every 1 SD increase in GSD, PWB would decrease by .031 SDs through 'utilization of emotions' (Kappa² = .04). In sum, GSD accounted for 46% of the variation in PWB both directly and indirectly through the four factors of EI, F(7,257) = 33.19, p < .001.

4. Discussion

The efficiency and effectiveness with which people can identify, process, and manage their emotions has important implications for their health and well-being. Part of this capacity is attributed to structural factors such as one's personality (e.g., Johnson et al., 2009). Grounded in the framework of self-determination theory (Deci & Ryan, 1985), we propose that part of this capacity stems from an underlying self that is motivational in nature, oriented toward greater organization and unity. At the behavioral level, this integrative propensity is manifested as general self-determination (GSD) which endows a person with greater openness and receptivity to their environment (Hodgins & Knee, 2002). The present research tested this proposition by investigating GSD as a plausible antecedent that may account for individual variation in emotional intelligence (EI) thereby resulting in differing levels of psychological well-being (PWB). Data obtained from two different samples (students vs. workers) support these hypothesized relationships.

First, we examined the mediating role of global EI in the relationship between GSD and PWB. All paths in the model were significant and positive across both studies suggesting that greater GSD is associated with greater PWB, directly and indirectly through increased global EI. Therefore, the more people undertake their daily activities with a sense of volition and autonomy, the more skilled they become in responding to and using emotion-laden information in their day to day decision making processes thereby experiencing greater PWB. Consistent with the trait-model of EI, these findings imply that part of its variability is motivational in nature (Petrides, Pita, et al., 2007) and therefore suitable for intervention work. Indeed, people who underwent an 'emotional

competence' training program significantly improved their employability, their subjective well-being and the quality of their relationships post intervention (Kotsou, Nelis, Grégoire, & Mikolajczak, 2011; Nelis et al., 2011). Our findings suggest that intervention efforts might also benefit from targeting people's GSD. For instance, participants primed with subtle reminders of GSD (i.e., choice, opportunity, freedom) evidenced better emotional integration following exposure to a traumatic film designed to induce negative affect (Weinstein & Hodgins, 2009) and after recalling difficult life events (Weinstein et al., 2011). Thus, participants undergoing an 'emotional competence' training program might experience accrued benefits if primed with GSD beforehand.

Second, we sought to better understand which of the four (if not all) inter-related abilities of EI accounted for the relationship between GSD and PWB. Both 'mood regulation-optimism' and 'social skills' emerged as significant mediators suggesting that effective and adaptive regulation of action is linked to effective and adaptive regulation of emotions, "within the self and in relation to other people" (Vesely, Siegling, & Saklofske, 2013, p. 222). These results emerged in both studies, lending strength to their effect and are in line with the work of Spence, Oades, and Caputi (2004) who noted that mood regulation-optimism was the strongest predictor of emotional well-being in a sample of students.

Our analyses also yielded one surprising result that warrants further discussion. Contrary to expectations, the indirect effect of 'utilization of emotions' (UE) was negative and significant in the worker sample but not in the in the student sample. To be specific, this result suggests that greater GSD is linked to greater UE which in turn is associated with lower levels of PWB. This particular subscale was designed to tap the extent to which one is capable of using emotional information in generating ideas and solving problems. Yet, a closer examination of its individual items (n = 4)suggests some bias toward neutral and positive emotions (e.g., "When I am in a positive mood, solving problems is easy for me"). Theoretically, this seems incongruent with the open and non-defensive disposition of someone with greater GSD who is equipped at meeting and internalizing a broad spectrum of emotions, even difficult ones. Stated differently, all emotional inputs (positive and negative) represent potential sources of information in making decisions for someone who initiates their actions based on well-integrated values. Statistically, there's also the possibility that UE acted as a suppressor in the model. When we tested a simple mediation model linking GSD to PWB through UE, the mediator was not statistically significant. However, when several MMM were tested that included UE, its indirect path became significant. This finding may also be inherent to the subscale itself as other studies noted similar problems (e.g. Gignac, Palmer, Manocha, & Stough, 2005).

A few limitations of the present research are worth noting. First, responses were limited to self-report data. Future work could examine these relationships using a motivational priming procedure and behavioral evidence of emotional integration and wellbeing (Hodgins et al., 2006). Second, Cronbach's alphas were low (<.70) for some of the subscales of the GMS in Study 1 and 2, an issue that has been reported by other researchers (Julien, Guay, Senécal, & Poitras, 2009). However, the entire scale was used in the creation of GMS indexes whereby the reliability statistics were respectively .81 and .82. Third, the four-factor solution documented by Petrides and Furnham (2000a) for the AES did not emerge in our data. Attempts were made to keep our factor structure consistent with findings in the literature, but some of the items did not provide the same fit across our samples suggesting potential instability with respect to a four-factor solution. Future research is needed to help elucidate sample differences when examining sub-facets of EI with the AES. Fourth, the longitudinal nature of Study 1 implies that factors other than GSD and EI assessed during Phase 1 influenced the reporting of PWB assessed at Phase 2. Future studies should include potential covariates of this relationship (e.g., personality factors).

Despite these limitations, findings from the present research contribute to a burgeoning literature on the antecedents of EI given the importance of EI for adaptive and healthy functioning. By investigating the motivational underpinning of EI, our findings lend credence to the growing interest in programs and workshops aimed at increasing El. Moreover, the present research was grounded in self-determination theory; one of the most validated and comprehensive frameworks of human needs and motivation. Our results support the predictions of Hodgins and Knee (2002) by linking a motivational orientation with specific socio-emotional competencies which are conducive to better emotional integration and therefore enhanced PWB. By uncovering the emotional pathways by which GSD leads to better adjustment, future work might garner a better understanding of how people with varying motivational profiles cope with adversity (e.g., Amiot, Blanchard, & Gaudreau, 2008) across a variety of settings (e.g., school, work, sports).

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