The Impact of EI Mentoring on Emotional Intelligence, Gratitude, and Stress: A Quasi-Experiment

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A growing body of research indicates that emotional intelligence (EI) is an important factor for student success. In this study we examined whether students who participated in an EI mentoring program combined with a smartphone application, showed greater increases in EI than students who didn't participate in the mentoring program. Factors we examined included changes in emotional intelligence, changes in stress levels and relationships between EI, stress, gratitude and growth mindset. Results indicate that participating in the EI mentoring program increased gratitude. Students with higher levels of EI also had lower levels of stress and higher levels of gratitude.

Keywords: emotional intelligence, stress, mentoring, college students

INTRODUCTION

College students tend to feel under a lot of stress. Many stress factors have been identified including social pressures, the high cost of education, the need to work to cover expenses and the academic demands that are often greater than what they experienced in high school (Darling, McWey, Howard, & Olmstead, 2007). Recent empirical research has addressed the impacts of stress on individuals in work and educational settings (Brougham, Zail, Mendoza, & Miller, 2009; Hunter & Thatcher, 2007; Rafferty & Griffin, 2006). College students are a group of individuals who are particularly prone to stress (Darling et al., 2007). Further, there is a well-documented connection between stress and illness (Roddenberry, 2010). Given the challenges that stress creates for employees, students and workplaces, it is worth examining factors that might impact how students cope with stress. Several recent studies have suggested that students' levels of emotional intelligence (EI) may impact their ability to effectively manage stress (Birajdar, 2016; Houghton, Wu, Godwin, Neck, & Manz, 2012; Panda, 2008).

EI has been defined in many ways, but the concept has generally focused on the ability to manage one's own emotions and the emotions of others to assist in one's thinking, action and decision-making (Salovey & Mayer, 1990). While ambitious claims have been made about EI's impact on organizational outcomes like performance, recent research indicates that EI may be a building block for emotional competence that combines or interacts with other factors leading to performance (Goleman, 1998; Mayer, Salovey, & Caruso, 2004). This study aims to address one of the significant relationships in organizations by examining EI and stress.

EI plays a strong part in the abilities that people have in using stress to motivate themselves and their ability to control the stress, as opposed to allowing it to take control of their behavior (Goleman, 1998). Stress in the workplace has been linked to absenteeism, higher turnover and decreased efficiency. Stress also causes exhaustion, irritability, reduced communication and quality problems and errors—all of which cause problems within the working environment (Hunter & Thatcher, 2007). Individuals handle stress differently; however, EI may help direct each individual through his or her response to stress. Recent research has suggested that increasing gratitude can help individuals be emotionally successful and develop higher levels of emotional intelligence (DeSteno, 2018a).

In this study we want to examine the impact of an EI mentoring program on EI, gratitude and stress. The paper is organized as follows: we provide a literature review; describe data and methodology; report results; and a discussion of the results.

LITERATURE REVIEW

Emotional Intelligence

There have been several incrementally different definitions of emotional intelligence (EI) (Bar-On, 2007; Goleman, 1995), and the popular definition provided in Goleman's book, *Emotional Intelligence* (1995). However, Salovey and Mayer's (1990) original definition, the ability to deal with one's own emotions and those of others to advantage in problem solving and decision making, has endured and has served as the foundation for much of the research in this area. This definition, though modified and extended to include general emotional effectiveness through the centrality of reasoning regarding emotional processes (Mayer, Salovey, & Caruso, 2008) serves as the theoretical foundation for the assessment instrument utilized in our study (Wong & Law, 2002). Wong and Law's (2002) Wong Law Emotional Intelligence Scale (WLEIS) instrument assesses four dimensions of EI: self-emotional appraisal (SEA); others' emotional appraisal (OEA); and regulation of emotion (ROE); and use of emotions (UOE). Salovey and Mayer (1990) described EI as composed of four separate dimensions:

- SEA relates to an individual's ability to understand his or her deep emotions and the ability to express these emotions naturally. People with high ability in this area will sense and acknowledge their emotions well before most people. SEA includes items like "I have a good sense of why I have certain feelings most of the time" and "I have a good understanding of my own emotions."
- OEA captures the ability to perceive and understand the emotions of other people. People who are high in this ability are much more sensitive to the feelings and emotions of others—resulting in almost reading their minds. OEA includes items like "I always know my friends' emotions from their behavior" and "I am a good observer of others' emotions."
- ROE addresses the ability to regulate one's own emotions, and higher levels of ROE enable a more rapid recovery from psychological distress. ROE includes items like "I am able to control my temper and handle difficulties rationally" and "I am quite capable of controlling my own emotions."
- UOE captures the ability of individuals to make use of their emotions by directing them towards constructive activities and personal performance. UOE includes items like "I always tell myself that I am a competent person" and "I am a self-motivated person."

We used Gross' model of emotion regulation (1998a, 1998b) as the theoretical foundation for understanding the effects of EI on organizational outcomes. Gross defines emotions as "adaptive behavioral and physiological response tendencies that are called forth directly by evolutionarily significant situations" (1998b, p. 272). Gross defines emotions as response tendencies that can be modulated, meaning they can be regulated and managed (Gross, 1998a, 1998b). Emotion regulation refers to "the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions" (1998b, p. 275). Gross's definition of emotion regulation is consistent with Mayer and Salovey's (1990) definition of EI. Before people can effectively regulate their emotions, they need to

have a good understanding of their emotions (SEA). Since many of our emotional responses are influenced by the emotions of others, understanding our own emotions is directly influenced by our ability to understand others' emotions (OEA). Gross's emotion regulation model suggests that we have the ability to modulate how we experience emotions (ROE), as well as how we express or use them (UOE). Combining the concepts of EI and emotional regulation, persons with high EI should be more able to modulate their response tendencies and have more effective emotion regulation processes. As a result, Gross' model of emotional regulation appears to be a reasonable theoretical basis for our investigation of the effects of EI on stress.

Empirical support for the effectiveness of EI in predicting organizational outcomes is relatively modest. However, an increasing number of studies seeking to both define and examine the concept are appearing in the academic literature. Bar-On (2007), one of the earliest researchers on the contemporary concept of EI, found that the use of the Emotional Quotient I (EQ-I) in the selection of Air Force recruiters saved millions of dollars in annual costs in the recruitment process. In a study of debt collectors in a large collection agency, those with high scores on the EI competencies of self-actualization, independence and optimism had an average goal attainment of 163% over a three-month period as compared to an 80% goal attainment rate over the same period for those with significantly lower scores on the same dimensions (Bachman, Stein, Campbell, & Sitarenios, 2000). One study reported that experienced partners in a multinational consulting firm, who scored higher on EI competencies than did their partners, delivered $1.2 million more in profits from their activities (Cherniss & Caplan, 2001). A review of executive performance from over 30 international business organizations, concluded that a wide range of EI competencies (and a narrow range of cognitive ones) distinguished top performers from average ones (McClelland, 1998). A recent study that examined the impact of online EI training on EI found that those participants who received the training scored higher on the MSCEIT measure of EI (Demers et al., 2019).

The ability to generalize the findings from these early studies of EI is at least somewhat limited by a lack of agreement regarding how EI is defined in the different studies. Although the case for the unique impact of EI on desired organizational outcomes seems to be supportable, the lack of agreement on definitions makes comparisons and conclusions across studies problematic. Given the recent research directed toward a greater understanding of the concept, it is likely that the definition problem will be resolved over time. There does seem to be a growing consensus that EI is more of a core attribute upon which emotional competency and performance is built, rather than a unique predictor of organizational outcomes (Goleman, 1998; Mayer, Salovey and Caruso, 2008).

As a logical extension of knowledge regarding EI, our study sought to determine the unique impact of EI on stress and gratitude in undergraduate college students. Previous research has found that EI can be increased across many different contexts through training (Schutte, Malouff, & Thorsteinsson, 2013). This leads to the following hypothesis:

Hypothesis 1: *Students who participate in the EI mentoring program will have higher levels of emotional intelligence after the program than students who didn't receive mentoring.*

Emotional Intelligence and Stress

There have been many recent studies devoted to the relationship between EI and stress (Houghton et al., 2012; Singh, 2009). Stress is an adaptive response that is moderated by individual differences that are the natural consequence of any action, situation or event that places special demands on a person. Houghton, Jinpei, Godwin, Neck and Manz (2012) examined college students and found that EI and self-leadership, as mediated through positive affect and self-efficacy, has the potential to facilitate stress coping among students. A recent study of college professors found a significant negative relationship between EI and stress (Riaz & Khan, 2012). Ismail, Yeo, Ajis and Dollah (2009) further examined the relationship between EI and stress. They found that EI mediated the relationship between stress and performance such that employees with higher levels of EI were better able to manage their stress and still have higher performance (Ismail, Yeo, Ajis, & Dollah, 2009). Matthews, Emo, Funke, Zeidner, Roberts, Costa and Schulze (2006) found that even controlling for the personality factors of the Five Factor Model (FFM), EI was negatively

correlated with stress (Matthews et al., 2006). Finally, another study found a significant negative relationship between EI and stress (Panda, 2008).

Recent studies have also assessed whether EI can predict college student outcomes such as retention, graduation and academic performance. Sparkman (2009) found in a study conducted over a five year period that students with higher levels of EI—particularly empathy, social responsibility, flexibility and impulse control—significantly correlated with enrollment and graduation rates. The study also found that social responsibility was the strongest positive predictor of graduation, followed by impulse control and empathy (Sparkman, 2009). Goldman, Kraemer and Salovey (1996) used the Trait Meta-Mood Scale to examine whether students' beliefs about their abilities to regulate feelings impacted stress and physical symptoms. They found that as stress levels increased, students with lower abilities to regulate their feelings were more likely to visit the student health center, which they concluded indicates the value of higher levels of EI to manage stress and physical health (Goldman, Kraemer, & Salovey, 1996).

The theory and the empirical findings suggest that being able to manage one's own emotions better will lead to lower levels of stress. Thus, people with higher levels of EI are expected to have lower levels of stress. This leads to the following hypothesis:

Hypothesis 2: *College students with higher levels of EI will experience lower levels of stress.*

Hypothesis 3: *Students who participated in the EI mentoring program will experience lower levels of stress at the end of the program than students who did not participate in the mentoring program.*

Gratitude

Recent research has found that gratitude can be a powerful force in organizations (Fehr, Fulmer, Awtrey, & Miller, 2017). Gratitude is a basic emotion and can be facilitated by events in an organization, it can be an individual pattern called persistent gratitude and can even be integrated into the organization called collective gratitude. Gratitude may increase organizational citizenship behaviors, improve employee well-being, encourage communal exchange between employees and increase organizational resilience and corporate social responsibility (Fehr et al., 2017). David DeSteno has recently argued that cultivating gratitude, compassion and pride is the way to create emotional success and increase perseverance or grit (DeSteno, 2018a). He has further argued that managers can increase the performance of their teams by cultivating these same attributes in themselves and their employees (DeSteno, 2018b).

Gratitude has also been associated with empathy (McCullough, Emmons, Tang, 2002). As a component of emotional intelligence, we expect that individuals with higher levels of emotional intelligence would also have higher levels of gratitude. Higher levels of emotional intelligence (particularly the ability to understand the emotions of others) are likely correlated with high levels of persistent gratitude.

Hypothesis 4: *Students with higher levels of emotional intelligence will also have higher levels of gratitude.*

One way to develop gratitude is to regularly reflect or meditate on the things we are grateful for. Participants in the EI mentoring program were encouraged to daily reflect on their emotions and pay attention to them. Perhaps the process itself or the individual attention from being mentored encourages gratitude.

Hypothesis 5: *Students who participated in the EI mentoring program will have higher levels of gratitude than those in the control group.*

DATA AND METHODOLOGY

The data were collected in 2018. We conducted a quasi-experiment with senior business management students in a College of Business in the Rocky Mountain region. Students were enrolled in a senior level management skills course. The course did not explicitly address emotional intelligence or stress. A total of

49 students completed the survey out of 58 possible students for an 85% response rate (39% female, mean age = 23 years). In the treatment group 16 students completed the mentoring program. In the control group 33 students completed the before and after surveys. The surveys were administered in class at the beginning of the semester and about eight weeks into the semester after the treatment group completed the Dharma Life mentoring program. The control group completed both surveys at the same times as the treatment group.

Treatment

The treatment group was paired with a mentor from Dharma Life LLC to help them develop their emotional intelligence. These students also downloaded the Dharma Life App for their smartphones and participated in 15 minutes games and exercises each day. In addition, each student had a one-hour weekly phone call with their Dharma mentor. Students identified a main area of their emotional intelligence they wanted to work on and mentors focused on that area.

Emotional Intelligence (EI)

We used Wong and Law's (2002) WLEIS scale to assess four theoretically supported dimensions (Mayer and Salovey, 1997) of EI: self-emotional appraisal (SEA); others' emotional appraisal (OEA); use of emotions (UOE); and regulation of emotion (ROE). The WLEIS uses a 7-point Likert scale to measure the dimensions of EI. The EI scale at Time 1 had a Cronbach's alpha = 0.78 and a Mean = 5.50 and at Time 2 Cronbach's alpha =.80 and a Mean = 5.75. The four subscales also had high Cronbach's alphas that ranged from 0.73 to 0.87. A factor analysis using varimax rotation yielded a four-factor model with the 16 items loading cleanly on the four factors as predicted by the scale. The means, Cronbach's alphas and correlations are presented in Table 1.

Stress

We used House and Rizzo's job strain scale to measure stress (House & Rizzo, 1972). The seven item stress scale at Time 1 yielded a Cronbach's alpha of 0.79 and Mean = 4.20 and at Time 2 yielded a Cronbach's alpha of 0.84 and Mean = 6.21.

Gratitude

We used a 6 item gratitude scale. The Gratitude scale at Time 1 had a Cronbach's alpha = 0.81 and .79 at Time 2. The scale had a Time 1 Mean = 6.12 and a Time 2 Mean = 6.50.

Control Variables

Past studies on EI and stress have controlled for sex, age, workload and cognitive ability. Our model controlled for sex, age, works hours, years of work and credit load.

TABLE 1
DESCRIPTIVE STATISTICS, CORRELATIONS AND CRONBACH'S ALPHAS FOR STUDY VARIABLES

	M	*s.d.*	1	2	3	4	5	6	7	8
1. Sex	1.47	0.50								
2. Age	19.36	4.09	0.101							
3. Program Length	11.36	8.06	0.089	.831**						
4. T1 EI_ALL	5.69	0.63	0.11	-.253**	-.187*					
5. T1 Knowledge	3.92	0.53	0.055	-0.094	0.038	.365**				
6. T1 Growth Mindset	4.61	1.09	0.067	0.006	-0.004	0.116	-0.032			
7. T2 EI_ALL	5.81	0.68	0.027	-.253**	-.253**	.623**	.258**	0.081		
8. T2 Knowledge	4.25	0.56	0.133	-.216**	-0.12	.346**	.330**	0.007	.389**	
9. T2 Growth Mindset	4.67	1.25	0.113	-0.048	-0.01	0.129	0.017	.460**	0.137	0.111

	M	s.d.	Cron-bach	1	2	3	4	5	6	7	8	9	10	11	12	14
1. Sex	1.39	.49														
2. Treatment	1.67	.47		-.339*												
3. Age	22.98	3.85		-.02	.19											
4. Hours_Week	24.90	14.24		-.21	.16	-.03										
5.Credits	16.10	2.71		-.03	-.12	.21	-.22									
6. T1Gratitude	5.79	.76	.81	-.332*	.624**	.01	.08	-.03								
7. T1Stress	4.20	1.09	.79	-.16	.03	.336*	-.18	.07	.08							
8. T2EI_SEA	6.05	.56	.75	-.15	.08	-.10	-.11	.21	.05	-.09						
9. T2EI_OEA	5.45	.94	.87	.19	-.12	-.19	-.28	-.06	-.15	-.19	.09					
10. T2EI_UOE	5.85	.84	.81	.08	-.23	-.18	-.06	.15	.01	-.19	.406**	.09				
11. T2EI_ROE	5.64	.93	.82	-.11	.06	-.08	.02	.09	.01	-.26	.28	.02	.334*			
12. T2EI_ALL	5.75	.52	.80	.03	-.10	-.23	-.18	.13	-.05	-.304*	.606**	.529**	.711**	.675**		
13. T2_Gratitude	6.50	1.05	.79	.11	-.10	-.14	-.343*	-.02	-.02	.04	.09	.382**	.289*	-.10	.27	
14. T2_Stress	6.21	1.54	.84	.11	.20	.04	.25	-.26	.14	.07	-.315*	-.02	-.392**	-.388**	-.431**	-.06

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).
n=49, Treatment n = 16. Control n = 33.
T1 is Week 1 of the semester
T2 is Week 10 of the semester

RESULTS

Hypothesis 1 (Not Supported)

Hypothesis one predicted that students who participated in the Dharma Life mentoring program would have higher levels of EI after the program than the students who did not receive mentoring. We tested this hypothesis using a repeated measures ANOVA and found that while all students significantly increased their levels of EI during the 8-week program period, there was no significant difference between the treatment and control groups. A repeated measures ANOVA comparing the control and treatment groups at Time 1 and Time 2 indicated that there was a significant increase in perceptions of EI overall (F (1, 47)

= 9.51, MS_{error} = .14, $p < .01$), such that EI levels are significantly higher after 8 weeks of class (see Table 2). There was not a significant interaction between EI and the treatment groups suggesting that at Time 2 there was no difference between the treatment and control groups. The treatment group did have a higher overall mean = 5.82 compared to the control group of 5.71. Hypothesis one was not supported.

TABLE 2
ANOVA RESULTS FOR THE EFFECT OF DHARMA MENTORING ON EI AT TIME 1 AND TIME 2

Source	SS	**df**	MS	**F**
Between		48		
Treatment vs. Control	.28	1	.28	.74
Error	17.86	47	.38	
Within		48		
EI_ALL (Time 1 to Time 2)	1.28	1	1.28	9.51**
EI_ALL X Treatment	.00	1	.002	.02
Error	6.34	47	.14	
Total	25.76	48		

**p < .01.

Hypothesis 2 (Supported)

Hypothesis two predicted that college students with higher levels of EI will experience lower levels of stress. We tested this hypothesis using hierarchical multiple regression. Model 1 only included the control variables and did not explain a significant amount of variance (R^2 = .06, F (4, 44) = 1.76, $p > .05$). Model 2 added emotional intelligence to the model, which resulted in a significant increase in the predictive strength of the model (ΔR^2 = .1, ΔF (5, 43) = 7.67, $p < .01$). Model 2 predicted a significant amount of variance (R^2 =.18, F (5, 43) = 3.16, $p < .05$). In support of Hypothesis 2, emotional intelligence was a significant negative predictor of stress (β = -1.14, $p < .01$). This suggests that individuals' higher perceived levels of emotional intelligence contributed to lower perceived levels of stress.

TABLE 3
REGRESSION RESULTS FOR RELATIONSHIP BETWEEN EI AND STRESS

	Model 1	Model 2
Controls		
Sex	0.47	0.46
Hours/Week Worked	0.03	0.02
Credits	-0.13	-0.10
Age	.04	.00
Time 2 Emotional Intelligence (All)		-1.14**
	adj. R2 = .06	adj. R2 = .18
Model Summary	F = 1.76	F = 3.16*
	df = 4, 44	df = 5, 43

[a]Unstandardized regression coefficients are reported.
*p < .05; **p < .01; ***p < .001
n = 48

Hypothesis 3 (Not Supported)

Students who participated in the EI mentoring program will experience lower levels of stress at the end of the program than students who did not participate in the mentoring program. We tested this hypothesis using repeated measure ANOVA. Students increased their stress levels overall, but there was not a significant difference between the control and treatment groups. Students in the treatment group did have smaller increases in stress, but not significantly different than control group.

Hypothesis 4 (Supported)

Students with higher levels of emotional intelligence will also have higher levels of gratitude. We tested this hypothesis using hierarchical multiple regression. Model 1 only included the control variables and explained a significant amount of variance (R^2 = .10, F (1, 47) = 6.26, p < .05). Model 2 added the four emotional intelligence sub-scales from Time 2 to the model, which resulted in a significant increase in the predictive strength of the model (ΔR^2 = .19, ΔF (1, 47) = 6.26, p < .05). Model 2 predicted a significant amount of variance (R^2 =.19, F (5, 43) = 3.82, p < .01. In support of Hypothesis 4, two dimensions of emotional intelligence were significant predictors of gratitude (EI_OEA β = .33, p < .05; EI_UOE β = .41, p < .05). This suggests that individuals' higher perceived levels of emotional intelligence were correlated with higher perceived levels of gratitude.

TABLE 4
REGRESSION RESULTS FOR RELATIONSHIP BETWEEN EI AND GRATITUDE

	Model 1	Model 2
	(□)	(□)
Controls		
Hours/Week Worked	-.03*	-.02
Time 2 EI_SEA		-0.07
Time 2 EI_OEA		0.33*
Time 2 EI_UOE		0.41*
Time 2 EI_ROE		-0.23
Model Summary	adj. R^2 = .10	adj. R^2 = .22
	F = 6.26*	F = 3.82**
	df = 1, 47	df = 5, 43

[a]Unstandardized regression coefficients are reported.

*p < .05; **p < .01; ***p < .001.

n = 48

Hypothesis 5 (Supported)

Hypothesis five predicted that students who participated in the EI mentoring program would have higher levels of gratitude than those in the control group.

A repeated measures ANOVA comparing the control and treatment groups at Time 1 and Time 2 indicated that there was a significant increase in perceptions of gratitude overall (F (1, 47) = 10.72, MS_{error} = .70, p < .01), such that gratitude levels are significantly higher after 8 weeks of class (see Table 5). There was a significant interaction between EI and the treatment groups, suggesting the treatment group had a significant increase in gratitude compared to the control group overall (F (1, 47) = 11.45, MS_{error} = .70, p

< .01). The treatment group increased in gratitude from 5.44 to 6.5 while the control group actually decreased slightly from 6.44 to 6.42.

TABLE 5
ANOVA FOR EFFECT OF DHARMA MENTORING ON GRATITUDE AT TIME 1 AND TIME 2

Source	SS	df	MS	F
Between		48		
Treatment vs. Control	3.22	1	3.22	4.24***
Error	35.78	47	.76	
Within		48		
Gratitude (Time 1 to Time 2)	7.49	1	7.49	10.72**
Gratitude X Treatment	8.00	1	8.00	11.45**
Error	32.85	47	.70	
Total	87.34	48		

**p < .01, ***p<.001

DISCUSSION

Implications for Theory and Future Research

This study has several implications for emotional intelligence (EI) theory and management practice.

H1: The mentoring and Dharma Life app treatment did not appear to significantly increase EI compared to the control group. This could be due to several factors. All the students were enrolled in a management classes that teaches management skills using an experiential method. The course learning objectives focused on managing teams, conflict, negotiation, empowerment and ethics. And although emotional intelligence is not specifically taught in this course, the EI concepts are certainly integral to effectively managing teams, conflict and empowerment. So, the course itself my increase students' confidences in understanding and managing their own and others' emotions. This suggests that future studies should perhaps use students that are not working on management skills, which may have confounded our results.

A second explanation for the lack of difference between the control and treatment groups is the small sample size in the study. Only 16 students completed the Dharma Life mentoring training and were compared to 33 students who served as the control group. This is a very small sample size—especially the 16 students in the treatment group. The Dharma Life mentoring process is very labor intensive and requires a one-hour phone meeting with a mentor each week, thus limiting the number of students that could be mentored. This small sample reduced the power of the statistics and may have introduced unexpected variances in the two groups.

Finally, the third explanation for our lack of results is the possibility that the Dharma Life mentoring program doesn't significantly increase emotional intelligence overall or in the way we measured it. The mentoring program focuses on one particular element of emotional intelligence that the mentor and student agree to work on. In the view of the student participants this led the mentoring to sometimes feel repetitive and too focused. So, it is possible that the training was too focused for our instrument to measure, because it didn't address other elements of EI. Students' comments suggest that they found the mentoring helpful overall and valued the conversations. However, the Dharma Life App for their smartphones was less valuable. It tended to be buggy, repetitive and not very much fun.

H2/H3: Participants with higher levels of EI did have lower levels of stress in support of Hypothesis 2. While all participants significantly increased their stress levels during the semester, there was no difference between the treatment and control groups, suggesting that participating in EI mentoring did not reduce stress levels. Thus, Hypothesis 3 was not supported. One possible explanation for the results is that the significant increase in stress for all students during the course of the semester swamped the impact of the

mentoring training. The hope was that the mentoring and the app would help students to process their emotions more effectively and hopefully deal with stress more effectively. Since the mentoring program didn't increase EI more than the control group, we might also expect that the students' abilities to manage their stress would also not increase more than the control group.

H4/H5: Hypothesis 4 predicted that students with higher levels of emotional intelligence would also have higher levels of gratitude, and this hypothesis was supported. This suggests that there is a relationship between EI and gratitude, such that either having higher levels of EI makes one more grateful or perhaps being more grateful enables one to have higher levels of EI. This suggests that working on EI and gratitude could help students manage themselves more effectively. Perhaps even more interestingly, the mentoring treatment group's level of gratitude did increase significantly more than the control group's level. This suggests that either the weekly personal mentoring calls increased participants' levels of gratitude or that simply being in the treatment group and getting the extra attention increased students' levels of gratitude. Comments from students supported the notion that they found the weekly mentoring calls helpful and were grateful for the opportunity.

This study adds to the emotional intelligence literature by examining the impact of mentoring and a smartphone mentoring app on emotional intelligence, stress and gratitude.

Limitations

This study used validated and reliable measure of EI and stress; however, they were self-reported measures by the participants. This raises the possibility that the results are caused by common method variance. However, since the results are consistent with other research on EI, stress, and gratitude we believe the results are solid. This study also used a small sample of only 16 students in the treatment group and 33 in the control group, thus limiting the power of the analysis.

Future Research

Our study adds to the emotional intelligence literature by examining the impact of mentoring and a smartphone mentoring app on emotional intelligence, stress and gratitude. Future studies can continue to explore methods for increasing emotional intelligence. EI mentoring with a smartphone app may have the potential to help students develop their emotional intelligence. Future studies will need to have a larger sample of mentored students in order to increase the power of the analysis. The Dharma Life App can continue to improve as well and perhaps future versions will be more effective for students.

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