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RESEARCH ARTICLE

Emotional Ability Among College Students: An exploration of gender differences

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In this exploratory study, a new theoretical model for measuring emotional intelligence, the Emotional Ability Model (EAM), is introduced. The EAM consists of eight construct areas: identifying, understanding, accepting, following, listening to, and regulating emotions, as well as sympathizing, and empathizing. The EAM was used to assess emotional intelligence levels of male and female college students at the University of Florida (UF; Gainesville, Florida). Participants ($N = 184$) were recruited from university classes to complete an anonymous online survey, the Emotional Ability Inventory (EAI). Statistical analyses indicated females differed significantly ($p < .01$) from males on aspects of five of the eight EAM constructs: accepting emotions, listening to emotions, following emotions, sympathizing, and empathizing. Findings from this study will assist researchers, professionals, and clients to gain an increased understanding of the new constructs of emotional ability introduced by the EAM.

INTRODUCTION

For years, scholars have explored factors that are related to emotional intelligence. Emotional intelligence is defined as "the ability to monitor one's own feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions" (Feyerherm & Rice, 2002). Past emotional intelligence research has focused on emotional abilities such as managing, understanding, perceiving, regulating, and harnessing emotions (Feyerherm & Rice, 2002; Schutte et al., 2001). Earlier research in emotional intelligence can be seen in the Multifactor Emotional Intelligence Scale (MEIS), which utilizes four constructs: identifying, using, understanding, and regulating emotions (Feyerherm & Rice, 2002). There is also the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT) V2.0, which utilizes four constructs: perceiving emotions, using emotions to facilitate thought, understanding emotions, and managing emotions (Mayer, Salovey, Caruso, & Sitarenios, 2003).

According to existing models, constructs associated with identifying emotions include the ability to perceive emotions in oneself and others (Brackett & Salovey, 2006). The ability to not only identify emotions, but also to comprehend their meanings, is essential for emotional health. Another construct, understanding emotions, requires language and thought to analyze emotions (Brackett & Salovey, 2006). Regulating emotions involves altering the form or frequency of emotional experiences, thoughts, or situations (Chapman, Dixon-Gordon, & Walters, 2011). Mayer, Caruso, and Salovey (1999) demonstrated that overall emotional intelligence correlates with self-reported empathy.

However, additional research suggests that listening to, accepting, and following emotions are also essential aspects of emotional well-being and intelligence (Dunn et al., 2010; Flynn, Hollenstein, & Mackey, 2010; Schreiner & Malcolm, 2008). Research indicates that by accepting thoughts, emotions, and sensations as they ensue, people can improve their self-management abilities (Schreiner & Malcolm, 2008). Non-acceptance of emotions is positively associated with their suppression, as well as symptoms of depression (Flynn, Hollenstein, & Mackey, 2010). Feelings and cognitions can be partly grounded in bodily responses and changes, which give rise to allegorical sayings such as "brokenhearted" or "gut feeling" (Dunn et al., 2010). Similarly, when one thinks and feels genuinely, it is often described as "listening to" or "following the heart" (Dunn et al., 2010).

The EAM, a new theoretical model for emotional intelligence, is introduced in an unpublished manuscript by Harris (2012). The model includes construct areas established in previous research – identifying, understanding, and regulating emotions; sympathizing, and empathizing – along with three new constructs: listening to, accepting, and following emotions (Figure 1). Listening to emotions refers to one's ability to consciously and intentionally "hear" and connect to one's emotions (Gottman, Katz, & Hooven, 1997; Harris, 2012, unpublished manuscript). Accepting emotions refers to the ability and willingness to fully experience all emotions, even negative emotions (Flynn, Hollenstein, & Mackey, 2010). Non-acceptance occurs when an individual does not want to feel or experience an unpleasant emotion (Flynn, Hollenstein, & Mackey, 2010). Following emotions refers to the ability to consciously and intentionally respond to what one's emotions are indicating (Gottman, Katz, & Hooven, 1997; Harris, 2012, unpublished manuscript).

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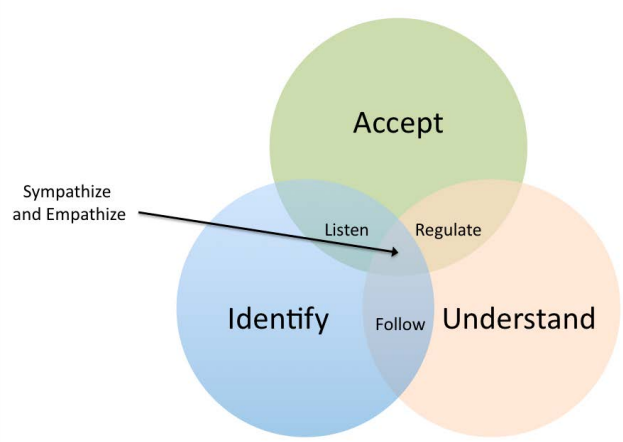

Figure 1. Conceptual Emotional Ability Model (EAM). This chart illustrates that increasing emotional intelligence levels in the eight listed areas predicts improved overall emotional intelligence.

Central to the EAM are the development of sympathy and empathy. Sympathy is an emotional response stemming from the apprehension or comprehension of another's emotional state, and the ability to relate to what others are feeling (Eisenberg, 2000). Empathy is the ability to participate in what others are feeling (Eisenberg, 2000). In contrast to sympathy, empathy is the ability to vicariously experience the emotional state of others.

The EAM makes three assumptions: 1) an individual is more likely to listen to his/her emotions if he/she can identify and accept them; 2) an individual is more likely to follow his/her emotions if he/she can identify and understand them; and 3) an individual is more likely to regulate his/her emotions if he/she can understand and accept them (Harris, 2012, unpublished manuscript). Increasing levels of emotional intelligence in each of these areas correlates with a greater ability to sympathize and empathize with others. The EAM also assumes that increasing emotional ability levels in these eight areas will improve overall emotional intelligence (Harris, 2012, unpublished manuscript).

For the purposes of this study, these eight constructs were examined using a 40-question survey instrument to assess each construct. It was hypothesized that if gender differences in emotional intelligence levels were observed, females would show overall higher mean levels of emotional intelligence than males. The authors also predicted that males and females would differ in all eight constructs of the EAM. These hypotheses were founded upon past emotional intelligence research suggesting that females report greater attention to emotions and tend to ruminate more about their emotions when compared to males (Thayer, Rossy, Ruiz-Padial, & Johnsen, 2003).

MATERIALS AND METHODS

Approval from the University of Florida (UF) Institutional Review Board was obtained before this research study was initiated. The 184 adult participants were UF students at the time the study was conducted. Participants were recruited from university classes and professional organizations. The survey was purposely directed toward students who were interested in learning more about emotional intelligence in an effort to improve their overall well-being. Additional snowball convenience sampling was also employed through personal contacts and referrals, to recruit participants.

The recruitment materials included a letter of information for study participants that outlined the purpose of the study. It also stated that participation in the study was voluntary, and described how it could potentially help participants learn more about their emotional intelligence. A demographic questionnaire was also employed to assess information such as age, work status, education level, race/ethnicity, and income level (Table 1).

The EAI survey questionnaire was created using Qualtrics (Qualtrics, Version 2013). The proposed EAM model was used to guide development (Harris, 2012, unpublished manuscript). Five questions were created to assess each of the eight constructs (40

Identifying Emotions Sample Question
I tend to misread peoples' facial expressions and, as a result, I'm often not sure how they are really feeling.
Understanding Emotions Sample Question
I tend to think of my emotions as positive or negative, rather than as good or bad.
Accepting Emotions Sample Question
I am comfortable talking to others about how I feel.
Listening to Emotions Sample Question
My emotions often indicate to me what my needs are.
Following Emotions Sample Question
I generally do what my emotions indicate for me to do so I can meet my needs in healthy ways.
Regulating Emotions Sample Question
I tend to overreact to emotionally charged situations (e.g. irresponsible drivers, people who offend me, sporting events, etc.).
Sympathy Sample Question
I try to help other people feel better when they are down or suffering.
Empathy Sample Question
I feel deep sorrow when I learn of others' sorrows and suffering.

Figure 2. The Emotional Ability Inventory (EAI) Scale. A sample survey question from each of the eight EAM constructs is given.

		Male (*N*=91)		Female (*N*=93)	
		Size	Percent	Size	Percent
Age	18-19	10	11.2	16	17.4
	20-21	33	37.1	54	58.7
	22-23	29	32.6	14	15.2
	24-25	8	9.0	5	5.4
	26-27	2	2.2	0	0
	28 or older	7	7.9	3	3.3
Work Status	Working full-time	1	1.1	1	1.1
	Working full-time while attending school	3	3.3	5	5.4
	Working part-time while attending school	31	34.4	45	48.4
	Full-time student/ not working	51	56.7	41	44.1
	Part-time student/ not working	1	1.1	0	0
	Unemployed/looking for work	3	3.3	1	1.1
Education Level	Some college	53	58.9	47	50.5
	Associate's Degree	18	20.0	40	43.0
	Bachelor's Degree	13	14.4	6	6.5
	Higher than a Bachelor's Degree	6	6.7	0	0
Race/Ethnicity	White	52	57.1	47	50.5
	Hispanic or Latino	6	6.6	17	18.3
	Pacific Islander	1	1.1	0	0
	Black or African American	17	18.7	18	19.4
	Asian	10	11.0	7	7.5
	American Indian or Alaskan Native	1	1.1	0	0
	Other (please specify)	4	4.4	4	4.3
Income Level	$0 - $19,999	78	86.7	79	84.9
	$20,000 - $39,999	7	7.8	9	9.7
	$40,000 or above	5	5.6	5	5.4

Table 1. Demographic characteristics of the EAI participants. The majority of the subjects were Caucasians between the ages of 20 and 23 with at least some college education.

questions total) (Figure 2). Survey questions 4, 10, 25, and 34, were obtained from a modified 33-item emotional intelligence scale, which showed good internal consistency ($\alpha = 0.90$) and test-retest reliability (0.78) (Schutte et al., 1998). Factor analysis showed little initial reliability for supporting all eight constructs introduced through the EAM, with the constructs clustering around identifying and regulating emotions, and empathizing (Harris, 2012, unpublished manuscript). However, the study's authors decided to proceed in order to determine if evidence could be found for separating the constructs through additional statistical analysis methods. Responses for all EAI questions were coded on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Statistical Packages for Social Sciences (SPSS) was used to analyze the survey data (IBM SPSS Statistics for Macintosh, Version 22.0). Descriptive statistics, Independent-Samples Kruskal-Wallis tests, and Independent Samples t-tests were performed in order to examine any gender differences found among the 40 individual questions asked, as well as between the eight constructs. In order to avoid Family-wise Error, which refers to the probability of making one or more Type I Errors among hypotheses when performing multiple hypotheses tests, the significance level of .01 was used, rather than .05. A Type 1 Error is defined as the incorrect rejection of a true null hypothesis -- a "false positive."

Because of the initial and exploratory nature of this study, the authors determined that it was important to analyze potential gender differences among all 40 individual questions asked because each question was considered a fundamental component of measuring each of the eight constructs. Additionally, because this was the first time the EAI was developed and used, identifying significant differences among individual questions helped the authors to distinguish among each EAM construct, and to determine which questions would be used to best discriminate between these constructs in future EAI iterations. Past studies have outlined the usefulness of analyzing individual survey questions in order to better understand various aspects of research components (Melekoglu & Wilkerson, 2013).

RESULTS

Demographic characteristics between male and female subjects did not differ significantly. This data is summarized in Table 1.

The Kruskal-Wallis non-parametric test was used to test for mean differences by gender. The results of this test are summarized in Table 2. Survey questions that showed a significant difference in the Kruskal-Wallis test also showed significance in Independent Samples *t*-tests (Table 3). Both results indicated statistically significant differences across five of the eight EAM constructs examined: accepting emotions, listening to emotions, following emotions, sympathizing, and empathizing. However, a significant difference was found in no more than three of the five questions used to assess each construct.

The identifying emotions construct did not have an overall statistically significant difference. However, this construct contained

	Male	Female		
	Mean	*Mean*	*Chi-Square*	*p*
I am comfortable talking to others about how I feel.	79.28	104.31	11.03	<0.01
My emotions often indicate to me what my needs are.	73.69	110.11	25.58	0.0001
I generally do what my emotions indicate for me to do so I can meet my needs in healthy ways.	0.94	102.70	9.03	<0.01
I have a tough time relating to what other people are feeling.	82.03	101.86	7.49	<0.01
I try to help other people feel better when they are down or suffering.	82.37	102.41	8.19	<0.01
I feel deep sorrow when I learn of others' sorrows and suffering.	76.08	107.40	19.19	<0.0001
When my friends are experiencing problems, I tend to hurt inside similar to the way they are hurting.	77.88	106.81	15.17	<0.0001
When I see others cry because they are hurting, I feel so badly for them that I often feel like crying too.	70.16	114.36	33.88	<0.01

Table 2. Kruskal-Wallis Independent Samples Test for emotional ability gender differences. These questions indicate statistically significant differences in five of the eight EAM constructs.

an individual question with a considerable significant difference. Question number 3 ("I tend to misread peoples' facial expressions and, as a result, I'm often not sure how they are really feeling") had the lowest p-value out of the identifying emotions construct ($\chi^2 = 4.204$, $p = .040$, $p < .01$) ($M = 4.01$ and 3.75, $SD = .949$ and .928, respectively).

Summary mean differences in overall emotional ability by gender revealed that the empathizing construct showed the largest difference between males and females ($M = 3.37$, $M = 3.85$), respectively (Figure 3). The accepting emotions, listening to emotions, following emotions, sympathizing, and empathizing constructs showed higher statistically significant scores for females than males. In summary, the females in this sample on average reported higher levels of overall emotional ability, resulting in higher overall emotional intelligence ($M = 3.41$, $M = 3.56$).

DISCUSSION

This study provided preliminary evidence suggesting gender differences exist in overall emotional intelligence levels, with females reporting higher overall mean levels than males in six of the eight EAM constructs. These findings generally support the hypothesis that females would show overall higher mean levels of emotional intelligence than males. This finding is consistent with other findings that suggest that females tend to be better at overall emotional ability and management (Mandell & Pherwani, 2003). Results from this study also supported previous findings by other researchers related to emotional intelligence, such as females being more empathetic than males (Toussaint & Webb, 2005; Wied, Branje, & Meeus, 2007).

The authors of this study also hypothesized that males and females would differ in all eight constructs of the EAM. This hypothesis was not completely supported by the data in this study. Using Kruskal-Wallis nonparametric tests and t-tests, significant gender differences were observed for only five of the eight emotional ability constructs. Of these, a significant difference was found in no more than three of the five questions associated with each construct.

No significant gender differences were observed in the identifying emotions construct. This finding was contrary to the results of Gottman, Katz, & Hooven (1997). The current study's result may have been caused by the overall difficulty that people have in identifying emotions in others, unless the expressions displayed are quite strong (Ekman, 2003). Additional research indicates that the ability to identify emotions tends to improve with age, which is important to note for our study's sample (Bar-On & Parker, 2000). Our sample consisted of college students, with the minimum age being 18 years old. A study by Bar-On (2006) revealed that respondents in their late 40s obtained the highest mean scores on

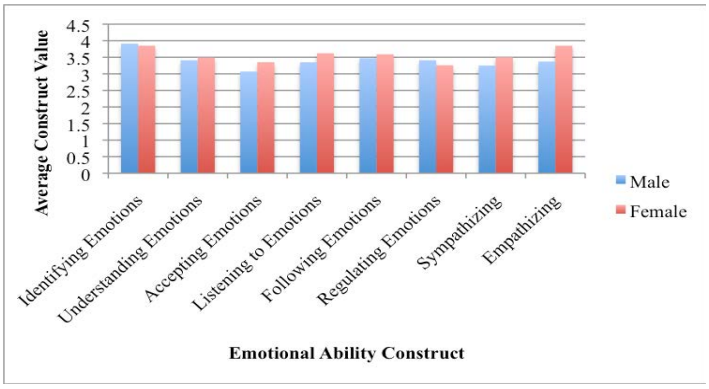

Figure 3. Mean values of emotional abilities by gender. Males had higher average emotional abilities than females in two EAM constructs, and females had higher overall emotional intelligence than males.

an Emotional Quotient Inventory, suggesting that emotional intelligence may be learned through life experience. Thus the subjects in our study may have been too young to have developed high emotional intelligence.

In addition, no significant gender differences were observed in the understanding emotions construct. Bar-On and Parker (2000) demonstrated that the ability to understand emotional states could begin as early as childhood, showing that infants, regardless of gender, can not only imitate their mothers' facial expressions, but also recognize their emotions and react to them. Perhaps the participants in our sample had overall solid foundations for understanding emotions beginning early on in life, due to the emotional messages from their parents, especially mothers. This could have led to a proficiency of both genders in their ability to understand emotions.

Finally, no significant gender differences were observed in the regulating emotions construct. However, it is interesting to note that males had higher overall mean levels in this construct. The authors hypothesized that females would have greater emotional regulation abilities due to their tendencies to pay more attention to their emotions (Thayer et al., 2003). Past research has shown that self-reported mindfulness is related to effective emotional regulation (Hill & Updegraff, 2012). It is possible that both males and females tend to practice effective mindfulness, reducing emotional difficulties for both genders. Mindfulness may improve emotional regulation by influencing people's awareness of their emotional experiences (Hill & Updegraff, 2012). Furthermore, similar to understanding emotions, emotional regulation strategies can be learned from early childhood onwards (McDowell, Kim, O'Neil, & Parke, 2002).

This study had several limitations. Firstly, the authors originally intended to collapse each of the five survey questions for each EAM construct into a scale that could better measure emotional ability and overall emotional intelligence gender differences between males and females. An initial factor analysis did not show that the results loaded in each of the proposed areas for the EAM. The constructs clustered around identifying and regulating emotions, and empathizing (Harris, 2012, unpublished manuscript). Therefore, for this initial exploratory study, individual questions were used in the data analysis to assess potential gender differences for the eight EAM construct areas. While this method of assessing gender differences was not viewed as ideal, it served as a beginning point to determine which survey questions showed significance and discriminatory reliability for future iterations of the EAI.

Additionally, data collection included several issues. More accurate results could have been obtained with a larger sample size of participants. Missing data provided another challenge, with some of the participants leaving several of the survey questions unanswered. This led to the responses of some participants being excluded from the analyses. The study also consisted of self-reported data, which made the reported results vulnerable to internal validity issues such as social desirability. To reduce participants' concerns about being judged based on their survey responses, future studies can, perhaps, include a statement that reassures them that "there are no right or wrong answers."

CONCLUSION

This study introduced a new theoretical framework for studying emotional intelligence, the EAM, and its eight related constructs (Harris, 2012, unpublished manuscript). The EAI was also introduced to measure participants' emotional abilities in the eight constructs described by the EAM (Harris, 2012, unpublished manuscript), thus predicting overall emotional intelligence.

The literature indicates that emotional intelligence is important for a wide variety of situations, from personal to professional relationships (Feyerherm & Rice, 2002; Smith, Heaven, & Ciarrochi, 2008). For example, it has been observed that the most satisfied

	Male		Female			
	M	*SD*	*M*	*SD*	*t*	Cohen's *d*
I am comfortable talking to others about how I feel.	2.96	1.20	3.53	1.11	-3.35*	-0.49
My emotions often indicate to me what my needs are.	3.14	1.08	3.87	0.62	-5.60*	-0.83
I generally do what my emotions indicate for me to do so I can meet my needs in healthy ways.	1.02	3.62	0.83	-3.17*	-0.46	-0.46
I have a tough time relating to what other people are feeling.	1.05	4.10	0.87	-2.85*	-0.43	-0.43
I try to help other people feel better when they are down or suffering.	0.70	4.49	0.65	-2.64*	-0.38	-0.38
I feel deep sorrow when I learn of others' sorrows and suffering.	0.81	4.00	0.72	-4.61*	-0.68	-0.68
When my friends are experiencing problems, I tend to hurt inside similar to the way they are hurting.	1.00	3.68	0.89	-3.91*	-0.58	-0.58
When I see others cry because they are hurting, I feel so badly for them that I often feel like crying too.	1.16	3.63	0.94	-6.41*	-0.94	-0.94

Table 3. Independent Samples *t*-test by gender. These questions indicate statistically significant differences in five of the eight EAM constructs. *$p < .01$.

couples in romantic relationships rate their partners high in emotional intelligence (Smith, Heaven, & Ciarrochi, 2008). A positive correlation has also been found between emotional intelligence and team performance (Feyerherm & Rice, 2002).

The findings in this study highlight the importance of considering gender differences in specific emotional abilities within both informal and formal settings. This exploratory study provides a starting point to encourage and advance support for additional research on emotional ability and intelligence. Parsing out and focusing on gaining knowledge and skills in the EAM construct areas represents one approach to reducing emotional intelligence to measurable components. This, in turn, can lead to achieving greater emotional abilities that positively impact overall emotional health and well-being.

REFERENCES

Bar-On, R. (2006). The Bar-On model of emotional-social intelligence (ESI). *Psicothema, 18*, supl. 13-25.

Bar-On, R., & Parker, J. D. (2000). *The handbook of emotional intelligence: Theory, development, assessment, and application at home, school, and in the workplace*. San Francisco, CA: Jossey-Bass.

Brackett, M. A., & Salovey, P. (2006). Measuring emotional intelligence with the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). *Psicothema, 18*, 34-41.

Chapman, A. L., Dixon-Gordon, K. L., & Walters, K. N. (2011). Experiential avoidance and emotion regulation in borderline personality disorder. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 29*(1), 35-52.

Dunn, B. D., Galton, H. C., Morgan, R., Evans, D., Oliver, C., Meyer, M., Cusack, R., Lawrence, A. D., & Dalgleish, T. (2010). Listening to your heart: How interoception shapes emotion experience and intuitive decision making. *Psychological Science, 21*(12), 1835-1844.

Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annual Review of Psychology, 51*, 665-697.

Ekman, P. (2003). *Emotions Revealed: Recognizing faces and feelings to improve communication and emotional life*. New York, NY: Times Books.

Feyerherm, A. E., & Rice, C. L. (2002). Emotional intelligence and team performance: The good, the bad and the ugly. *International Journal of Organizational Analysis, 10*(4), 343-362.

Fiori, M., & Antonakis, J. (2011). The ability model of emotional intelligence: Searching for valid measures. *Personality and Individual Differences, 50*(3), 329-334.

Flynn, J. J., Hollenstein, T., & Mackey, A. (2010). The effect of suppressing and not accepting emotions on depressive symptoms: Is suppression different for men and women? *Personality and Individual Differences, 49*(6), 582-586.

Gottman, J. M., Katz, L. F., & Hooven, C. (1997). *Meta-emotion: How families communicate emotionally*. Mahwah, NJ: Lawrence Erlbaum Associates.

Harris, V. W. (2012). *Emotional Ability*. Unpublished manuscript, University of Florida, Gainesville.

Hill, C. L., & Updegraff, J. A. (2012). Mindfulness and its relationship to emotional regulation. *Emotion, 12*(1), 81-90.

IBM SPSS Statistics for Macintosh [Computer Software]. (2013). Armonk, NY: IBM Corp.

Mandell, B., & Pherwani, S. (2003). Relationship between emotional intelligence and transformational leadership style: A gender comparison. *Journal of Business and Psychology, 17*(3), 387-404.

Mayer, J. D., Caruso, D. R., & Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence, 27*(4), 267-298.

Mayer, J. D., Salovey, P., Caruso, D. R., & Sitarenios, G. (2003). Measuring emotional intelligence with the MSCEIT V2.0. *Emotion, 3*(1), 97-105.

McDowell, D., Kim, M., O'Neil, R., & Parke, R. D. (2002). Children's emotional regulation and social competence in middle childhood. *Marriage & Family Review, 34*(3-4), 345-364.

Melekoglu, M. A., & Wilkerson, K. L. (2013). Motivation to read: How does it change for struggling readers with and without disabilities? *International Journal of Instruction, 6*(1), 77-88.

Qualtrics [Computer software]. (2013). Retrieved from https://ufl.qualtrics.com

Schreiner, I., & Malcolm, J. P. (2008). The benefits of mindfulness meditation: Changes in emotional states of depression, anxiety, and stress. *Behaviour Change, 25*(3), 156-168.

Schutte, N. S., Malouff, J. M., Bobik, C., Coston, T. D., Greeson, C., Jedlicka, C., Rhodes, E., & Wendorf, G. (2001). Emotional intelligence and interpersonal relations. *The Journal of Social Psychology, 141*(4), 523-536.

Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences, 25*(2), 167-177.

Smith, L., Heaven, P. C., & Ciarrochi, J. (2008). Trait emotional intelligence, conflict communication patterns, and relationship satisfaction. *Personality and Individual Differences, 44*(6), 1314-1325.

Thayer, J. F., Rossy, L. A., Ruiz-Padial, E., & Johnsen, B. H. (2003). Gender differences in the relationship between emotional regulation and depressive symptoms. *Cognitive Therapy and Research, 27*(3), 349-364.

Toussaint, L., & Webb, J. R. (2005). Gender differences in the relationship between empathy and forgiveness. *The Journal of Social Psychology, 145*(6), 673-685.

Wied, M. D., Branje, S. J., & Meeus, W. H. (2007). Empathy and conflict resolution in friendship relations among adolescents. *Aggressive Behavior, 33*(1), 48-55.