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Using a Self-Compassion Intervention to Increase Undergraduates' Emotional Intelligence

by

Debra H. Huber

A dissertation

submitted in partial fulfillment

of the requirements for the degree of

Doctor of Educational Leadership (Instructional Design and Technology)

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To the Graduate Faculty:

The members of the committee appointed to examine the dissertation of Debra Huber find it satisfactory and recommend that it be accepted.

Dr. John Curry
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# Human Subjects Committee Approval

May 25, 2022

Debbie Huber
Educ Leadership

RE: Study Number IRB-FY2022-220: Can a self-compassion intervention increase undergraduate's emotional intelligence?

Dear Ms. Huber:

Thank you for your responses to a previous review of the study listed above. I agree that this study qualifies as exempt from review under the following guideline: Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording).

The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects.

This letter is your approval, please, keep this document in a safe place.

Notify the HSC of any adverse events. Serious, unexpected adverse events must be reported in writing within 10 business days.

You are granted permission to conduct your study effective immediately. The study is not subject to renewal.

Please note that any changes to the study as approved must be promptly reported and approved. Some changes may be approved by expedited review; others require full board review. Contact Tom Bailey (208-282-2179; fax 208-282-4723; email: humsubj@isu.edu) if you have any questions or require further information.

Sincerely,


Ralph Baergen, PhD, MPH, CIP

Human Subjects Chair

**Dedication**

       I dedicate this dissertation to my family and friends, especially my husband, Jim, and my amazing children, Nick and Lindsey. Thank you for all your support and inspiration through your caring and compassionate words and actions.

# Acknowledgements

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## List of Abbreviations

AES           Assessing Emotions Scale

EI              Emotional intelligence

SCS           Self-Compassion Scale

SCS-SF      Self-Compassion Scale Short Form

**Abstract**


Using a Self-Compassion Intervention to Increase Undergraduates' Emotional Intelligence

Dissertation Abstract—Idaho State University (2023)


Developing undergraduates' emotional intelligence (EI) may improve current academic and future work performance, as well as health and well-being. Self-compassion is a concept that seems to align with EI and research suggests EI and self-compassion are positively correlated. Both EI and self-compassion levels in undergraduates, as measured by the Assessing Emotions Scale (AES) and the Self-Compassion Scale-Short Form (SCS-SF) respectively, have been improved through interventions. This quasi-experimental, quantitative study measured two dependent variables—AES and SCS-SF scores—using a pre- and posttest nonequivalent control group design. The independent variable was exposure to the self-compassion intervention designed using the Multiple Approaches to Understanding instructional design model and delivered asynchronously over three weeks. Instructors assigned the intervention as required coursework in three separate business and education courses, and intervention group participants ($n = 46$) were recruited to take pre- and posttests, as well as answer weekly adherence and engagement questions. Participants for the control group ($n = 48$) were recruited from separate classes during the same 3-week period in Fall 2022. A repeated measures analysis of variance did not find statistically significant differences between or within groups on either dependent variable over the 3-week period. Adherence data indicates most participants did not complete the intervention activities. Four conclusions are discussed: delivery mode mismatch for these participants, the brief duration of the study, potential issues surrounding the use of incentives and participants in multiple courses contributing to the dependent variables' standard deviations, and

an alternative application for the intervention. Most self-compassion studies recruit volunteers to attend trainings, so this study adds to the literature by using participants who were assigned the intervention.

Key Words: self-compassion, emotional intelligence, self-compassion intervention, Assessing Emotions Scale, Self-Compassion Scale-Short Form, intrapersonal skills, self-management, self-awareness, Multiple Approaches to Understanding instructional design model

## Chapter I: Introduction

**Statement of the Problem**

The ability to pay attention to mistakes and view them as opportunities to improve is challenging because it can be difficult to suffer through painful events. Developing compassion may help because compassion is the desire to act to alleviate suffering for others and oneself (Singer & Klimecki, 2014), and is a skill one can build (Ferrari et al., 2019; Jazaieri et al., 2013; Kirby et al., 2017; Neff & Germer, 2013). The self-awareness to notice painful emotions and the self-management to choose a compassionate response are both aspects of the theory of emotional intelligence (Goleman, 1995, 1998; Mayer & Salovey, 1997; Salovey & Mayer, 1990).

The framework of emotional intelligence (EI) has been proposed as a set of intra- and interpersonal traits (Petrides et al., 2007b), abilities (Mayer & Salovey, 1997; Salovey & Mayer, 1990) or competencies (Boyatzis, 2009; Goleman, 1998). In K-12 systems, developing EI is operationalized as social and emotional learning, and research supports its relationship with positive academic outcomes (Durlak et al., 2011; Jazaieri, 2018; R. D. Taylor et al., 2017). By expanding the population of studies to include post-secondary, a recent meta-analysis of 188 findings supports a connection between EI and academic performance, with the specific abilities to understand and manage emotions showing the strongest predictive possibility (MacCann et al., 2020). In the workplace, EI is commonly referenced as an important set of skills (Boyatzis, 2001; Goleman, 1998; Goleman et al., 2002; MacCann et al., 2020) and research supports the power of EI levels to positively predict better job performance (Allen et al., 2021; Joseph et al., 2015; O'Boyle et al., 2011), as well as health, adaptive coping, and well-being (Altaras Dimitrijević et al., 2018; Keefer et al., 2009; Martins et al., 2010; Sánchez-Álvarez et al., 2016; Schutte et al., 2007).

Universities have responded with efforts to develop graduate and undergraduate students' EI (Boyatzis & Cavanagh, 2018; Dacre Pool & Qualter, 2012; Joyner & Mann, 2011). These efforts have used different conceptualizations of EI and various EI instruments to study the potential impact (Choi et al., 2015; Clark et al., 2003; Gilar-Corbí et al., 2018; Hen & Sharabi-Nov, 2014; Muyia & Kacirek, 2009; Nelis et al., 2011; Schutte & Malouff, 2002; Thompson et al., 2020; Vesely et al., 2014). One of these instruments, the Assessing Emotions Scale (Schutte et al., 1998), is based on a definition of EI developed by Salovey and Mayer (1990). This conceptualization is divided into three main components: (a) appraisal and expression of emotion, (b) regulation of emotion, and (c) utilization of emotion. The first and second components are further divided into how this aspect of EI relates to oneself (intrapersonal) and others (interpersonal). The third component also includes intra and inter-personal aspects of optimism and motivation (Salovey & Mayer, 1990).

Though not specifically mentioned in the most common definitions of EI, self-compassion is theorized as an aspect of EI by a few researchers (Anand, 2019; Neff, 2003b; Neff et al., 2005). For example, in the creation of the instrument used to measure self-compassion in this study, the Self-Compassion Scale (SCS), a measure of EI supported its construct validity (Neff, 2003b). According to Neff (2003a), self-compassion includes *self-kindness*, which is talking to oneself like one would to a friend; a sense of *common humanity*, which acknowledges that difficult experiences are part of the human experience; and *mindfulness* which is the awareness to recognize a moment that requires self-compassion without avoiding or getting caught up in emotions. Research links self-compassion to self-improvement motivation (Breines & Chen, 2012), goal commitment (Babenko & Oswald, 2019; Neff et al., 2005), reduced anxiety (Luo et al., 2019; Tang, 2019), helpful behaviors (Lindsay & Creswell, 2014), positive emotions

for students in group projects (Park et al., 2018), and productive student communication behaviors (Long & Neff, 2018), as well as optimism, happiness, personal initiative, and reflective wisdom (Neff, Rude & Kirkpatrick, 2007).

Developing undergraduates' self-compassion may serve two important purposes: preparation for future roles that will require EI competencies, while also developing self-management skills today to improve well-being and academic performance. Studies show self-compassion can be increased through training (Ferrari et al., 2019; Linardon, 2020; Neff & Germer, 2013). A few studies have examined correlations between self-compassion and EI (Christopher et al., 2016; di Fabio & Saklofske, 2021; Heffernan et al., 2010), but what remains to be studied is whether an intervention to develop self-compassion will increase EI.

**Purpose of the Study**

The purpose of this quasi-experimental, quantitative study was to measure if a self-compassion intervention improved undergraduate students' EI, as measured by the Assessing Emotions Scale.

**Research Questions**

Primary: Will students' EI scores increase after completing the self-compassion intervention?

Secondary: Will students' self-compassion scores increase after completing the self-compassion intervention?

**Research Design**

The data to answer these research questions was gathered with a quasi-experimental nonequivalent control group design (D. T. Campbell & Stanley, 1963) study. A 3-week, asynchronous self-compassion intervention was delivered to all students enrolled in three

participating face-to-face courses at the research site, while students in three other face-to-face courses participated as members of the control group who did not receive the intervention. Voluntary participants from both the intervention and control groups signed consent forms and took a pretest to capture their base level scores on reliable and valid research instruments to measure EI and self-compassion (Ciarrochi et al., 2002; Kun et al., 2010; Neff, 2016; Neff et al., 2019; Neff & Tóth-Király, 2022; Raes et al., 2011; Schutte et al., 2009). Three weeks later, all participants took a posttest using the same scales. The scores from these two instruments, the Assessing Emotions Scale to measure EI (Schutte et al., 2009) and the Self-Compassion Scale-Short Form (SCS-SF) to measure self-compassion (Raes et al., 2011), are the dependent variables of the study. Membership in either control or intervention group is the independent variable. The pre- and posttest scores for both dependent variables were examined to see if the intervention impacted the participants' scores.

**Delimitations**

Choices related to the independent variable limit the scope of this study in several ways. First, a specific self-compassion intervention was used as the independent variable. Other methods beyond self-compassion skill development for impacting the primary dependent variable, EI, may be effective at influencing undergraduate students' levels of EI, but were not examined in this study. Second, the self-compassion intervention was designed using the Multiple Approaches to Understanding instructional design model (Gardner, 1999), so the effectiveness of self-compassion taught using other instructional design models with these participants remains unknown. Third, this self-compassion training was delivered asynchronously, so the study did not examine if a self-compassion intervention designed with the same instructional model delivered in a synchronous group setting would produce different

results. Finally, the impact of different instructors delivering this content using the same instructional design remains unexamined.

Additional delimitations are found in the choices related to items such as dependent variables, participants, and research site. These choices impact the external validity of this study, which is "the extent and manner in which the results of an experiment can be generalized to different subjects, setting, experimenters, and, possibly, tests" (Bracht & Glass, 1968, p. 438). Twelve external validity factors can threaten the validity of a study (Bracht & Glass, 1968), but only the applicable threats are addressed here.

### Experimentally Accessible Population vs. Target Population

The target population of this study is current and near-term future students at the research site because I am an instructor at the site and curious about the applicability of the intervention. However, it may be difficult to generalize the results of this study to the target population because the participants were not randomly selected. In addition, the students who registered for the courses from which participants were recruited may not be representative of current and future students, even though they were not aware of the study when they registered for classes. It would not be appropriate to generalize the results to a broad population, like all U.S. undergraduates, because the demographics of the student body at the research site are not representative of the U.S. population (see Chapter III).

### Experimenter Effect

Experimenter effects are described as active, associated with the experimenter's behavior, and passive, associated with the experimenter's appearance (Bracht & Glass, 1968). To minimize the active aspects of this threat to external validity, a script was followed when participants were

recruited. Passive experimenter effects would be expected to be the same for both the control and treatment groups since the same person recruited all participants.

### Pretest Sensitization

This study used a pretest, which means the pretest sensitization threat to external validity exists. Also, the dependent variable is a self-report assessment tool of personal attitudes, which "indicates that the effect is most likely to occur" (Bracht & Glass, 1968, p. 463). The terms in the pretest may have sensitized the participants to the concepts of self-compassion and EI, and there was no lag between the pretest and the intervention to help minimize this threat.

### Posttest Sensitization

The existence of a posttest also poses a threat to external validity. Perhaps the posttest questions reinforced the idea that how one responds to suffering is related to EI, yet that connection may not be made by future members of the target population who participate in the intervention without a posttest.

### Interaction of History and Treatment Effect

This threat to validity was considered, but a major event did not appear to occur during the study.

### Measurement of the Dependent Variables

Instruments were chosen that are consistent with the definitions of EI and self-compassion used in this study. However, there are multiple definitions and measurements of EI (see Chapter II) and using a different instrument for either dependent variable may produce different results, even with the same intervention and same target population.

*Interaction of Time of Measurement and Treatment Effects*

The posttest in this study was administered immediately following the intervention, so this study does not measure the lasting impact of the intervention on participants' EI level over time.

**Limitations**

Twelve threats to internal validity have been identified: history, maturation, testing, instrumentation, statistical regression, selection, experimental mortality, interactions with selection, diffusion of treatment, compensatory equalization of treatment, compensatory rivalry, and resentful demoralization of the control group (D. T. Campbell & Stanley, 1963; Cook & Campbell, 1979). According to Campbell and Stanley (1963), the design of this study adequately controls for internal threats from history, maturation, testing, and instrumentation, assuming the recruitment process and pretest scores for both groups are similar. However, it is possible that an event that occurs only for the intervention group (intrasession history) may explain different dependent variable results instead of the intervention (D. T. Campbell & Stanley, 1963), thus limiting the validity of any results. Of the other eight threats to internal validity, the threats discussed below are most pertinent to this study.

*Selection*

If differences in dependent variable scores between the intervention and control groups can be explained by differences in the participants selected for each group, then one cannot be confident that the independent variable is the reason for the difference and a significant threat to validity occurs (Cook & Campbell, 1979). Since participants in this study were not randomly assigned, this threat exists.

*Interactions with Selection*

Other threats to validity can also interact with selection, so Cook and Campbell (1979) highlight three problematic interactions: selection-history, selection-maturation, and selection-instrumentation. Selection-history threats are less likely to be a concern in this study since the participants were all drawn from the same institution simultaneously. However, a highly impactful emotional event may have occurred in one of the classes participating in the study, which would be a unique event that one could argue is a rival to the independent variable as a reason for score changes. The threat of selection-maturation was minimized by using a brief, 3-week intervention. If scores on the dependent variable instruments are extremely high or low, then uneven improvement intervals, selection-instrumentation, could pose a threat to validity.

*Experimental Mortality*

If participants drop out of a study between the pre- and posttest, this opens the door to the possibility of attributing posttest differences to differences from participants who completed the pre- and posttests (D. T. Campbell & Stanley, 1963). The design was meant to control for this threat by excluding participants who did not complete both the pre- and posttest.

**Significance of the Study**

Developing one's level of EI may improve academic and work performance, as well as health and well-being (MacCann et al., 2020; O'Boyle et al., 2011; Sánchez-Álvarez et al., 2016), so providing training to develop EI skills to undergraduates may be worthwhile (Bonesso et al., 2019; Goleman et al., 2002). Since self-compassion may be an aspect of EI (Anand, 2019; Neff, 2003b), research suggests EI and self-compassion are correlated (di Fabio & Saklofske, 2021), and studies provide support for the assertion that EI can be improved without direct EI instruction (Christopher et al., 2016; Clark et al., 2003; Manring, 2012), the lack of published

studies examining self-compassion interventions to improve EI is a gap in the literature. This quantitative, quasi-experimental study measured the impact on a measure of EI (the Assessing Emotions Scale) of introducing undergraduates at a rural U.S. university to activities for developing one's self-compassion.

## Chapter II: Literature Review

**Emotional Intelligence Literature**

### *Multiple Intelligence Theory as Foundation*

Four decades ago, Gardner (1983) theorized that multiple intelligences exist within every person. The theory includes criteria for identifying a unique intelligence, combining psychological, biological, and cultural perspectives to define criteria for identifying useful, important, and relatively unique intelligences. Eight of these intelligences fully meet Gardner's definition, though more may exist: linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, naturalist, interpersonal and intrapersonal (Gardner, 1999). These last two intelligences are also known as the personal intelligences (Gardner, 1983). Interpersonal encompasses one's ability to understand the moods and motivations of others and collaborate effectively, while intrapersonal includes the self-knowledge of one's emotions and inner life, then using those insights to direct one's thoughts and actions (L. Campbell et al., 1996; Gardner, 1995).

This pluralistic theory of intelligence also asserts that individuals possess different levels of potential for each intelligence, unless one's brain has been damaged (Gardner, 2011). The multiple intelligence theory posits that one can develop abilities within each intelligence over time, altering one's unique combination of strengths and weaknesses (Gardner, 1999, 2011). According to this theory, one uses several of these intelligences to navigate challenges at school, work, and life, but only two of these intelligences, linguistic and logical-mathematical, are the focus of most secular educational systems (Christodoulou et al., 2011).

Salovey and Mayer (1990) incorporated Gardner's (1983) personal intelligences in their original emotional intelligence (EI) model by explicitly including intrapersonal and interpersonal

aspects (Schutte et al., 1998). This model of EI includes: (a) appraisal and expression of emotion in self and other, (b) regulation of emotion in self and others, and (c) using emotions, which include flexible planning, creative thinking, redirected attention, and motivation (Salovey & Mayer, 1990). Goleman (1995) built on personal intelligences (Gardner, 1983) and slightly modified Salovey and Mayer's (1990) model in bestselling books that brought much attention to the concept of EI (Goleman, 1995, 1998). Mayer and Salovey (1997) responded to criticisms and misrepresentations of their original model with an updated model focused on using cognition in the world of emotions and a measurement scale following in the psychometric tradition of intelligence testing (Daus & Ashkanasy, 2005). These three models--Salovey and Mayer (1990), Goleman (1998), and Mayer and Salovey (1997)—all emerge from Gardner's (1983) multiple intelligence theory and are foundational models in the EI literature.

### *What is Emotional Intelligence?*

EI is broadly defined as "the abilities to regulate and recognize emotions in ourselves and in others" (Goleman, 2001, p. 14) and "to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990, p. 189). Some scholars consider these abilities to be facets of intelligence (Brackett et al., 2006; Dacre Pool & Qualter, 2012; Mayer et al., 2003; Salovey et al., 2008; Salovey & Mayer, 1990) and others view these abilities as competencies, skills, or traits (Bar-On et al., 2007; Boyatzis, 2009; Boyatzis et al., 2000, 2015; Cherniss & Goleman, 2001; Goleman, 1998, 2001; Goleman et al., 2002; Petrides et al., 2007a). The lack of consensus around the conceptualization is a common criticism of EI (Davies et al., 1998; Grewal & Salovey, 2005; MacCann et al., 2020; Matthews et al., 2004; Rooy et al., 2005; Waterhouse, 2006; Zeidner et al., 2008, 2013). The disparate definitions began with the development of multiple EI assessment tools (Bar-On, 1997; Boyatzis et al., 2000; Mayer et al., 2003; Schutte et

al., 1998), which coincided with popular attention from the public and corporations' attempts to measure and develop EI in their employees (Zeidner et al., 2009).

Over time, the importance of organizing the disparate definitions grew in order to understand the sometimes-inconsistent results of EI studies (Mavroveli et al., 2007) and to meta-analyze the literature. One leading approach categorizes studies into two categories: ability EI or mixed-model EI, which is also called self-report EI or trait EI (Harms & Credé, 2010; Keefer et al., 2018; Martins et al., 2010; Mavroveli et al., 2007; R. M. O'Connor & Little, 2003; Petrides & Furnham, 2001; Schutte et al., 2007). Ability EI studies are guided by the second version of the ability EI model created by Mayer and Salovey (1997) using a measurement tool with right or wrong answers (Mayer et al., 2003). This measurement tool, the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT and MSCEIT V2.0), comes from the psychometric tradition of intelligence testing (Mayer et al., 2004) The theory behind the tool evolved as a cognitive-based approach that focuses on measuring one's mental abilities related to emotions (Goleman, 2001). The second category, mixed-model EI, includes all other EI studies. These studies may use self-reported assessments or tools such as the Emotional Competency Inventory (ECI) which gathers data on behaviors that are observed by others, such as colleagues and supervisors (Boyatzis et al., 2000).

Ashkanasy and Daus (2005) defined another categorization scheme, now also prevalent in the EI literature, using what they call three *streams*. First, *Stream 1* is defined by all studies using the Mayer and Salovey's (1997) ability EI model and the MSCEIT tests. Then, this framework separates the mixed-model studies into *Stream 2*, self-rated studies based on the original and 1997 models of Salovey and Mayer, and *Stream 3*, studies based on all other models and measurements (Allen et al., 2021; Ashkanasy & Daus, 2005; Joseph et al., 2015; Joseph &

Newman, 2010; O'Boyle et al., 2011). The EI models in Stream 3 "define their measure in terms of traits, competencies, and skills instead of intelligences" (O'Boyle et al., 2011. p. 806). Since the last stream is defined as everything that does not fit in Stream 1 and 2, this stream contains both trait measures, which are measured via self-report instruments in the tradition of personality traits, and behavioral measures, which are not solely self-reported, so some researchers and supporters of models in this stream do not agree with this categorization (Boyatzis et al., 2015; P. J. O'Connor et al., 2019).

### *Benefits of Developing Emotional Intelligence Competencies*

**Work Performance.** There are enough studies to support the meta-analysis of EI and work performance research (Allen et al., 2021; Harms & Credé, 2010; Joseph et al., 2015; Joseph & Newman, 2010; Mattingly & Kraiger, 2019; Miao et al., 2017a, 2017b; O'Boyle et al., 2011; Rooy et al., 2005). EI significantly and positively correlates with job performance, as measured by peer-, supervisor- and self-reported scales, as well as objective performance metrics (Joseph et al., 2015; Joseph & Newman, 2010; O'Boyle et al., 2011). Leadership and EI competencies also appear to be significantly associated (Boyatzis & Cavanagh, 2018; Côté et al., 2010; Goleman et al., 2002; Higgs & Rowland, 2010; Nafukho et al., 2016; Salovey et al., 2008). However, Harms and Credé (2010) found that when leadership and EI were both measured with self-report assessment scales, the correlation was much stronger than when either leadership or EI was measured by behavioral or observable assessments, such as the MSCEIT or peer-ratings of leadership. Mono-method bias, which results from using self-report scales to measure both variables being compared, may be artificially inflating the EI and leadership correlation (Harms & Credé, 2010). Additionally, Stream 1 was not as strongly correlated with leadership as Stream 3 measures in the Harms and Credé (2010) meta-analysis. Research also provides evidence that

EI is a predictor of employees' job satisfaction, turnover intentions, and organizational commitment (Miao et al., 2017a).

Multiple studies considering personality, cognitive abilities, and emotion-related competencies support the finding that general mental ability is the major contributor to job performance (Boyatzis et al., 2015; Cartwright & Pappas, 2008; Furnham, 2005; Gonzalez-Mulé et al., 2014; Joseph et al., 2015; Joseph & Newman, 2010; O'Boyle et al., 2011; Schmidt et al., 2008). O'Boyle et al. (2011) sought to measure if EI was a unique construct that could predict job performance beyond personality and cognitive abilities. Their dominance analysis of 43 studies found support for the incremental validity of EI by calculating a change in explained variance when EI was added to a predictive model that included cognitive ability and five personality factors. However, EI studies from Streams 2 and 3 were better predictors than Stream 1 studies using the ability EI model with the MSCEIT assessment (O'Boyle et al., 2011). Since the current Goleman EI model and assessment tool (in Stream 3) was created by studying the competencies of highly effective employees, it perhaps should not be surprising that these studies correlate with work performance (Boyatzis, 2009; Goleman et al., 2002).

However, the results of a recent meta-analysis of EI, cognitive ability, and entrepreneurship (Allen et al., 2021) support a surprising possible exception to the supremacy of cognitive ability as the best predictor of work performance in the specific case of entrepreneurship. Allen et al. (2021) found that EI was a better predictor of success as an entrepreneur than cognitive ability by conducting a relative weights analysis to calculate the relative contribution of cognitive ability, which explained 10.9% of the success variance, and EI, which accounted for 89.1% of the variance. This result is specific to entrepreneurs, possibly

because of the intensity of emotions that accompany the elevated risks associated with entrepreneurship (Allen et al., 2021).

**Academic Performance.** In studies of primary and secondary students, EI is commonly referred to as social and emotional learning (Edwards et al., 2019). According to studies and meta-analyses, positive correlations have been found with academic performance (Brackett et al., 2012; Schonfeld et al., 2015), as well as skills such as goal setting, perspective taking, conflict resolution, and effective decision making (Durlak et al., 2011; R. D. Taylor et al., 2017). Additionally, positive attitudes, prosocial behaviors, a reduction in risky behaviors, and improved relationships between students and teachers are associated with the development of EI competencies (Durlak et al., 2011; R. D. Taylor et al., 2017).

MacCann et al. (2020) conducted a comprehensive meta-analysis of 162 EI studies of primary, secondary, and tertiary students using grades and standardized tests to measure academic performance. The overall correlation between EI and academic performance supports a small to moderate effect size ($\rho = .20$, 95% CI [.17, .22]; MacCann et al., 2020). Breaking results down into the Ashkanasy and Daus' (2005) three streams of EI, Stream 1 was the best predictor of academic performance (MacCann et al., 2020). Similar results were found in an earlier meta-analysis of studies examining EI and academic performance (Perera & DiGiacomo, 2013). Additionally, procrastination is negatively associated with academic performance, but emotionally intelligent students may be less likely to procrastinate, according to one study that found a significant, negative correlation (Sánchez-Álvarez et al., 2016). However, some studies find EI to be weakly correlated with academic outcomes (R. M. O'Connor & Little, 2003) or even negatively correlated (Leddy et al., 2011).

When considering the relative value of EI, cognitive ability, and personality factors in predicting academic performance, evidence supports EI adding to the incremental validity of models which include all these factors (di Fabio & Palazzeschi, 2009; MacCann et al., 2020; Perera & DiGiacomo, 2013). MacCann et al. (2020) found cognitive ability was the strongest predictor, the personality trait of conscientiousness was second, and EI, when measured as a composite scale score from any of the three streams, was third. However, in a relative weights analysis comparing intelligence, five personality factors, and four separate abilities within the Salovey and Mayer (1997) ability EI model, the ability to understand emotions, as well as the ability to manage emotions, was second only to cognitive ability, and a better predictor of academic success than all personality traits (MacCann et al., 2020). According to these results, it is "not enough to be smart and hardworking--to have the added edge for success, students must be able to understand and manage emotions to succeed at school" (MacCann et al., 2020, p. 174).

**Health and Well-being.** Self-awareness is an important aspect of emotional intelligence (Boyatzis et al., 2000; Cherniss & Goleman, 2001; Goleman, 1998; Mayer & Salovey, 1997). Mindfulness, a component of self-awareness (Goleman, 1998), has been shown to correlate with stress-reduction (Birnie et al., 2010; Zenner et al., 2014) as well as increased attention and working memory (Jha et al., 2007, 2020). By increasing awareness and limiting reactivity, one creates space to choose a skillful response to challenging circumstances and interactions (Germer & Neff, 2018). EI has been associated with reduced stress (D. L. Dunning et al., 2019; Matthew et al., 2017; Zeidner et al., 2012) and is significantly correlated with the ability to recover from acute stress (Lea et al., 2019).

Self-awareness contributes to another facet of EI—self-management—and the benefits of developing competencies in both areas are symbiotic (Goleman et al., 2002). Self-management

competencies help one tap into the motivating power of positive emotions and moods (Miao et al., 2017a). Using a Stream 3 measure of EI, high EI was found to correlate with using positive (adaptive) strategies to cope with challenges ($r = .44$, $p < .001$) and to negatively correlate with self-blame ($r = -.37$, $p < .001$) in undergraduates (Mikolajczak et al., 2008). A study using the Assessing Emotions Scale (AES) for EI, categorized as Stream 2, found that Canadian undergraduates' EI scores were significantly ($p < .001$) positively associated with rational coping ($r = .38$) and healthy behaviors, specifically exercise, a healthy diet, and visiting medical providers (Saklofske et al., 2007).

In a meta-analysis with twenty-five studies, corrected correlations demonstrate that EI is significantly and positively associated ($r_c = .32$) with subjective well-being (Sánchez-Álvarez et al., 2016). In research other looking at health metrics, significant and positive results were found after analyzing the results from 80 studies with 105 different hypotheses tests (Martins et al., 2010). EI and mental health ($r_c = .36$) exhibit the strongest relationship, but the results for EI and psychosomatic health ($r_c = .33$), and EI and physical health ($r_c = .27$) not much lower. Studies that measured mental disorders (e.g., anxiety) were coded in the mental health group, measurements of physical or medical symptoms were grouped under physical health, and studies using measurements that combine mental and physical (e.g., chronic fatigue) were categorized as psychosomatic. Martins et al. (2010) built on a previous meta-analysis (Schutte et al., 2007) by adding the results of non-English studies and more recently published results while using the same categorizations. In addition, Martins et al. (2010) calculated the sufficiency and stability of the large group of studies and determined that adding more studies is unlikely to change the results.

All the studies mentioned in this section about the benefits of EI measure correlations and therefore do not claim that EI is the cause of these outcomes or a panacea to cure all the ills of school, work, relationships, or one's maladaptive responses to setbacks (di Fabio & Palazzeschi, 2009; MacCann et al., 2020; R. M. O'Connor & Little, 2003; Perera & DiGiacomo, 2013).

*Emotional Intelligence Models*

Since EI models and measurements are typically organized in two or three categories as either ability EI or mixed-model EI (Ashkanasy & Daus, 2005; Harms & Credé, 2010; MacCann et al., 2020; Martins et al., 2010; Schutte et al., 2007), this review will expand on one model from each category, as well as the original model. Understanding the models described here is important because the mixed model popularized by Goleman is the most well-known conceptualization (Joseph et al., 2015) and the ability EI model has the strongest theoretical foundation (Dacre Pool & Qualter, 2012), making it the preferred model for academic researchers (Ngoc et al., 2020). A recent analysis of college course syllabi found that when EI is taught, 35% teach Goleman's model, compared to 3% for the ability EI model (Joseph et al., 2019). However, these two models both evolved from the original Salovey & Mayer (1990) conceptualization of EI.

**Original Emotional Intelligence Model.** It is generally accepted that Salovey and Mayer (1990) published the original EI theory (Ashkanasy & Daus, 2005; Keefer et al., 2018). This 3-part model starts with the ability to accurately appraise and express emotions, through verbal and nonverbal cues, to respond appropriately to oneself and others when emotions arise (Salovey & Mayer, 1990). Empathy is an important component here that allows one to experience the emotions of others and informs empathic responses (Salovey & Mayer, 1990). Regulation of emotion is the second part of this model and consists of self-regulation of emotions as well as

regulating emotions in others (Schutte et al., 1998). The third part, utilizing EI, includes four sub-components that reflect the positive use of emotions to solve problems: flexible planning, creative thinking, mood redirected attention, and motivating emotions (Salovey & Mayer, 1990).

In this study, EI is conceptualized as a set of perceived characteristics that can be self-reported and the scale measuring EI in this study—the Assessing Emotions Scale (AES)—is based on this model (Schutte et al., 1998). The creators of the AES used the original model because it "lends itself better to conceptualizing the various dimension of an individual's current state of emotional development" (Schutte et al., 1998, p. 169) and it shares factors with several other EI models. Since the creation of the AES creation, others have studied the scale through factor analysis, and Table 1 describes the results from two of these studies with the original.

**Table 1**

*Factors Measured by the Assessing Emotions Scale*

| (Schutte et al., 1998) | (Austin et al., 2004) | (Kun et al., 2010) |
|---|---|---|
| • Global emotional intelligence | • Appraisal of emotions | • Appraisal of emotions |
| | • Optimism and positivity | • Optimism and regulation of emotions |
| | • Regulating and using emotions | • Intrapersonal and interpersonal utilization of emotions |

Inspired by previous research on social intelligence and Gardner's (1983) personal intelligences, Salovey and Mayer (1990) sought to unite "an exciting body of research that, for lack of a theoretical concept, is dismembered and scattered over a diversity of journals, books, and subfields of psychology" (p. 189). Their article succeeded in providing a theory that sparked much research beyond the realm of psychology to business, education, nursing, neuroscience,

and engineering, while the goal of uniting the field behind a common conceptualization remains elusive (Keefer et al., 2018).

   **Emotional Intelligence Competencies Model.** Goleman (1998) and Boyatzis (2009) evolved the EI framework over time from the Salovey & Mayer (1990) original EI definition to four domains and twelve competencies (Boyatzis, 2009). The EI definition in Goleman and Boyatzis' performance-focused, behavioral paradigm

> refers to *the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships*. It describes abilities distinct from, but complementary to, academic intelligence, the purely cognitive capacities measured by IQ. (Goleman, 1998, p. 317)

A competency model approach begins with studying the star performers in an organization and using the competencies of the stars to create a list of competencies for future hires, or to direct the development efforts of the existing average performers (Boyatzis, 2009). This approach may explain the positive correlations between mixed-model EI and work performance (Joseph et al., 2015). Goleman (1998) defines the term emotional competence as "a learned capability based on EI that results in outstanding performance" (p. 24). Goleman (1998) started with twenty-five competencies and the list was narrowed to twelve in the most current iteration as shown in Table 2 (Boyatzis, 2009).

**Table 2**

*Emotional Competencies in Four Domains of Emotional Intelligence*

| Self-awareness | Self-management | Social awareness | Relationship management |
|---|---|---|---|
| • Emotional Self-awareness | • Emotional Self-control<br>• Adaptability<br>• Positive Outlook<br>• Achievement Orientation | • Organizational Awareness<br>• Empathy | • Conflict Management<br>• Coach<br>• Influence<br>• Inspire<br>• Teamwork |

(Boyatzis, 2009)

>>> *Self-awareness Domain*. As one develops self-awareness, one becomes attuned to emotions, motives, and values (Goleman et al., 2002). This awareness helps with decision-making because when an individual is clear on what is most important, one is more likely to choose projects or jobs that align with one's values (Goleman et al., 2002). Students with high self-awareness can identify skills they need to develop to achieve goals (Bonesso et al., 2019). According to Goleman (1998), developing appropriate responses to the negative emotions and events, in a nonjudgmental way, is a focus on this competency. "Self-awareness serves as an inner barometer" (Goleman, 1998, p. 57) sending important signals about circumstances, relationships, and even one's own health.

>>> Cultivating an emotional self-awareness competency requires a focus on reflection and attention (Kabat-Zinn, 2014). "People with strong self-awareness are realistic—neither overly self-critical nor naively hopeful" (Goleman et al., 2002, p. 40). Making time for quiet reflection, meditation, or contemplation is a strategy used by people strong in this competency (Cherniss & Goleman, 2001). As training one's muscles contributes to physical health and performance, brain studies now show that it is possible to train one's mind through meditation, contemplation, reflection, and other focused mental activities, resulting in observable differences in brain

activity (Goleman & Davidson, 2018; Jha et al., 2007). Goleman et al. (2002) studied successful leaders and found that "outstanding leaders, in fact, bring to their work life the thoughtful mode of self-reflection that they cultivate in their spiritual lives. For some this means prayer or meditation; for others it's a more philosophical quest for self-understanding" (p. 40).

*Self-management Domain.* Aspects of self-regulation and motivation are combined with the competencies of emotional balance, adaptability, achievement, and positivity in the self-management domain (Boyatzis, 2009). The desire to continuously improve oneself and one's work processes to achieve goals, and then push on by setting new goals, are a hallmark of this domain (Goleman et al., 2002). When encountering obstacles, a response that is balanced and confident, instead of over-reactive, negative, and defeatist, about the possibility of adapting has also been called a *growth mindset* (Dweck, 1986), which is another way to describe these EI competencies. Another well-researched concept in education, emotion regulation, is closely related to EI in this domain of managing emotions (MacCann et al., 2020; Peña-Sarrionandia et al., 2015). A positive outlook is one of the competencies within this domain, which calls back to the optimism component of the original EI model and the AES scale ((Salovey & Mayer, 1990; Schutte et al., 2009).

*Social Awareness Domain.* In this third domain, relationships with others enter the model as the concept of awareness is expanded to the feelings, concerns, and needs of others (Goleman, 1998). Empathy is the first competency in this domain, and many different definitions of empathy exist (Jazaieri, 2018). At a basic level, empathy concerns perspective-taking and "the capacity to share the feelings of others" (Singer & Klimecki, 2014, p. R875). This doesn't require that people had the same experiences as others, but only that one can identify with the feelings those experiences evoked (Brown, 2018). To build relationships, the ability to sense

feelings, understand the needs of others, and engage in conversations on these topics is helpful (Goleman, 1998). The second competency in this domain, organizational awareness (Goleman et al., 2002), is important for leaders and those joining a new team. A leaders' emotional state is contagious (Sy et al., 2005), so EI incompetency will negatively impact the results of the organization by spreading negativity and undesirable emotional states (Goleman et al., 2002). Employees with this ability understand the power relationships and dynamics that go into decision-making, meeting customer needs, and achieving organizational goals (Goleman et al., 2002).

*Relationship Management Domain.* The competencies within this fourth and final domain cluster around the skills required to work with others, organized as five competencies including influencing, coaching, managing conflict, working as part of a team, and inspiring others (Boyatzis, 2009). Influence involves the abilities needed to persuade others and garner their support to reach common goals (Boyatzis et al., 2000). Coaching is the ability to develop others through appropriate feedback, guidance, and support (Goleman, 2001) and is an approach supported by leadership and business management studies (Clifton & Harter, 2019; Kouzes & Posner, 2017). The third competency includes resolving disagreements through open and safe conversations where multiple perspectives are shared to resolve disagreements (Goleman et al., 2002). Working together toward a shared goal requires the ability to collaborate effectively and build a team of active participants (Goleman, 1998; Goleman et al., 2002). The fifth competency, inspiring others, is a leadership skill but a valued competency for all individuals regardless of their title within an organization. Individuals model this competency for others by doing their best and simultaneously motivating those around them with encouraging and supportive interactions (Boyatzis, 2009). Developing the EI competencies of social awareness and

management is correlated with improved relationships (Durlak et al., 2011) and helpful, prosocial contributions within organizations (Miao et al., 2017b).

**Ability Model of Emotional Intelligence.** In contrast to the emotion-related competencies approach of Goleman's (2001) mixed-model, ability EI is focused on a facet of intelligence (Joseph et al., 2015) and one's abilities regarding emotions (Daus & Ashkanasy, 2005). Mayer and Salovey (1997) re-conceptualize EI from their original model with this definition:

> emotional intelligence involves the ability to perceive accurately, appraise, and express emotion; the ability to access and / or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth. (p. 10)

In the refinement process, aspects of the original version, such as optimism and motivation, that are inconsistent with a focus on cognitive abilities related to emotions were removed (Petrides & Furnham, 2001). Ability EI consists of abilities related to emotions that aren't measured by the standard measures of intelligence but are a type of intelligence (Joseph & Newman, 2010) related to reasoning with emotions (Brackett & Mayer, 2003). This revised framework "distinguished a mental skill that could legitimately be called emotional intelligence (e.g., being able to figure out one's own and others' emotions) from preferred ways of behaving" (Mayer & Salovey, 1997, p. 8). However, Mayer & Salovey (1997) also acknowledged that a person with a high EI may achieve emotional competencies through emotional achievement, which points to some overlap with the Goleman (2001) model.

Mayer and Salovey (1997) defined a four-branch hierarchical model of emotional skills and updated the model a few decades later (Mayer et al., 2016). This model of emotion-related

abilities (see Table 3) is hierarchical because the branches "are arranged from more basic psychological processes to higher, more psychologically integrated processes" (Mayer & Salovey, 1997, p. 10). Each branch consists of abilities that also progress from basic to advanced (Brackett et al., 2006). As one moves across the abilities in each branch, the facets integrate more and more with one's adult personality (Mayer & Salovey, 1997).

  ***Perceiving Emotions.*** The first branch includes abilities concerning the perception, appraisal, and expression of emotions. One starts with identifying one's own emotions with information from one's body and psychological state (Salovey et al., 2008). From here, individuals progress to identifying emotions in others, which could be communicated through another's face, voice, or other means, and in the environment (Mayer et al., 2016). This branch also includes the ability to express emotions and needs and to classify emotional expressions as accurate or not (Mayer & Salovey, 1997).

  ***Facilitating Thought Using Emotion.*** The second branch includes abilities concerning the emotional facilitation of thinking (Mayer & Salovey, 1997). Emotions are signals which direct cognitive efforts and help one prioritize to avoid negative emotions in the future or take advantage of one's current emotional state by aligning tasks to that state. As individuals develop, they can generate emotions to improve performance and relate to others (Mayer et al., 2016).

**Table 3**

*Four Branch Hierarchical Model of Emotional Intelligence Abilities*

| Branches | Ability to… | | | |
|---|---|---|---|---|
| A) Perceiving emotions | 1) identify emotions in one's physical / psychological states | 2) perceive emotion in other people | 3) perceive emotional content from environment, art, and music | 4) accurately express emotions |
| | 5) understand how emotions are displayed depending on context /culture | 6) identify accurate or inaccurate expression of feelings | 7) identify honest and dishonest expression of feelings | |
| B) Facilitating thought using emotions | 1) generate emotions to aid cognition | 2) generate emotions to relate to others | 3) redirect and prioritize thoughts based on feelings | 4) see multiple points of view through mood changes |
| | 5) use emotional states to encourage problem-solving and creativity | | | |
| C) Understanding emotions | 1) label and understand relationships among them | 2) perceive the causes and consequences of emotions | 3) appraise situations like to elicit emotions | 4) differentiate between moods and emotions |
| | 5) understand complex and contradictory feelings | 6) recognize likely emotional transitions | 7) forecast another's future emotional state given conditions | 8) recognize cultural differences in evaluating emotions |
| D) Managing and regulating emotions | 1) stay open to pleasant and unpleasant feelings | 2) engage or detach from emotion s | 3) monitor and reflect on emotions | 4) evaluate strategies to adjust emotional response |
| | 5) manage own emotions | 6) manage other's emotions | | |

(Mayer et al., 2016; Mayer & Salovey, 1997; Salovey et al., 2008)

***Understanding Emotions.*** Moving up the hierarchy, the third branch involves understanding emotions and using emotional knowledge (MacCann et al., 2020). This begins with labeling emotions and identifying their sometimes-subtle differences. Interpreting emotional meanings for relationships and grasping the complexities around multiple simultaneous emotions are abilities one may develop over time. Ultimately, one can even anticipate future emotions as transitions are understood, such as "anger to satisfaction, or from anger to shame" (Mayer & Salovey, 1997, p. 11).

***Managing Emotions.*** The highest branch is about managing, or regulating, emotions. At the base level within this branch, one is aware of emotions and whether they are pleasant or unpleasant. As one matures, the ability to manage responses to feelings in oneself, as well as in others, develops (Mayer et al., 2003). When the abilities in this branch are highly developed, emotion management does not involve repressing or over-reacting to unwanted emotions, but instead accepting emotions and choosing a skillful response to their presence (Mayer & Salovey, 1997). Ultimately, one can effectively manage other's emotions as well (Mayer et al., 2016) when this ability is fully developed.

### Major criticisms of Emotional Intelligence

**Different Conceptualizations and Measurements.** The lack of consensus around the definition of EI is a common criticism in the literature (Brackett & Mayer, 2003; Davies et al., 1998; Joseph et al., 2015; Matthews et al., 2004; Waterhouse, 2006; Zeidner et al., 2008, 2009). For example, Zeidner et al. (2008) state "it is presently unclear whether EI is cognitive or non-cognitive; whether it refers to explicit or implicit knowledge of emotion; and whether it refers to a basic aptitude or to some adaptation to a specific social and cultural milieu" (p. 65). The major EI models have their own scales to assess EI in research and the variety in scales even inspired a

call for a moratorium on creating new self-report measures (Zeidner et al., 2008). Some of these

scales appear to be weakly related to each other, even though they all measure EI (Brackett &

Mayer, 2003; Rooy et al., 2005; Zeidner et al., 2008). Since these disparate measures do not

display strong convergent, construct, content, or criterion validity between each other, the

validity of the assessment tools and theory are challenged (Harms & Credé, 2010). Validity

involves confirming if a scale measures a concept by comparing the new scale to a "gold

standard" scale, but if there is no agreement on a model, then there cannot be a gold standard

assessment tool (Matthew et al., 2017). The efforts previously mentioned to categorize EI studies

by streams or types of models attempt to address this criticism.

*Measurement criticisms.* Early proponents of ability EI developed and refined a

measurement tool seeking to show that EI could be a predictor of positive outcomes (Mayer et

al., 1999, 2003). Since intelligence tests measure cognitive abilities using questions with a right

or wrong answer, and ability EI is conceptualized as an intelligence concerning emotions, a test

with objective answers was needed (Brackett & Salovey, 2006). The MSCEIT emerged as the

answer (Mayer et al., 2003). The MSCEIT has subscales to measure each branch of the model as

well (Miao et al., 2017a). However, determining the correct answer to questions about emotions

is not as simple as assessing vocabulary or math. The test requires more than one expert and a

process of consensus to score it (P. J. O'Connor et al., 2019), and some have argued this means

the test is measuring adherence to social norms instead of objective answers (Matthews et al.,

2004). The resource intensive MSCEIT has been criticized for using consensus-based scoring

and less than desirable reliability in some studies (Maul, 2012). Additionally, scoring high on an

intelligence test measuring cognitive abilities related to emotions does not mean one will behave

toward oneself or others in a skillful manner (Brackett et al., 2006). Nonetheless, as of 2019, over 1,500 articles used the MSCEIT measure (P. J. O'Connor et al., 2019).

Studies using mixed models of EI do not use the MSCEIT tool, but instead choose from a variety of instruments, many of which use self-reported data from participants. Self-reported scales, across a wide range of topics, suffer from a lack of self-awareness by participants (D. Dunning et al., 2004). Self-reported scales have been studied in the intelligence literature and weak correlations were found with objective measures (Paulhus et al., 1998) The participants may try to manipulate results when using self-reporting (Goleman & Davidson, 2018). Petrides and Furhnam (2003) argue that the appropriate option for measuring self-awareness, self-management, and other intrapersonal facets of EI, is self-reported scales, since intrapersonal issues are, by definition, within oneself. Boyatzis et al. (2015) note that if one gathers self-reported data on some behaviors and compares it to data about the same individual's behaviors reported by others, the difference itself becomes a measurement of self-awareness. The Emotional and Social Competency Inventory (ESCI) is a mixed model scale (based on the Goleman model) that uses multi-source assessment to protect again the problems with self-reported data (Boyatzis et al., 2015; Hay Group, 2011). However, this scale has been criticized because a significant amount of the validity and reliability testing has not been published in peer-reviewed, but instead is published in reports provided by the seller of the assessment tool (Zeidner et al., 2009). In addition, others have concerns about the Goleman EI theory, which is the basis for this test (Brackett et al., 2006; Zeidner et al., 2009).

***Criticisms of the Goleman Model.*** The four domains and twelve competencies of the Goleman model cover a broad set of behaviors, so the model has been criticized for "lumping together abilities pertaining to emotions, personality traits, motivational factors, and other

concepts" (Côté et al., 2010, p. 497). Concerns about the multiple types of constructs used in the model—abilities, competencies, and personality traits—have also been voiced (Joseph et al., 2015; Joseph & Newman, 2010). In addition, Goleman has been criticized for using anecdotal evidence (Ashkanasy & Daus, 2005) and over-stating the importance of EI in relation to performance (Waterhouse, 2006). Supporters of the ability EI model object to the use of the term *intelligence* to refer to competencies, skills, behaviors, or traits that do not literally refer to emotions and intelligence, such as the competency of *teamwork* or *coaching* in this model (Brackett & Mayer, 2003).

   *Criticisms of the Ability Model.* Conceptualizing EI as a set of abilities concerning emotions and social interaction is problematic because it requires measuring interactions that are highly subjective (Petrides et al., 2007a). By considering EI as a cognitive ability related to emotions, the depth of emotional experiences may be lost (Petrides et al., 2007a). Critics of this model also point out that the selection and generation of emotions, branch two of the model, "seems like a subset of emotion management" (MacCann et al. 2020, p. 152), instead of its own branch. Some studies have found only two of the branches, understanding and managing emotions components, predictive of outcomes instead of the full model (Altaras Dimitrijević et al., 2018; Dacre Pool & Qualter, 2012; MacCann et al., 2020). In a meta-analysis of 43 studies comparing the impact on job performance between different EI models, the ability EI model measured via MSCEIT had the lowest incremental validity and relative importance of three different EI conceptualizations (O'Boyle et al., 2011).

   *Multiple Models Could Signify Strength and Health.* Critics argue that difference conceptualizations are a problem for EI research because without a unifying theory or model, it can be difficult to break down all the potential variables to better understand why outcomes or

correlations are appearing (Matthew et al., 2017). However, Keefer et al. (2018) make the case

for "the multiplicity of EI models as a healthy indicator of a relatively new and generative

research area (p. 6). Though a concept that was introduced thirty years ago may not seem "new,"

recall that research on general intelligence has been underway for over one hundred years

(Brackett et al., 2006). Consensus may be building for viewing ability EI and mixed models as

complementary (Keefer et al., 2018; Kirk et al., 2011; MacCann et al., 2020; Mikolajczak, 2009),

especially since they often share core elements with the original Salovey and Mayer (1990)

model (Keefer et al., 2018). For example, one new EI model attempts to bridge the debate

between ability EI and mixed models by conceptualizing EI with a 3-level model containing

knowledge, abilities, and traits (Mikolajczak, 2009).

**Incremental Validity Beyond Personality and Cognitive Ability.** Proponents of EI

argue that emotion-related competencies or abilities can explain performance improvements

beyond what can be explained by mental ability and personality traits (Mendelson & Stabile,

2019), while critics search for evidence that EI measurement tools are simply capturing

improvements that can be explained by differences in personality and general intelligence

(Ashkanasy & Daus, 2005; Brackett & Mayer, 2003; Joseph et al., 2015; Zeidner et al., 2008).

Some studies suggest that since mixed model EI definitions and their assessment scales

significantly overlap with personality measures, the research around EI is not bringing anything

new to the table (Brackett & Mayer, 2003; Joseph et al., 2015). The popularity of EI may be one

of the reasons that critics are publishing articles with these concerns (Grewal & Salovey, 2005).

Joseph and Newman (2010) found data from multiple studies to support the claim that

mixed models of EI are incrementally valid. Similarly, a meta-analysis of EI studies measuring

correlations with work performance found that mixed model measures accounted for 6.8% of

incremental variance beyond personality and cognitive ability (O'Boyle et al., 2011). Bastian et al. (2005) examined coping styles and found EI (measured with AES) helped to predict adaptive coping even beyond mental ability and personality (Bastian et al., 2005). Similarly, a study that controlled for personality and general intelligence found that EI measured with a Stream 3 measure (the Emotional Competence Inventory) strengthened the predictive ability of the model (Boyatzis et al., 2015).

**Cautionary Warning for the Application of Emotional Intelligence.** As with cognitive ability and any of the intelligences theorized by Gardner (1983), emotion-related abilities and competencies can be used to directly or indirectly harm others (Ngoc et al., 2020; Waterhouse, 2006). As Gardner (1983) wrote, "there is no reason to think that an intelligence must necessarily be put to good purposes" (p. 68). Critics are asking if ethical or moral behavior should be directly addressed in the framework of EI (Zeidner et al., 2008).

Researchers are studying the use of EI competencies, skills, or abilities for destructive ends (Casale et al., 2019; Côté et al., 2011; Furnham & Rosen, 2016; Nagler et al., 2014; Ngoc et al., 2020). The literature supports at least five conditional factors possibly leading to maladaptive behaviors in people with strong EI: nefarious motives, low moral identity, negative personalities traits, desire to empathize, and simply the EI measurement scale used (Ngoc et al., 2020). Negative personality trait discussions typically focus on the triad of narcissism, Machiavellianism, and psychopathy (Nagler et al., 2014). These traits "are characterized by callous and manipulative behaviors" (Davis & Nichols, 2016, p. 2). To highlight one part of the problematic triad, narcissism is described as an excessive view of one's own importance, combined with selfishness and a lack of empathy (Nagler et al., 2014). Narcissism correlates positively with self-esteem (Raskin et al., 1991; Twenge et al., 2014). Self-esteem (positive

correlation) and empathy (negative correlation) are both facets of some EI definitions and measurement tools (Casale et al., 2019).

When maladaptive behaviors are chosen, EI may not lead to improved performance or prosocial outcomes (Zakrzewski, 2015). In one study, emotionally intelligent participants were able to effectively deceive others with their emotion displays (Porter et al., 2011). In fact, the article that spawned EI identified this weakness: "those whose skills are channelled [sic] antisocially may create manipulative scenes or lead others sociopathically to nefarious ends" (Salovey & Mayer, 1990, p. 197). These authors subsequently clarified their theory by explicitly adding that managing emotions in others should be in service of a "desired outcome," presumably desired of both parties, not just a manipulator (Mayer et al., 2016, p. 7). The exhibition of maladaptive behavior by some with high levels of EI does not mean that programs to develop EI should be curtailed, because EI abilities, behaviors, skills, and competencies are associated with improved performance and outcomes on many dimensions (Allen et al., 2021; Joseph et al., 2015; MacCann et al., 2020; Martins et al., 2010; Matthew et al., 2017; O'Boyle et al., 2011). However, the potential for maladaptive behavior should be considered and mitigated, when possible, in the creation of programs and instruction to develop EI (Ngoc et al., 2020).

### Emotional Intelligence Can Be Developed

Empirical studies support the assertion that EI can be developed with training in children (Durlak et al., 2011; R. D. Taylor et al., 2017), undergraduates (Anand, 2017; Dacre Pool & Qualter, 2012; Nelis et al., 2011; Schutte & Malouff, 2002; Vesely-Maillefer & Saklofske, 2018), graduate students (Bonesso et al., 2019; Boyatzis, 2001; Boyatzis & Cavanagh, 2018; Joyner & Mann, 2011; Thompson et al., 2020), and working professionals (Altaras Dimitrijević et al., 2018; Cherniss & Goleman, 2001; Fer, 2004; Mattingly & Kraiger, 2019; Palacios &

Lemberger-Truelove, 2019). A meta-analysis of over 200 social and emotional learning programs in K-12 schools calculated a significant ($p \le .05$), moderate, mean effect size of Hedges's $g = 0.57$ (95% CI [0.48 to 0.67]) for developing emotional competencies (Durlak et al., 2011). This same study confirmed that training led by classroom teachers worked as well as training from outside experts (Durlak et al., 2011). A recent meta-analysis using only participants aged 18 or older also found a positive, moderate effect size ($d_c = 0.45$ for studies with control groups and $d_c = 0.61$ for pre-post designs) from 58 studies (Mattingly & Kraiger, 2019). This study also found that effect sizes for studies using ability EI measures were not significantly different to studies using mixed-model measurement tools (Mattingly & Kraiger, 2019).

With undergraduates, as compared to K-12 participants, there are not as many studies of the results, design, or implementation of EI trainings (Joseph et al., 2019; Zeidner et al., 2008). In the Mattingly and Kraiger (2019) meta-analysis of EI trainings, only eight of the 58 qualifying studies used undergraduates. However, studies with undergraduate participants show that EI can be developed during tertiary education (Clark et al., 2003; Kirk et al., 2011; Nelis et al., 2011; Schutte & Malouff, 2002; Thompson et al., 2020). For example, a quasi-experimental study of students taking an eleven-week class for credit reported significant improvement in understanding and managing emotions when compared to an active control group (Dacre Pool & Qualter, 2012). The results were measured by the subscales of the MSCEIT assessment tool, which was developed to align with the ability EI model (Brackett & Salovey, 2006). Understanding and managing emotions, the two areas showing significant results in the study above, can also be measured with the AES (Schutte et al., 1998), which was used in this study. The AES has also been used in EI intervention studies (Christopher et al., 2016; Hen & Sharabi-Nov, 2014; Kirk et al., 2011; Schutte & Malouff, 2002).

Though Dacre Pool and Qualter (2012) measured the results of an EI course taught over a semester, shorter interventions also offer support to the claim that EI can be developed through training (Choi et al., 2015; Gilar-Corbí et al., 2018; Kirk et al., 2011; Kozlowski et al., 2018). Kirk et al. (2011) asked participants, in this case working adults (median age = 35.1 years), to write for 20-minutes at the end of their shift for three days about salient emotional experiences and specifically to reflect on how they were understanding, perceiving, using, and regulating their emotions. An active control group was assigned a different writing task. The participants in the EI writing intervention scored significantly higher than the control group at posttest in the self-reported AES measure of EI (Kirk et al., 2011). In addition, a study of undergraduate nursing students in South Korea measured EI before and after a 4-week intervention using a Korean EI assessment based on the Salovey and Mayer (1990) definition of EI, which is the same EI definition used by the AES (Choi et al., 2015; Schutte et al., 1998). The intervention was designed to improve empathy and communication skills by creating videos of effective conflict resolution scenarios. Participants' EI scores increased significantly compared to the control group in this quasi-experimental nonequivalent control pre- posttest designed study (Choi et al., 2015).

EI can be developed even without directly teaching about an EI model with its associated abilities, traits, or competencies (Christopher et al., 2016; Clark et al., 2003; Manring, 2012). For example, an action research study of 140 business undergraduates examined the student reflections of service-learning experiences (Manring, 2012). By deductively coding the student reflections, Manring (2012) found that students developed skills in all the EI competencies from the Goleman model, even though EI was purposely never mentioned to the students. Through the 15 hours of service learning, EI competencies were promoted, even without direct instruction

on EI domains and competencies. Similarly, in a study of police officers, EI scale scores improved after a mindfulness-based intervention (Christopher et al., 2016). In addition, Clark et al. (2003) significantly improved undergraduates' EI scores (using AES as the assessment tool) compared to a control group through teaching business management skills.

Qualitative studies also contribute support to the claim that EI can be taught by adding more descriptions and perspectives to one's understanding of how and why training can be effective (Fer, 2004; Palacios & Lemberger-Truelove, 2019; P. Phillips, 2021). For example, Palacios and Lemberger-Truelove (2019) examined the lived experience of early childhood educators who received training in social and emotional learning practices. The sessions improved the personal and professional lives of the participants around the themes of professional relationship, group processes, environmental factors, student behavior and the teachers' usage of mindfulness (Palacios & Lemberger-Truelove, 2019). These findings suggest future education initiatives should train teachers, in addition to students. More interventions of this type are needed, especially in higher education (Bonesso et al., 2019; Edwards & Ashkanasy, 2018; Joseph et al., 2019).

**Self-Compassion Literature**

***Using Self-Compassion to Develop Emotional Intelligence***

Across the landscape of EI models, empirical studies support the theory that developing aspects of EI in individuals is likely to produce positive results in performance and well-being (Allen et al., 2021; Joseph et al., 2015; MacCann et al., 2020; Martins et al., 2010; O'Boyle et al., 2011). A variety of training approaches have been created and evaluated with positive results, including interventions that increase EI scores without specific instruction about EI models (Choi et al., 2015; Dacre Pool & Qualter, 2012; Kirk et al., 2011; Manring, 2012; Nelis et al., 2011;

Schutte & Malouff, 2002). This section highlights the reasons for the specific training in self-compassion this study used to develop abilities and competencies related to self-awareness and emotion management.

First, the use of self-compassion in this study helps to address one of the criticisms of EI found in the literature. Critics have pointed out that individuals with high levels of EI and narcissism, or other negative personality traits, may use their emotion-related abilities and competencies for manipulative purposes (Austin et al., 2007; Furnham & Rosen, 2016; Porter et al., 2011). Given these concerns about maladaptive behavior, effective instruction should consider how to avoid or minimize these drawbacks, including those associated with narcissism (Ngoc et al., 2020). Narcissism has been shown in studies to be associated with self-esteem (Raskin et al., 1991; Twenge et al., 2014). Neff (2003a) has proposed an alternative to self-esteem development: self-compassion. Though correlated with many of the same benefits as self-esteem, self-compassion does not have the same negative associations found with self-esteem, such as narcissism (Neff, 2003a; Neff et al., 2005). Additionally, self-compassion is associated with healthy self-attitudes (Zessin et al., 2015) and adaptive coping behaviors (Ewert et al., 2021; Neff et al., 2005). The intervention in this study was designed to develop participants' self-compassion, which will be defined in the next section. Since EI is criticized for lacking a stance on ethical and moral behavior (Waterhouse, 2006; Zakrzewski, 2015; Zeidner et al., 2008), training around the concept of compassion, with its ethical and moral tones in the desire to reduce suffering (Jazaieri, 2018), may help address the maladaptive behaviors concern of EI critics.

Secondly, some education researchers and practitioners are integrating mindfulness-based interventions with social and emotional learning programs (Edwards et al., 2019; Rechtschaffen,

2014), and mindfulness is a key component of self-compassion training (Neff, 2012).

Mindfulness is associated with improved emotion regulation and tolerance of distressing

circumstances (Luberto et al., 2018). Shapiro et al. (2011) recommends EI theory as one option

to use in the empirical research measuring this practice. Rechtschaffen (2014) describes a

comprehensive program for teachers to begin developing their own mindfulness and EI

competencies and then bring them to the classroom. Jazaieri (2017) makes a compelling

argument for the incorporation of compassion training in the education system from kindergarten

through graduate school, which often involves using compassion-focused meditation

interventions like practices used in self-compassion training. Mental health challenges impact all

ages, yet not all have access to the needed support, so compassion-related curriculum may help

some of the students who are not receiving professional support (Andersson et al., 2021; Ko et

al., 2018). In a random-controlled trial, compassion, including for others and for self, increased

after participants completed a compassion cultivation training program (Jazaieri et al., 2013).

Like EI, relating to oneself and others with compassion has been labeled as a *soft skill* (Neff,

2021), but it is noticeably absent from social and emotional learning programs (Jazaieri, 2018).

A third reason for choosing self-compassion involves the support self-compassion

provides to individuals in the process of developing self-awareness, which is a core component

of EI (Goleman, 1998; Salovey & Mayer, 1990). As one looks more closely at one's thoughts,

negativity and problems are likely to arise (Germer & Neff, 2018). Human brains are wired with

a negativity bias (Hanson, 2013; Rozin & Royzman, 2001), which means more weight is placed

on negative events, moods, and emotions than positive. As these negative thoughts arise when

one is cultivating attention and awareness, the practices of self-compassion provide active

support and emotional regulation for navigating the inner discomfort or turmoil (Neely et al.,

2009). In a study of 177 undergraduates in the southwestern United States, self-compassion levels significantly and positively correlated with a variable defined as "the ability to see reality as it is and to develop self-awareness" (Neff, Rude & Kirkpatrick, 2007, p. 912). Dundas et al. (2017) found that self-compassion training produced significant increases in self-regulation, which is another component of several EI definitions (Goleman, 1998; Mayer & Salovey, 1997; Salovey & Mayer, 1990).

Finally, EI was positively associated with compassion and self-compassion in studies with acute-care nurses (Heffernan et al., 2010) and Italian workers (di Fabio & Saklofske, 2021), providing the fourth reason. Both studies used the same shortened version of the Trait Emotional Intelligence Questionnaire (TEIQue), which is a valid and reliable Stream 3 measurement for EI (A. Cooper & Petrides, 2010). In the nursing study of 135 registered nurses in the United States, EI and self-compassion were positively correlated with a Pearson's coefficient of $r = .55$ ($p < 0.0001$). In the recent study of Italian workers, statistically significant Pearson's $r$ correlations were found between self-compassion and all four subscales of EI in the TEIQue measurement: Well-being ($r = .48$), Self-control ($r = .56$), Emotionality ($r = .35$), and Sociability ($r = .32$). The Di Fabio and Saklofske (2021) correlation results support efforts to develop EI to increase self-compassion. In this study, the reverse relationship was examined by measuring the impact of self-compassion training on EI development. Additionally, in a study analyzing the validity of the total score and the sub-scales scores of the Self-Compassion Scale (SCS) with 192 participants, self-compassion scores correlated positively with EI scores (Neff, Long, et al., 2018).

*Self-Compassion Definition*

Self-compassion is compassion directed toward oneself (Neff, 2003a). Like EI, compassion is a concept with multiple conceptualizations and definitions among researchers, such as a discrete emotion, a motivation, a disposition like a personality trait, or an attitude (Goetz & Simon-Thomas, 2017). However, this study defines compassion as a concept with two parts: noticing suffering and then taking an action to help alleviate the suffering (Goetz et al., 2010). Similarly, the definition of self-compassion includes those two aspects—feeling suffering and wanting to help—applied to oneself when one is suffering from a mistake or a painful event outside of one's control (Neff & Germer, 2017). Neff (2003a) defines self-compassion as

> being touched by and open to one's own suffering, not avoiding or disconnecting from it, generating the desire to alleviate one's suffering and to heal oneself with kindness. Self-compassion also involves offering nonjudgmental understanding to one's pain, inadequacies, and failures, so that one's experience is seen as part of the larger human experience. (p. 87)

A 3-part framework guides the conceptualization of self-compassion: self-kindness, common humanity, and mindfulness (Neff, 2003a).

**Self-kindness.** Children may be taught how to be kind to others, but upon examining how the same children talk to themselves as adults, one may notice that kindness is missing (Germer & Neff, 2018). When an individual can accept the behaviors and choices that cause suffering without harsh judgement, but instead with a warm and caring internal approach, they are practicing self-kindness (Neff, 2003a). This does not mean one avoids acknowledging and learning from mistakes or negative events, instead one approaches the behavior as separate from the self, such as saying "I made a mistake" instead of "I am stupid" (Neff, 2021). Self-criticism

is the opposite approach to a moment of suffering (Neff, 2012). With self-kindness, one actively generates positive thoughts, words, and emotions for oneself (Neff & Germer, 2017).

**Common Humanity.** Harsh self-criticism or any suffering that one experiences tends to make one feel isolated (Neff, 2012). Especially if one makes a mistake, one may think they are the only ones who would be so foolish, which simply adds to suffering (Neff et al., 2005). Since an individual only sees the external lives of others, one may underestimate the challenges of others (Neff, 2003a). This inaccurate appraisal can magnify negative thoughts about one's mistakes or unfortunate circumstances and lead to a feeling of isolation (Neff & Germer, 2017). Taking a moment to consider that everyone and everything is not perfect, and that challenges, failures, and moments of suffering are part of the human condition, is how the idea of common humanity is used in this framework (Neely et al., 2009).

**Mindfulness.** A key component of mindfulness is attention (Shapiro et al., 2011) and some argue it is the most important aspect (Goleman & Davidson, 2018; Kabat-Zinn, 2014). "Mindfulness refines or clarifies our attention so that we can connect more fully and directly with whatever is happening" (Salzberg, 2014, p. 11). Without mindfulness, one may miss the signal to engage in an adaptive coping strategy (Neff et al., 2005) or spend unproductive hours ruminating and exaggerating a moment of pain (Neff & Germer, 2017). Developing self-compassion necessarily starts with mindfulness (Donovan et al., 2021). Neuroscientists and psychologists have built a scientific case for the benefits of mindfulness that aligns with the wisdom in ancient spiritual texts about the value of contemplation and meditation (Goleman & Davidson, 2018; Jazaieri, 2018; Jazaieri et al., 2013; Jha et al., 2020; Neff et al., 2005; Rechtschaffen, 2014; Shapiro et al., 2011). This third component of self-compassion allows for a

truthful, balanced recognition of circumstances, without avoidance or over-identification (Neff, 2003a).

**What Self-Compassion is Not**. A healthy self-compassionate mindset requires the presence of all three parts of the framework (Neff, 2021). Self-compassion is not just self-kindness because that alone could lead to self-absorption (Neff, 2012). Though kindness has a tender aspect, kindness channeled to protect oneself or others from danger, can also manifest in bravery (Neff, 2021). Avoiding challenges, letting others violate one's boundaries, or setting aside one's needs is not self-compassionate (Neff, 2021). Self-compassion is also not self-pity, self-indulgence, or self-esteem (Neff, 2012). Self-esteem and self-compassion share some benefits, such as building one's self-worth, but self-compassion provides a more reliable and stable base for self-worth than self-esteem, which is driven by comparison to others (Neff & Vonk, 2009). Research finds that high self-esteem can be associated with narcissism (Raskin et al., 1991) and that levels of narcissism in college students has risen significantly since the 1980s (Twenge et al., 2014). Providing an alternative method for building self-worth through self-compassion may help with this concerning trend (Neff & Germer, 2017).

### *Measuring With the Self-Compassion Scale*

Measuring self-compassion is necessary to establish how it may improve psychological well-being and other outcomes. Neff (2003b) used three studies with undergraduates to establish a scale to support the research on self-compassion and to confirm that this construct is psychologically valid. Exploratory factor analyses were used to narrow the possible questions down to 26 items, and confirmatory factor analyses were used with two large samples ($n = 391$ and 232) to find adequate fit. Internal reliability was good for the total score (Cronbach's $\alpha = .92$) and for the subscales (Cronbach's $\alpha$ range from .75 to .81). In the initial development

studies, the test-retest correlation was .93 over a 3-week period (Neff, 2003b). Additionally, Neff et al., (2019) used bifactor Exploratory Structural Equation Modeling to confirm the fit of the total scale and the subscales. A version of the SCS is used in almost all self-compassion research since 2003 (Neff et al., 2021) and "there is ample evidence for the reliability and validity of the SCS" (Neff, 2016, p. 266).

Raes et al. (2011) developed and tested the 12-item Self-Compassion Scale Short Form (SCS-SF), finding excellent correlation ($r = .98$) with the original SCS. Three samples in two languages were used—Dutch ($n = 271$, $n = 185$) and English ($n = 415$)—and the SCS-SF achieved adequate internal consistency (Cronbach's alpha = .86 in English and .87 for Dutch). One of the Dutch samples validated the factor structure through confirmatory factor analysis (Raes et al., 2011). According to Neff (2003b), scale items are designed to capture positive and negative aspects of the three components of self-compassion, for a total of six subscales—self-kindness, self-judgment (reverse scored), common humanity, isolation (reverse scored), mindfulness and over-identification (reverse scored). Participants use a 5-point scale, 1 = almost never and 5 = almost always, to note how often they behave in the manner of the statement (Neff, 2003b; Raes et al., 2011). For example, common humanity is assessed with the item "I try to see my failings as part of the human condition" and isolation is captured with "When I'm feeling down, I tend to feel like most other people are probably happier than I am" (Raes et al., 2011, p. 255).

As with the self-report EI scales, the SCS is limited in its accuracy to the extent participants can realistically and honestly report on their abilities, attitudes, and emotions (Neff, 2003b). Though other self-compassion scales exist (Gilbert et al., 2017; Gu et al., 2020), most research on this topic uses either the original or short form of the SCS (Neff et al., 2021).

Criticism of the SCS includes concerns about the proper use of the subscales (Muris & Petrocchi, 2017; Pfattheicher et al., 2017) and the total score (López et al., 2015) though Neff has effectively defended the scale against criticism (Neff, 2016, 2020; Neff et al., 2019; Neff, Tóth-Király & Colosimo, 2018).

***Self-Compassion and Emotional Intelligence Theory Alignment***

From a theoretical perspective, self-compassion was chosen as a focus for the intervention in this study because self-compassion "can be viewed as a useful emotional regulation strategy . . . [and] may be an important aspect of emotional intelligence" (Neff, 2003b, p. 225). When measuring the construct validity of the SCS, an EI self-report scale was one of the measures used to confirm that the new scale was valid (Neff, 2003b). Self-compassion, as conceptualized in this study using Neff's (2003) definition, maps well to the three factors of the AES, which is based on the original EI model of Salovey and Mayer (1990). As Table 4 illustrates, mindfulness is like perceiving emotions, the connectedness of common humanity aligns well with the intra- and interpersonal usage of emotions, and self-kindness is how one regulates difficult emotions in an optimistic manner.

**Table 4**

*Self-Compassion and Emotional Intelligence Model Comparison*

| Self-compassion model (Neff, 2003a) | Factors in the AES (EI model) (Kun et al., 2010) |
|---|---|
| Mindfulness | Appraisal (perception) of emotions |
| Common humanity | Intra- and interpersonal utilization of emotions |
| Self-kindness | Optimism and regulation of emotions |

In addition, Anand (2019) includes self-compassion as a competency in the less well-known 3S model of EI. In the 3S model, three domains—self-confidence, social competence,

and self-positive—include multiple competencies. Self-compassion is one of the competencies under the self-positive domain, along with authenticity, positive emotional balance, emotional resilience, self-confidence, and self-motivation (Anand, 2019).

*Empirical Support for Self-Compassion*

There are over 2,500 studies, with more being published, on self-compassion (Harris & Neff, 2020) and much of this research falls into two categories: correlational studies and intervention studies. Most correlational studies look for associations between score results on Neff's (2003b) 26-item SCS or the associated 12-item SCS-SF (Raes et al., 2011) and a wide variety of other variables from sports performance to well-being to pain management to mental health indicators to motivation and beyond (Muris & Petrocchi, 2017; Neff, 2021). The studies of interventions, which include pilot studies as well as quasi-experimental and random-controlled trials, typically seek to improve the participants' level of self-compassion, and then measure the results of a range of dependent variables (Albertson et al., 2015; Beshai et al., 2020; Campo et al., 2017; Mantelou & Karakasidou, 2017; Mosewich et al., 2013; Neff & Germer, 2013; Smeets et al., 2014; S. B. Taylor et al., 2020; Toole & Craighead, 2016). For the purposes of this study, research from both categories is reviewed, with a focus on studies using undergraduate samples in relation to self-compassion, well-being, and academic performance.

**Benefits for Student Well-being.** Several different measures of well-being are significantly positively associated with self-compassion in the research (Baer et al., 2012; Gunnell et al., 2017; Hasselberg & Rönnlund, 2020; Neely et al., 2009; Wilson et al., 2020). A meta-analysis found a positive correlation ($r = .47$) between self-compassion and well-being (Zessin et al., 2015). Positive correlations also exist between self-compassion assessment scores and intrinsic motivation (Neff et al., 2005), life satisfaction (Ferrari et al., 2019), wisdom (Neff,

Rude & Kirkpatrick, 2007), perceived competence (Gunnell et al., 2017; Neff et al., 2005), perspective taking (Neff & Pommier, 2013), gratitude (Bluth & Eisenlohr-Moul, 2017), committing to and reengaging with goals (Neely et al., 2009; Neff et al., 2005), conscientiousness (Neff, Rude & Kirkpatrick, 2007), and the ability to regulate negative emotions (Neff, Long, et al., 2018; Park et al., 2018). In one study of 91 undergraduates in the U.S., self-compassion was significantly correlated in a positive direction with happiness and optimism (Neff, Kirkpatrick & Rude, 2007). In a study of Turkish undergraduate students, self-compassion scores were significantly and positively correlated with hope (Akin & Akin, 2014). Another meta-analysis examining self-compassion and healthy behaviors related to nutrition, exercise, danger avoidance, substance abuse, sleep, hygiene, and medical practices found a positive correlation ($r = .21$, 95% CI [0.17-0.26]) for adolescents (age 12 to 19.99, $p <. 001$) and for adults ($r = .26$, 95% [CI 0.23-0.30], $p < .001$) ages 20 to 39.99 (W. J. Phillips & Hine, 2019).

In addition, higher self-compassion scores are negatively correlated to undergraduate students' fear of negative evaluation ($r = -.54$, $p < .001$) and apprehension about participating in class (Long & Neff, 2018). Yarnell and Neff (2013) studied college undergraduates' responses to conflict and found that those with higher levels of self-compassion were better able to compromise by considering the needs of all parties, including their own needs. Conflict didn't result in excessive emotional turmoil for the more self-compassionate students in one study (Yarnell & Neff, 2013). When students experienced conflict in academic group projects, the students with higher self-compassion scores also reported an increase in positive and decrease in negative emotions at a significant level, which indicates better levels of emotion regulation (Park et al., 2018). In addition, higher scores on self-compassion assessments are negatively correlated with anxiety (Egan et al., 2021; Fong & Loi, 2016; MacBeth & Gumley, 2012; Neff, 2003b),

depression (Egan et al., 2021; MacBeth & Gumley, 2012; Neff, 2003b; Raes, 2010), giving up on goals (Neely et al., 2009), neuroticism (Neff, Rude & Kirkpatrick, 2007), self-criticism (Ferrari et al., 2019; Neff, Kirkpatrick & Rude, 2007), fear of failure (Neff et al., 2005), rumination (Neff, Kirkpatrick & Rude, 2007), personal distress (Neff & Pommier, 2013), and stress (Luo et al., 2019; MacBeth & Gumley, 2012; Neely et al., 2009; Neff et al., 2005; Raque-Bogdan et al., 2011; Zhang et al., 2016).

When individuals experience stress, they often try to reduce the stressors and regulate their emotions through a variety of coping mechanisms (Ewert et al., 2021)  In some literature, coping is synonymous with emotion regulation (Brenner & Salovey, 1997), which is an aspect of EI (Mayer & Salovey, 1997). In a meta-analysis of coping and self-compassion studies with 136 samples representing 38, 913 total participants (mean age weighted by sample size = 30.16, SD = 14.21), Ewert et al., (2021) classified active coping, planning, religious coping, instrumental support coping, emotional support coping, acceptance and positive reframing as adaptive coping strategies and found a significant, positive correlation with self-compassion ($r$ = .306). A larger, and still significant, negative correlation ($r$ = - .500) for self-compassion was found for maladaptive coping strategies (behavioral disengagement, denial, experiential avoidance, rumination, self-blame, worry, and substance use). Additionally, this meta-analysis didn't find support for gender as a significant moderating variable between self-compassion and coping, but age did play a significant moderating role as the relationship was stronger for older participants (Ewert et al., 2021).

**Benefits for Academic Outcomes.** Researchers have also examined self-compassion and stress in the specific setting of academics. In a study of 208 Chinese students with high stress levels while preparing for a high stakes test, self-compassion significantly mediated the

relationship between academic stress and unhelpful negative feelings (Zhang et al., 2016).

Breines and Chen (2012) ran four experiments evaluating self-improvement motivation and

growth mindset after exposure to self-compassion exercises or messages. The measurements for

the belief that weaknesses are changeable, self-reported motivation levels after reflecting on a

moral transgression, and time spent studying between challenging vocabulary tests were highest

for groups receiving the self-compassion treatments ($p > .05$), as compared to active control

groups (Breines & Chen, 2012). Self-compassion is significantly positively related to students'

self-reported tendencies to ask questions in class and seek help from instructors outside of class

(Long & Neff, 2018). Missing goals can be disappointing, but self-compassion may help protect

students from the associated negative feelings (Hope et al., 2014) and "focus on mastering tasks

at hand rather than worrying about performance evaluations, to retain confidence in their

competence as learners, and to foster intrinsic motivation" (Neff et al., 2005, p. 284).

Some self-compassion studies specifically focused on first-year college students and

found that higher self-compassion scores were positively associated with lower homesickness

(Terry et al., 2013), fewer negative feelings in response to setbacks (Hope et al., 2014), greater

satisfaction with the college attendance decision (Terry et al., 2013), higher psychological need

satisfaction, which is a measure of competence, autonomy, and relatedness (Gunnell et al.,

2017), and are "less emotionally affected by the amount of goal progress they are making, but

more affected by whether the goals they are pursuing are self-expressive and personally

meaningful" (Hope et al., 2014, p. 590). Based on their results, the authors of these three studies

all recommend offering self-compassion interventions to college students (Gunnell et al., 2017;

Hope et al., 2014; Terry et al., 2013). Fong and Loi (2016) and Luo et al. (2019) reached similar

conclusions about training undergraduates in self-compassion practices after analyzing self-

compassion as a significant mediator with stress, burnout, and depression and finding it to be a helpful factor in mitigating these distressing outcomes. Self-compassion intervention studies provide support for using self-compassion to lower stress (Bluth & Eisenlohr-Moul, 2017; Donovan et al., 2021; Hasselberg & Rönnlund, 2020; Moore et al., 2020; Wilson et al., 2020; Zhang et al., 2016), depression (Bluth & Eisenlohr-Moul, 2017; Ferrari et al., 2019; Wilson et al., 2020), and anxiety (Bluth & Eisenlohr-Moul, 2017; Ferrari et al., 2019).

### *Self-Compassion is Trainable*

Studies have shown that self-compassion levels can be increased, with results significantly better than control groups, through training programs (Donovan et al., 2021; Ferrari et al., 2019; Linardon, 2020; Mosewich et al., 2013; Neff & Germer, 2013; Smeets et al., 2014; Williamson, 2020). A meta-analysis of 27 studies of self-compassion interventions with control groups found that the significant improvements in self-compassion have a moderate effect size (Hedge's $g = 0.75$, 95% CI [0.63-1.12]), though the effect size for the subset of studies was lower ($g = 0.42$; 95% CI [0.35-0.59]) with an active control group (Ferrari et al., 2019). The pre-post intervention moderate effect size for self-compassion is consistent with the first meta-analysis of compassion-based interventions that examined 21 randomized controlled trials (Kirby et al., 2017). The compassion-based interventions in Kirby et al. (2017) were not limited to self-compassion like the Ferrari et al. (2019) analysis. The published self-compassion intervention studies include a variety of formats, durations, and participants. Many of the studies discussed below use Cohen's $d$ to measure the effect size of the intervention. Using this measure, 0.2 is considered a small effect, 0.5 is a medium effect, and measures of 0.8 and above are considered large effects (Cohen, 1988).

**Results of Various Training Formats.** A live, in-person, 8-week training program titled

Mindful Self-Compassion created by Neff and Germer (2013) for nonclinical use with adults was

studied with a control group. Participants were recruited via the internet, yoga and meditation

teachers, and therapists then randomly assigned to the Mindful Self-Compassion program or a

waitlist. The participants in the two groups were not significantly different from each other, but

were overwhelmingly female and Caucasian, with graduate degrees and previous meditation

experience. A repeated measures analyses of variance found significant gains from pre- to

posttest scores on the Raes et al. (2011) SCS-SF for the treatment group and a large effect size

(Cohen's $d = 1.67$). Self-compassion score gains were maintained at 6-months and 1-year

following the Mindful Self-Compassion program. The same live program was tested in a pilot

study without a control group with Chinese women (mean age = 37 years) with prior meditation

experience in Beijing, China (Finlay-Jones et al., 2018). Significant increases in self-compassion

pre- and posttest via the 26-question SCS were measured and maintained at 3-months for these

participants. Another pilot study (also without a control group) of U.S. veterans, primarily male

(median age = 57, 55% Caucasian), found significant ($p < .001$) differences in pre- and posttest

scores on the SCS-SF using paired samples $t$ tests, as well as 96% positive feedback on the

Mindful Self-Compassion program from the 80 participants who completed the tests and

attended most of the sessions (Serpa et al., 2021).

Online, asynchronous interventions to develop participants' self-compassion and

introduce them to practices for their continuing development of self-compassionate attitudes

have also been created and studied (Albertson et al., 2015; Beshai et al., 2020; Finlay-Jones et

al., 2017, 2020; Hasselberg & Rönnlund, 2020; Hofmeyer et al., 2018; Moore et al., 2020). A

study of university students in Sweden found significant increases of scores on the SCS-SF for

the group taking a 6-week Compassion Mindset intervention through an app on smartphones (Andersson et al., 2021). The Swedish students ($n = 57$) all reported high levels of stress and self-criticism and volunteered to be randomly assigned to one of three groups (a compassion group, a mindfulness group, or a waitlist). Between-group effect sizes were large (Cohen's $d =$ 1.61, 95% CI [0.91-2.3]) for the compassion group compared to the waitlist control. Albertson et al. (2015) used a waitlist control group and a modified version of the Neff and Germer (2013) Mindful Self-compassion program (20-minute daily guided meditations delivered asynchronously over three weeks) intervention with women ($n = 228$, age range 18 to 60, mean age = 36 years). Repeated measures ANCOVAs, with age and prior mediation experience as covariates, resulted in significant increases in SCS scores for the intervention group ($F = 37.37$, $p < .001$) and found a large effect size (Cohen's $d = 0.82$). Several pilot studies without control groups also offer support for the effectiveness of online interventions to increase scores on the 12- or 26-item SCS (Finlay-Jones et al., 2017, 2020; Hasselberg & Rönnlund, 2020; Moore et al., 2020).

Since early 2020, the live Mindful Self-Compassion program (Neff & Germer, 2013) has been delivered remotely via videoconference and at least one study protocol examining the effectiveness of synchronous online delivery of this program has been published, so future studies of the effectiveness of this modality with a variety of populations are expected (Finlay-Jones et al., 2021). Studies of the Mindful Self-Compassion program with young adult cancer survivors and Mindful Self-Compassion for Teens program with transgender teenagers effectively using live videoconferencing provide preliminary support (Bluth et al., 2021; Campo et al., 2017).

**Results of Various Duration Interventions.** Intervention studies in the literature range from one week to full college semesters (Beck et al., 2017; Hasselberg & Rönnlund, 2020; Ko et al., 2018; Matos et al., 2017; Moeini et al., 2019; Mosewich et al., 2013; Shapira & Mongrain, 2010; Smeets et al., 2014). For example, a small, liberal arts college in California offered a semester-long elective course for credit where researchers studied 34 participating students from two different semesters with roughly half in the class and half in a control group (Ko et al., 2018). Group assignment was meant to be completely random, but the instructors ended up permitting some seniors into the class who were randomized to the control group, which is one of the limitations of this study. Researchers collected pre- and post-semester data on several measures, including the SCS, and pretest SCS scores were not significantly different between the groups. The data was analyzed using repeated measures ANOVA, and the increase in the mean SCS score for the intervention group was significant ($F = 8.95$, $p = .005$) with a large effect size (partial $\eta^2 = .218$).

In a medium-length intervention example, a pilot study without a control group measured Australian medical students' ($n = 47$) self-compassion levels before and after they completed an 8-week mostly asynchronous course with brief video instructions and guided meditation practices (Moore et al., 2020). Weekly surveys to gather frequency and duration of meditation and a reflective essay were used in this mixed method study. Self-compassion scores increased significantly from the pre- to posttest at the end of the program, and at the end of the 4-month semester. The qualitative data revealed themes of engagement around benefits and challenges, as well as positive impacts on self-awareness, which is an aspect of EI.

In a brief intervention study, participants recruited from social media (mostly women, all aged 18-25 and Swedish speakers) were randomly assigned to a 2-week asynchronous

intervention or a waitlist control (Hasselberg & Rönnlund, 2020). The activities consisted of an introduction to the concepts of mindfulness, compassion, and self-compassion, followed by ten 15-minute guided meditations over two weeks. Pre- and posttest scores from the SCS captured significant improvements in self-compassion and a large effect size (Cohen's $d = 1.0$). This study did suffer from a high dropout rate—56 participants started and 35 completed the posttest (Hasselberg & Rönnlund, 2020). In another European study, a 3-week self-compassion intervention was delivered face-to-face in three group meetings to female first or second-year college students (Smeets et al., 2014). Study volunteers were randomly assigned to the intervention or an active control group that received time management training. The self-compassion intervention was designed to teach about self-compassion and develop students' abilities to respond compassionately in times of struggle through formal and informal practices between weekly meetings. Self-compassion was measured at pre- and posttest with the SCS-SF (Raes et al., 2011), and the groups were not significantly different at pretest. Repeated measures ANOVAs with two groups and two times found support for the self-compassion intervention significantly increasing mean scores on the SCS-SF compared to the active control group ($F = 16.34$, $p < .01$) and a large effect size (Cohen's $d = 1.19$). In a third brief study, Mosewich et al. (2013) recruited 60 female collegiate athletes in Western Canada who self-identified as self-critical. The athletes were randomly assigned to a 7-day self-compassion intervention ($n = 29$ completers) or an active control group ($n = 21$ completers). The intervention began with the pretest of several measures, including the 26-item SCS, then a small group educational session about the benefits of a self-compassionate approach to athletic challenges and a writing task. Participants completed more writing tasks asynchronously before they returned for the posttest a week later. SCS mean scores were significantly higher at posttest and 1-month follow-up with

large effect sizes (Cohen's $d$ = .79 at 7-days and Cohen's $d$ = .82 at 1-month) for the group that received the self-compassion intervention (Mosewich et al., 2013).

**Results with Various Populations.** In addition to the studies mentioned above with undergraduates, Donovan et al. (2021) explored the feasibility of an 8-week live group class for undergraduates. Developing first-year college students' self-management abilities in relation to emotions, one of the aspects of EI (Goleman, 1998; Mayer & Salovey, 1997), was one of the goals of this intervention (Donovan et al., 2021). Volunteer participants had to be 18-25 years old and enrolled in college full-time to attend the classes, and this resulted in a group of 21 that all identified as female, though not limited to females by the criteria. The mixed methods design of a single group revealed significant increases from pre- to posttest for scores on the SCS-SF ($t$(21) = -8.89, $p$ =.< 001), and the qualitative data supported acceptability and produced helpful data for future interventions with undergraduates. Other studies with undergraduates also provide support for the efficacy of self-compassion interventions with this population (Beck et al., 2017; Dundas et al., 2017; Finlay-Jones et al., 2017; Hofmeyer et al., 2018; Mantelou & Karakasidou, 2017; Moeini et al., 2019; S. B. Taylor et al., 2020).  Beyond undergraduates, interventions with middle- and high-school students (Bluth et al., 2016; Bluth & Eisenlohr-Moul, 2017), graduate students (Babenko et al., 2018; Beck & Verticchio, 2018; Moore et al., 2020), and adults (Albertson et al., 2015; Beshai et al., 2020; Campo et al., 2017; Duarte et al., 2017; Hasselberg & Rönnlund, 2020; Neff et al., 2020) all show support for significant increases in self-compassion assessments after participation in the interventions.

## Summary of the Literature

This study measures the impact on EI and self-compassion scores of an online, asynchronous, 3-week self-compassion intervention for undergraduate students. Previous

research has found that self-compassion, as measured by either version of the SCS, can increase

through this type of training. The literature reviewed here suggests that self-compassion is

related to EI, especially in the self-awareness and emotion-regulation domains. Studies have

found that EI scores can be increased through training, including interventions that do not

specifically teach about the theory. EI has been criticized for lacking a moral compass and a

single, unifying conceptualization. Using compassion as a mechanism to increase EI may help

address some of the maladaptive behavior concerns. Also, using an EI measurement tied to the

original EI model helps to address the criticism concerning multiple EI conceptualizations and

bridges the gaps between EI models.

**Chapter III: Methodology**

The purpose of this quasi-experimental, quantitative study was to measure if a self-compassion intervention improves undergraduate students' emotional intelligence (EI), as measured by the Assessing Emotions Scale (AES).

**Research Questions**

Primary: Will students' EI scores increase after completing the self-compassion intervention?

Secondary: Will students' self-compassion scores increase after completing the self-compassion intervention?

**Participants**

Undergraduate students at a small, rural, public university in the Rocky Mountain area of the United States consented to participate in the study. Students identifying as female comprise 65% of the students, 42% of students receive Pell grants, and 77% are under 25 years of age (National Center for Education Statistics, 2020). According to the race and ethnicity categories in the Integrated Postsecondary Education Data System, the racial and ethnic breakdown of the student body is approximately 79% White, 7% American Indian or Alaska Native 5% Hispanic/Latino, 3% two or more races, 3% unknown, 2% Black or African American, and 1% Native Hawaiian or Other Pacific Islander. Admitted students are not required to complete a college-preparatory program, and almost one-third of students are first-generation college students (Ripley, 2020). Students at the research site are not representative of the entire population of undergraduate students in the United States, so the conclusions of this study are limited to similar populations.

The research site offers a unique course delivery format called block scheduling. A complete course consists of eighteen 3-hour class periods on consecutive business days, a *block*, and most students take one class at a time. Classes are small, less than 25 students, with an emphasis on experiential education in a face-to-face format (Ripley, 2020). Multiple courses were required to reach the necessary sample size, so the researcher recruited instructors to load the asynchronous intervention module into their course page on the learning management system, offer class credit for completion of the assignments, allow the researcher to recruit participants on the first or second day of the block, and dedicate class time to complete the pre- and posttests.

Inclusion criteria are (a) enrollment in a participating course, (b) signing a consent form, and (c) completion of the pre- and posttest data collection process. Participants were excluded if they were not at least 18 years old and if they were enrolled in a participating control group course and a participating intervention group course.

**Variables and Instrumentation**

The independent variable in this study is participation in the self-compassion intervention designed to increase one's ability to relate to oneself with self-compassion in the face of suffering or perceived failure. The dependent variables are participants' scores on the Schutte et al. (1998) AES to measure EI and the Raes et al. (2011) Self-Compassion Scale-Short Form (SCS-SF) to measure self-compassion. The SCS-SF serves as a post-intervention manipulation check to measure if the intervention successfully increased participants' scores on this measure of self-compassion.

*Measuring Emotional Intelligence*

   The 33-item self-report AES is based on Salovey and Mayer's (1990) model of EI, which is one of the earliest EI conceptualizations and provided a foundation for both the ability and Goleman EI models discussed in the previous chapter (Goleman, 1995; Mayer & Salovey, 1997). Key aspects of this model include "accurate appraisal and expression of emotion, ability to regulate emotion, and ability to use emotion" (Schutte & Malouff, 2002, p. 14). The creators of this scale call attention to the importance of Gardner's (1983) intra- and interpersonal intelligences as foundational, and these components are evident within the scale (Schutte et al., 1998). In this study, EI is conceptualized as an outgrowth of Gardner's work and as a set of perceived characteristics that can be self-reported, and the AES measures the participants' perceptions of how they are generally functioning (Schutte et al., 2007).

   Participants used a 5-point scale from strongly disagree (1) to strongly agree (5) and were asked to rate if each statement is generally a true description of themself (Schutte et al., 2009). Examples of statements included in the scale instrument are "I know why my emotions change," "I am aware of the non-verbal messages other people send," and "It is difficult for me to understand why people feel the way do" (Schutte et al., 1998). Three items are reverse scored, meaning that a 1 is counted as five points toward the final calculation and so on, and then the points for each item are summed resulting in a score between 33 and 165 (Schutte et al., 2009). The reading level needed to understand the scale is typical of fifth graders, and the average time to complete the scale is five minutes (Schutte et al., 1998, 2009).

   The scale was created with a study of 345 participants (median age = 27.27 years, 63% identified as female) recruited from university students and community members in the U.S. (Schutte et al., 1998). A starting point of 62 items were analyzed to find the 33-item scale with

an internal consistency of Cronbach's α = .90, which was confirmed in the same article with a

smaller sample of 32 college students (Cronbach's α = .87). Brackett and Mayer (2003)

calculated a similar internal consistency (Cronbach's α = .93) with 207 U.S. undergraduates, and

Schutte et al. (2009) compiled the results of 27 studies using the AES and found a mean

Cronbach's α of .87. The test-retest reliability after two weeks is also acceptable at $r = .78$

(Schutte et al., 1998).

To initially measure the validity of the scale, the creators used six different measures of

related constructs and scores were related as expected at significant levels (Schutte et al., 1998).

In addition, they found that psychotherapists scored significantly higher on the scale than

prisoners and substance abuse treatment program participants, which supports known-group

validity. Other studies found significant correlations between AES and related emotional

functioning measures, as would be expected if this scale is a valid measurement of EI (Bastian et

al., 2005; Brackett & Mayer, 2003; Rooy et al., 2005; Schutte & Malouff, 2002). Confirmatory

factor analysis was applied in a study that found support for "the original three-factor theoretical

model and the three-factor structure of AES" (Kun et al., 2010, p. 601), with the three factors

described as (a) appraisal of emotions, (b) optimism and regulations of emotions, and (c)

intrapersonal and interpersonal utilization of emotions. In addition, the discriminant validity of

this scale was analyzed in the initial study, and support was found to show it was not measuring

cognitive ability or four of the five personality traits dimensions of extraversion, agreeableness,

conscientiousness, and neuroticism, though it was correlated with openness, the fifth dimension

(Schutte et al., 1998).

While there are multiple assessment tools available for measuring EI, the AES has been

cited in over 3,000 articles (P. J. O'Connor et al., 2019), with many different types of

populations in multiple countries (Schutte et al., 2009), including EI intervention studies with undergraduates in the United States (Clark et al., 2003; Schutte & Malouff, 2002). In the original article, Schutte et al. (1998) did not give their scale a name and as a result multiple names have been used to reference this same scale, such as Schutte's Emotional Intelligence Scale, Emotional Intelligence Scale, Schutte Self-Report Emotional Intelligence Scale, Schutte Self-Report Inventory, and the Self-Report Emotional Intelligence Test (Kun et al., 2010; P. J. O'Connor et al., 2019; Schutte et al., 2009). The AES name is now used by the original lead author (Schutte et al., 2007) to refer to this scale, so this study uses that term.

### *Measuring Self-Compassion*

A version of the Self-Compassion Scale (SCS) is used in almost all self-compassion research since 2003 (Neff et al., 2021) and "there is ample evidence for the reliability and validity of the SCS" (Neff, 2016, p. 266). In the initial development studies of the 26-item SCS, the test-retest correlation was 0.93 after three weeks (Neff, 2003b) and the internal consistency was also good (Cronbach's $\alpha = 0.92$). More recent studies examining internal consistency in multiple samples also support the claim that this measure of self-compassion is reliable (Neff et al., 2019; Neff, Long, et al., 2018). One of the scales used to support validity of the SCS was a measurement of EI, the Trait Meta-Mood Scale, in addition to seven other scales measuring related constructs (Neff, 2003b). Neff and Tóth-Király (2022) summarize the extensive support for construct, predictive, discriminant, and convergent validity from the numerous studies published since the creation of the SCS. The roots of the definition of self-compassion used in this study come from Buddhism, and Buddhist meditation practitioners score significantly higher than undergraduates on the scale (Neff, 2003b; Neff & Pommier, 2013), which supports known-group validity.

Raes et al. (2011) developed and tested the 12-item SCS-SF, finding excellent correlation ($r$ = .98) with the original 26-item SCS as well as adequate internal consistency (Cronbach's α = .86). Both scales are based on a 6-factor model from the 3-part definition of self-compassion with two factors for each part to capture the positive and negative aspects: self-kindness and self-judgment, common humanity and isolation, and mindfulness and over-identification (Neff, 2003b). However, the creators of the SCS-SF recommend using only the total SCS-SF score instead of the subscale scores because when only two items are used per subscale, reliability decreases (Neff & Tóth-Király, 2022; Raes et al., 2011). Participants used a 5-point scale (1 = almost never and 5 = almost always) to note how often they behave in the manner of the question (Neff, 2003b; Raes et al., 2011). Items on the scale include statements such as "I'm intolerant and impatient towards those aspects of my personality I don't like," and "When I'm going through a very hard time, I give myself the caring and tenderness I need" (Raes et al., 2011).

**Procedure**

The quasi-experimental study is a nonequivalent control group design. The study is quasi-experimental because participants were not randomly assigned to the intervention or control groups and nonequivalent since participants in the treatment group were not matched to participants in the control group (D. T. Campbell & Stanley, 1963). Following approval by the Idaho State University Human Subjects Research Committee, the intervention was assigned to all the students in three separate courses and participants in these courses volunteered to take the pre- and posttest. Volunteers for the control groups were recruited from three other courses. Since multiple sections of the same course are not taught simultaneously at the research site, the content and instructors of the participating courses varied. Students were unaware of the study when they registered for the courses, so potential differences in the dependent variables seem

unlikely to be attributed to the selection of the groups, even though participants were not randomly assigned. The request for participants and first data collection (pretest) occurred on the first and second days of the block. Posttests were administered three weeks later, after the self-compassion training was delivered for the treatment group. The design is illustrated below in Figure 1 using Campbell and Stanley's (1963) notations.

**Figure 1**

*Nonequivalent Control Group Design*

Intervention participants $O_1$-----------X------------$O_2$

-------------------------------------------------------------

Control participants      $O_1$-------------------------$O_2$

(O = observation, X = treatment)

To determine the number of participants needed, a power analysis was conducted using G*Power software (Faul et al., 2007). A type I error rate of $\alpha = .05$ and type II error rate of $\beta = .20$ were chosen as commonly accepted standards (Creswell & Creswell, 2018). Also, Lindsay and Creswell (2014) used the 80% power criteria ($\beta = .20$) in a self-compassion study involving an intervention, and Choi et al. (2015) used 80% power in an EI intervention study of the same design, a nonequivalent control with pre- and posttests. A moderate effect size (Cohen's $d = 0.5$) was chosen for the power analysis parameter based on results from a meta-analysis of EI training studies showing a positive, moderate effect size (Mattingly & Kraiger, 2019). Similarly, a meta-analysis of self-compassion training found a moderate effect size for increasing self-compassion (Ferrari et al., 2019). These moderate effect sizes indicate that scores improve on average approximately one half a standard deviation after training (Mattingly & Kraiger, 2019). The G*Power software calculated a sample size of at least 26 participants when using a repeated

measures analysis of variance between factors (Faul et al., 2007). However, this size was exceeded in the study.

**Data Collection**

At the beginning of the block, I recruited participants in each participating class. To support the assumption of independence needed for the statistical analysis and minimize potential pretest differences between the control and treatment groups, an introductory script was followed when recruiting participants from multiple courses. Participants were told that all pre- and posttest data will be anonymous and kept strictly confidential. I explained that instead of names, participants will enter a unique code in the data collection forms. Participants drew and kept their own code from a bucket of coded craft sticks on the day of the pretest. For the data analysis, the purpose of the code was to confirm who completed both the pre- and posttest because answering both tests is crucial to measuring the results of the study. For the participant, the code entered the participant into a random drawing for a $100 gift card. The winning code was announced via email on the last day of the block, and the winner was asked to claim the prize from a participating instructor without access to the data in order to retain anonymity.

To support the independence of the data and minimize the participants' inclinations to give answers they believe are socially acceptable instead of accurate, I explained the importance of answering the questions to the best of the participants' abilities, without regard to others and with the reassurance that there are no "right" or "wrong" answers. Only I had access to the pre- and posttest responses, which were stored in a password protected account, and the answers provided by participants throughout the study about their weekly activity choices were anonymous, so they could not impact their course grades. However, course points were awarded

by the instructors for submitting the weekly reflection assignments of the self-compassion intervention to the learning management system.

The pre- and posttest responses were collected using Qualtrics via a link participants accessed from their own devices during a face-to-face class. Students selected the course they were taking in the first survey questions. Based on this choice, they were shown the intervention or the control group consent form, which could not be consented to unless they were 18 or older. The pretest questions were divided into four categories: (a) the AES, (b) the SCS-SF, (c) brief demographic questions (gender, age, and current grade), and (d) questions related to previous meditation experience. The pretest was pilot tested and on average it took less than ten minutes to complete.

Since there is often a dose-response relationship for mindfulness practices, which means more time spent meditating produces a larger impact (Goleman & Davidson, 2018; Spijkerman et al., 2016), and mindfulness is an aspect of self-compassion and the self-awareness part of EI, the pretest form asked about previous meditation/contemplative practice. Specifically, information was gathered about previous experience by asking (a) average minutes/week, (b) previous number of months, and (c) what % of time is spent with attention, open awareness, or loving-kindness/compassion meditation, which are three different primary types of practice (Goleman & Davidson, 2018).

Spijkerman et al. (2016) recommends that online, mindfulness-based intervention studies collect adherence data from participants, because effectiveness may decrease when participants don't interact with the training as it was designed. Adapting treatment fidelity questions to capture adherence and engagement from Mosewich et al. (2013), participants answered these questions weekly:

- How many times during the past week did you complete an activity from the weekly

  list?

- To what extent did you engage in and make use of the activity or activities this week?

  Answer on a scale of 1 (not at all) to 5 (very much).

- Which activity or activities did you complete?

- Approximately how many minutes total in the past week did you spend on practices

  or activities to build up your inner strength?

- What is your unique code on the craft stick?

Additionally, this weekly form reminded participants that a mental health professional was

available on campus if any concerning, overwhelming, or trauma-related emotions surfaced from

the mindfulness or compassion activities. Mosewich et al. (2013) reported that this option was

available to their participants, though no one reported taking advantage of the option.

   Three weeks after the pretest collection, I returned to the face-to-face classes to introduce

the posttest. The same brief introduction to the posttest was used in all classes, covering the same

topics as the introduction to the pretest about confidentiality, the importance of answering

accurately, a reassurance that answers do not impact course grades, a reminder to use the same

craft stick code, and details about announcement of the random drawing winner. As with the

pretests, a link for the Qualtrics posttest was loaded into the courses' learning management

system page and was accessible to students on the day of the posttest data collection. The

posttests included the AES and SCS-SF questions and the required field to gather the

participant's unique code. This code determined which participants completed both the pre- and

posttests, since completion of both tests was an important inclusion criterion.

**Data Analysis**

The data analysis process was designed to use the collected data to answer the two research questions of this study:

- Primary: Will students' EI scores increase after completing the self-compassion intervention?

- Secondary: Will students' self-compassion scores increase after completing the self-compassion intervention?

To state these research questions as hypotheses for statistical analysis using the dependent variables' mean scores to measure participants' EI and self-compassion:

- Primary: $H_0$ (null hypothesis): There is no statistically significant improvement in mean AES scores measured repeatedly at pre- to posttest between the control and treatment groups.

- Primary: $H_A$ (alternative hypothesis): There is a statistically significant improvement in mean AES scores measured repeatedly at pre- to posttest between the control and treatment groups.

- Secondary: $H_0$ (null hypothesis): There is no statistically significant improvement in mean SCS-SF scores measured repeatedly at pre- to posttest between the control and treatment groups.

- Secondary: $H_A$ (alternative hypothesis): There is a statistically significant improvement in mean SCS-SF scores measured repeatedly at pre- to posttest between the control and treatment groups.

After the collection process, data was entered into IBM® SPSS® Statistics software to prepare descriptive and inferential statistics and the results are presented in the next chapter. To

determine if the intervention and control groups' pretest dependent variable scores are roughly

equivalent, an analysis of variance (α set at .05) compared the two groups' pretest mean scores.

Since the control and treatment groups' mean pretest scores were not significantly

different, a repeated measures analysis of variance test (RM ANOVA) with a between group

factor of the self-compassion treatment can answer the research questions. This test compares the

within group differences from the pre- and posttest SCS-SF and Assessing Emotion Scale means

between the control and treatment groups to determine how likely one can attribute any between

group variability to the intervention, as opposed to random chance (Lock et al., 2017). It is

appropriate to use the analysis of variance test with an F-distribution when the data are normally

distributed and the variability within both groups is similar (Lock et al., 2017). If the

assumptions of normality or sphericity had been violated, non-parametric and/or correction tests

could have been used with the SPSS software in the analysis phase (Laerd Statistics, n.d.). If the

F-statistic and p-value support a significant result ($p < .05$), this would offer support for rejecting

the primary and secondary null hypotheses.

If the pretest scores between the control and treatment groups had not been equivalent,

which was a possibility since the groups were not determined through randomization, then an

analysis of covariance test (ANCOVA) would have been used to analyze the data. This test

accounts for the different starting points of the control and treatment groups, as indicated by the

covariate (mean pretest scores of the dependent variables.) A study using the AES to measure the

impact of a 3-day asynchronous, expressive-writing intervention on EI levels used ANCOVA in

this same manner (Kirk et al., 2011)  If the RM ANOVA determined that a significant difference

exists between the groups, further analysis using pairwise *t*-tests could have been used to

illuminate the differences over time in the AES and SCS-SF scores for the treatment group (Lock et al., 2017).

**Intervention (Independent Variable)**

The 3-week intervention was designed for this study using the Multiple Approaches to Understanding instructional design model (Gardner, 1999). This model was created by the same person who theorized about multiple intelligences (Gardner, 1983), thus inspiring theories and models of EI (Goleman, 1995; Mayer & Salovey, 1997; Salovey & Mayer, 1990). Another strength of this model is the assumption that instructional material should be presented in multiple formats to students because multiple representations of the topic enhance each learner's understanding (Gardner, 2000). A variety of self-compassion activities exist and have been used in the self-compassion interventions created by previous researchers (Albertson et al., 2015; Beck & Verticchio, 2018; Beshai et al., 2020; Bluth et al., 2016, 2021; Campo et al., 2017; Dundas et al., 2017; Finlay-Jones et al., 2018; Germer & Neff, 2018; Mantelou & Karakasidou, 2017; Matos et al., 2017; Mosewich et al., 2013; Neff & Germer, 2013).

With this model, multiple entry points capture students' attention and guide them to "the center of a disciplinary topic" (Gardner, 1999, p. 82). These points can be narrational (tell a story), numerical (an eye-popping statistic), foundational (why a topic is important), aesthetic (an image, song, poem, artwork), hands-on (engaging activity), or social (interpersonal activity). From here, the process moves to telling analogies to help students relate this new material to what they already know, while being mindful not to mislead. The last steps involve designing two or more tactics or activities, using multiple intelligences, to present the material (Gardner, 1999).

The activities chosen to help students develop a rich understanding are based on the self-compassion literature (Donovan et al., 2021; Germer & Neff, 2018; Hofmeyer et al., 2016; Neff & Germer, 2013; Smeets et al., 2014) and an 8-week Mindful Self-Compassion training program I attended. Some of the activities have been pilot tested in my previous classes. The training was delivered asynchronously through the school's learning management system. By standardizing the instructor and the course content, the delivery method minimized threats to validity that could occur from variations in the presentation of the content. However, by using the Multiple Approaches to Understanding model, students chose from a variety of activities and these choices create a threat to validity since the treatment activities were not the same for all participants in the treatment group.

Each week followed the model by starting with multiple entry points, then an analogy followed by multiple activities, and ended with a brief survey to capture data from the study participants and allow all the students to reflect on what they learned. For example, the first week's entry points include a story about how a student used this exercise to navigate an academic challenge (narrational), a poem (aesthetic), a personal story from the instructor (narrational), and an embodied awareness exercise (hands-on). The analogy describes self-compassion as inner strength training: one does not expect to be strong without lifting weights regularly, so one needs to "go to the gym" for our mind. There are a variety of strength-building exercises a trainer assigns one at the gym—bicep curls, squats, and sit-ups. For building self-compassion, a variety of self-compassion and awareness exercises can build this inner strength. Students chose from breathing exercises, yoga, a musical awareness activity, mindful coloring, mindful walking, and an attention-training exercise with a stone. Figure 2 outlines all three weeks of the intervention.

**Figure 2**

*Self-Compassion Intervention*
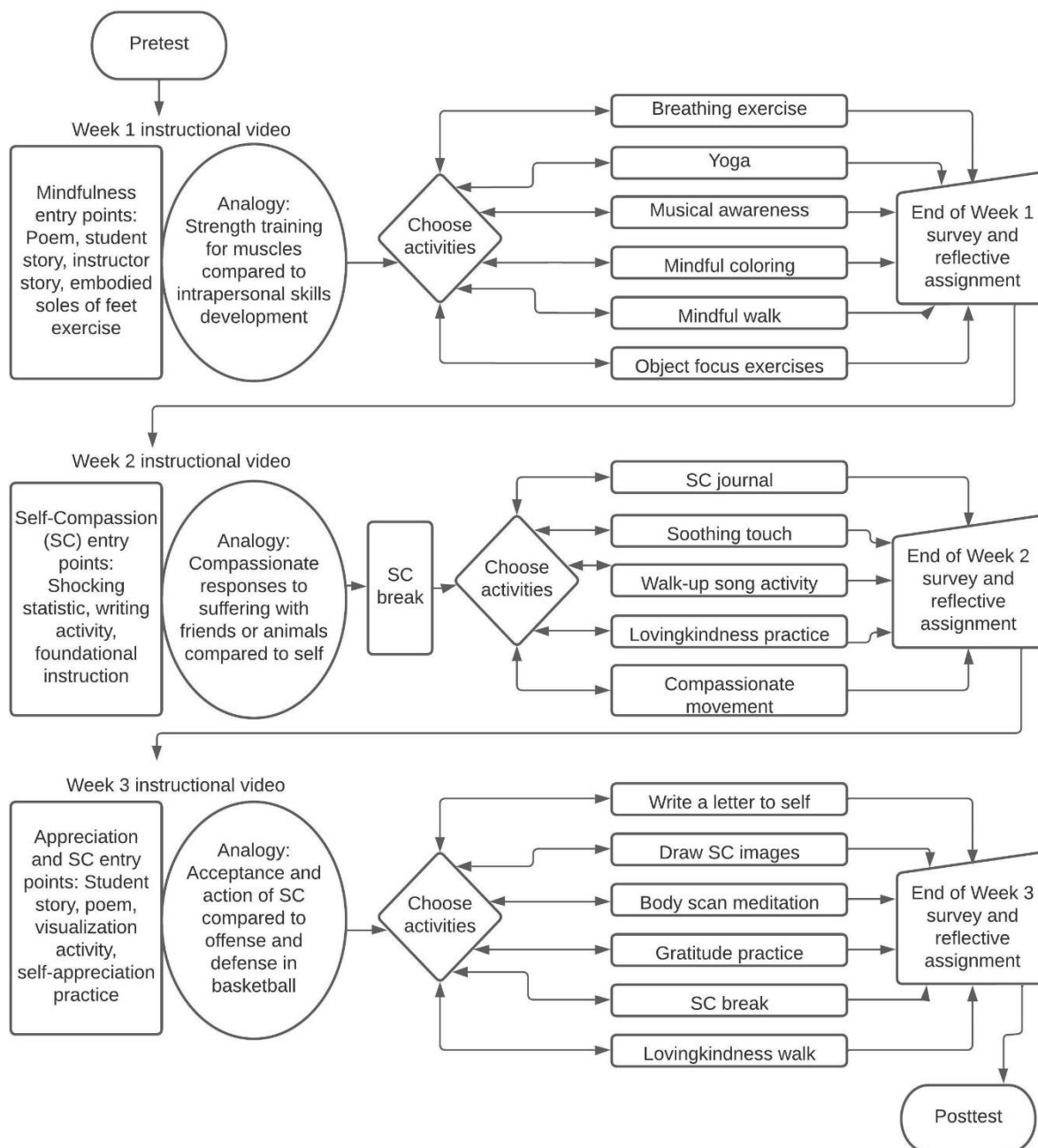


The 3-week duration fit well with the block schedule length at the research site, but

precedent for this length is also found in the literature. Smeets et al. (2014) used the same length

in their study of a face-to-face self-compassion intervention with female college students using the same self-compassion instrument as this study. Using pre- and posttests, they found a significant improvement in SCS-SF scores and a large effect size (Cohen's $d = 1.19$) for their intervention participants compared to an active control group (Smeets et al., 2014). Intervention studies finding significant self-compassion score increases range from less than three weeks (Breines & Chen, 2012; Hasselberg & Rönnlund, 2020; Leary et al., 2007; Lindsay & Creswell, 2014; Matos et al., 2017; Mosewich et al., 2013) up to 15 weeks (Beck et al., 2017; Ko et al., 2018), as well as durations of four to eight weeks (Andersson et al., 2021; Beshai et al., 2020; Bluth & Eisenlohr-Moul, 2017; Donovan et al., 2021; Finlay-Jones et al., 2017, 2018; Mantelou & Karakasidou, 2017; Moore et al., 2020; Neff et al., 2020; Neff & Germer, 2013; S. B. Taylor et al., 2020).

**Methodology Summary**

A quasi-experimental study design with a nonequivalent (pretest and posttest) control group measured the impact of a self-compassion intervention on EI. The demographics of the students at the research site in the U.S. are dissimilar to demographics of all U.S. undergraduates, so applicability to other populations is limited. The independent variable was participation in an intervention to train self-compassion skills designed with the Multiple Approaches to Understanding model. The two dependent variables were the AES to measure EI and the SCS-SF to measure self-compassion. The steps in the procedure included (a) recruiting instructors of multiple courses to participate in the study; (b) recruiting participants from participating courses; (c) at the beginning of the block, all participants completed a pretest form with the SCS-SF, AES, and other pertinent questions; (d) intervention participants completed self-compassion

training, but not the control participants; (e) at the end of block, all participants completed

posttest form; and (f) data analysis.

**Chapter IV: Results**

The purpose of this quasi-experimental nonequivalent control group design study was to measure if a brief self-compassion intervention improved undergraduate students' emotional intelligence (EI) scores. Data was collected from students at a small, rural, public university in the Rocky Mountain area of the United States. This chapter will first present descriptive statistics about the sample and the dependent variables, then answer each research question. The two research questions are:

Primary: Will students' EI scores increase after completing the self-compassion intervention?

Secondary: Will students' self-compassion scores increase after completing the self-compassion intervention?

**Descriptive Statistics for the Sample**

The intervention group participants ($n = 46$) were recruited from three courses taught simultaneously during the first block of the 2022 fall semester, which began on August 23rd and ended on September 14th. Complete courses at the research site are taught in a block schedule format over 18 consecutive business days and students take one class at a time. Two of these courses were business courses (BMGT 335 and BGEN 217) and one was an education course (EDU 234), but the self-compassion intervention designed for this study fit into the content for all three courses. All the courses participating in the study were taught by different instructors, though the self-compassion intervention was delivered asynchronously to standardize the experience with the content. Each instructor loaded the same intervention into their course within the school's learning management system. The three instructors assigned their students to review the video tutorials, complete the activities, and submit weekly reflection assignments.

The intervention group had a mean age of 20.7 years ($SD = 2.8$), 60% identified as women, and included 4 first-year students, 16 sophomores, 15 juniors, and 11 seniors. As described in Chapter III, the pretest collected data about participants' previous experience with meditation. However, the number of previous meditators is low ($n = 12$), so any statistical analysis of this group would be underpowered and therefore insights would not be generalizable to the rest of the students in the population. The demographic questions and complete response options from the pretest are provided in Appendix C, but response options for gender with no replies are not displayed in Table 5.

**Table 5**

*Characteristics of Intervention Participants*

| Course | $N$ | Age | | Gender | | Meditators |
|--------|-----|-----|-----|-------|-----|------------|
| | | $M$ | $SD$ | Women | Men | |
| BMGT 335 | 19 | 22.4 | 3.5 | 10 | 9 | 8 |
| BGEN 217 | 14 | 19.6 | 1.4 | 7 | 7 | 2 |
| EDU 234 | 13 | 19.7 | 2.1 | 12 | 1 | 2 |
| Combined | 46 | 20.7 | 2.8 | 29 | 17 | 12 |

Intervention participants were reminded weekly that they could contact the university's counseling team if the activities or information in the module was prompting difficult emotions. The counseling office was not contacted by any participants who mentioned the intervention. This result is similar to the Mosewich et al. (2013) study, so even though difficult emotions can arise when developing awareness skills, none of the participants reported being overwhelmed by the activities.

The control group contained a comparable number of participants ($n = 48$) to the intervention group. Participants volunteered from an economics (ECNS 201), an accounting

(ACTG 201), and a marketing (BMKT 325) course taught during the same time frame as the intervention courses. The control group included 7 first-year students, 17 sophomores, 13 juniors, and 11 seniors, which is very similar to the intervention group at all grade levels except first-years students where the intervention only had four students. The control group's mean age of 20.1 years ($SD = 1.4$) is only 7 months lower than the intervention group's mean age. The groups did vary by gender, since only 40% of the control group identify as women, compared to 60% in the intervention group. The number of participants who reported having previous experience with meditation varied from the intervention group, with 12 in the intervention group and only 4 in the control group.

**Table 6**

*Characteristics of Control Participants*

| Course | $N$ | Age | | Gender | | Meditators |
|---|---|---|---|---|---|---|
| | | Mean | $SD$ | Women | Men | |
| ECNS 201 | 18 | 19.3 | 1.3 | 6 | 12 | 0 |
| BMKT 325 | 17 | 20.7 | 1.2 | 5 | 12 | 3 |
| ACTG 201 | 13 | 20.2 | 1.3 | 8 | 5 | 1 |
| Combined | 48 | 20.1 | 1.4 | 19 | 29 | 4 |

Participants submitted data during class time of their face-to-face course via a Qualtrics survey. The plan described in Chapter III for recruiting volunteers was followed for collecting data. The survey began by asking which course students were taking, and based on the response, they were shown either an intervention or control consent form. The intervention consent form (see Appendix A) explained that the students would be doing an asynchronous module as part of their assigned coursework, but participation in the study was voluntary. The control consent form (see Appendix B) did not mention the intervention but was similar in other respects.

Each participant had a unique and personal code they pulled from a bucket used to facilitate confidentiality and anonymity. The participants of this study ($N = 94$) include only the students who completed both the pre- and posttests, which represent 90% of the students who consented to the study and correctly completed the pretest. None of the participants were enrolled in more than one participating course. One student was excluded for incorrectly submitting pretest data by selecting the wrong course, and therefore viewing the wrong consent form. The 94 participants exceed the G*Power software's recommended minimum amount ($N = 26$) presented in Chapter III.

This demographic information is helpful to get a sense of the type of participants in this study. The demographic data reveals that the intervention and control groups have several similarities and a few differences. However, the pretest scores on the dependent variables are the key potential difference between the two groups in this experiment and more crucial to the research questions than demographic differences. If the pretest scores for the dependent variables are not different at a statistically significant level, then the repeated measures analysis of variance test presented in Chapter III will be the appropriate test to use with this data to answer the research questions. The next section addresses the dependent variable scores.

**Descriptive Statistics for the Dependent Variables**

The Assessing Emotions Scale (AES), one of the two dependent variables, was used to measure EI at the beginning and end of the study. Self-compassion, the other dependent variable, was measured at the same time periods by the Self-Compassion Scale-Short Form (SCS-SF).

*Reliability*

Previous studies have confirmed that the AES has good internal consistency (Brackett & Mayer, 2003; Schutte et al., 1998), including a mean Cronbach's α of .87 in a comparison of 27

studies (Schutte et al., 2009). Using this study's data, the Cronbach alpha coefficient was .91.

Concerning the other dependent variable, Raes et al. (2011) reported adequate internal

consistency (Cronbach's α = .86) for the SCS-SF. This study's reliability analysis produced .87

as the Cronbach alpha coefficient. This analysis and the size of these coefficients supports the

conclusion that the questions which make up the AES and SCS-SF are consistently working

together to measure EI and self-compassion respectively.

### *Pretest Results*

The participants produced a wide range of pretest scores, as noted by the minimum and

maximum scores, and the means' large standard deviations in Table 7. The AES mean for the

control group was 122.92 ($SD$ = 14.88) and the intervention group's mean was 126.17 ($SD$ =

13.67) on this scale with possible scores ranging from 33 to 165. The lowest score of all the

participants was 96 and the highest score was 162. A small standard deviation would indicate

that the scores of each individual participant are close to the mean, but if the scores vary

considerably, then standard deviations are large (Lock et al., 2017), which is the case in this data.

**Table 7**

*Comparing AES Pretest Scores*

AES Pretest

|  | *N* | Mean | *SD* | Lower Bound | Upper Bound | Min | Max |
|---|---|---|---|---|---|---|---|
|  |  |  |  | 95% Confidence Interval for Mean | | | |
| Control | 48 | 122.92 | 14.88 | 118.60 | 127.24 | 96 | 162 |
| Intervention | 46 | 126.17 | 13.67 | 122.12 | 130.23 | 99 | 159 |
| Total | 94 | 124.51 | 14.32 | 121.58 | 127.44 | 96 | 162 |

*Note.* The range of possible scores for the AES is 33 to 165.

The self-compassion scores for the control and intervention groups are presented in Table 8. The control group's mean was 38.81 ($SD = 9.63$) and the intervention group's mean score was 38.48 ($SD = 9.13$) on a scale from 12 to 60. The lowest score was 21 and the highest score was 58. These large standard deviations signify that scores were not tightly clustered around the mean for this dependent variable. If the standard deviations were smaller, it would be more likely that a change over time in the scores could be attributed to the self-compassion intervention (the independent variable) with a statistically significant test result (Lock et al., 2017). When standard deviations are large, it is more likely that the change in scores over time could be the result of chance, instead of attributable to the independent variable.

**Table 8**

*Comparing SCS-SF Pretest Scores*

SCS-SF Pretest

| | N | Mean | SD | 95% Confidence Interval for Mean | | Min | Max |
|---|---|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound | | |
| Control | 48 | 38.81 | 9.63 | 36.02 | 41.61 | 21 | 54 |
| Intervention | 46 | 38.48 | 9.13 | 35.77 | 41.19 | 22 | 58 |
| Total | 94 | 38.65 | 9.34 | 36.74 | 40.56 | 21 | 58 |

To confirm if the groups' mean pretest scores on both dependent variables were significantly different, one-way between-groups analysis of variance (ANOVA) tests were run. If the groups were different, then an analysis of covariance would need to be used to account for these differences. However, ANOVA tests confirmed that the groups' AES pretest scores were not significantly different ($p = .272$), as well as no significant difference for the SCS-SF scores ($p = .863$). Even though the groups contained different participants and some of the demographics varied between groups, both the intervention and control groups started the study with similar scores on the scales used to measure EI and self-compassion. This result eliminates the need to consider the pretest scores as covariates in the inferential analysis of the research questions. In addition, a lack of difference in the pretest scores minimizes the threat to validity of selection, which can occur when participants are not randomly assigned to the control or intervention group (Cook & Campbell, 1979).

**Table 9**

*One-way Between-groups ANOVA on Pretest Scores*

AES Pretest

|  | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 249.214 | 1 | 249.214 | 1.219 | .272 |
| Within Groups | 18808.275 | 92 | 204.438 |  |  |
| Total | 19057.489 | 93 |  |  |  |

SCS-SF Pretest

|  | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 2.624 | 1 | 2.624 | .030 | .863 |
| Within Groups | 8104.791 | 92 | 88.096 |  |  |
| Total | 8107.415 | 93 |  |  |  |

### *Normality*

Pretest scores also appear to be normally distributed which meets an assumption for using

the repeated measures ANOVA inferential statistical test described later in this chapter. The

normal probability plots in Figure 3 show each score plotted against the expected value if the

data was normally distributed. Since the data points are close to the expected straight line, it is

reasonable to assume a normal distribution (Roval et al., 2013).

**Figure 3**

*Normal Q-Q Plots of Dependent Variables at Pretest*
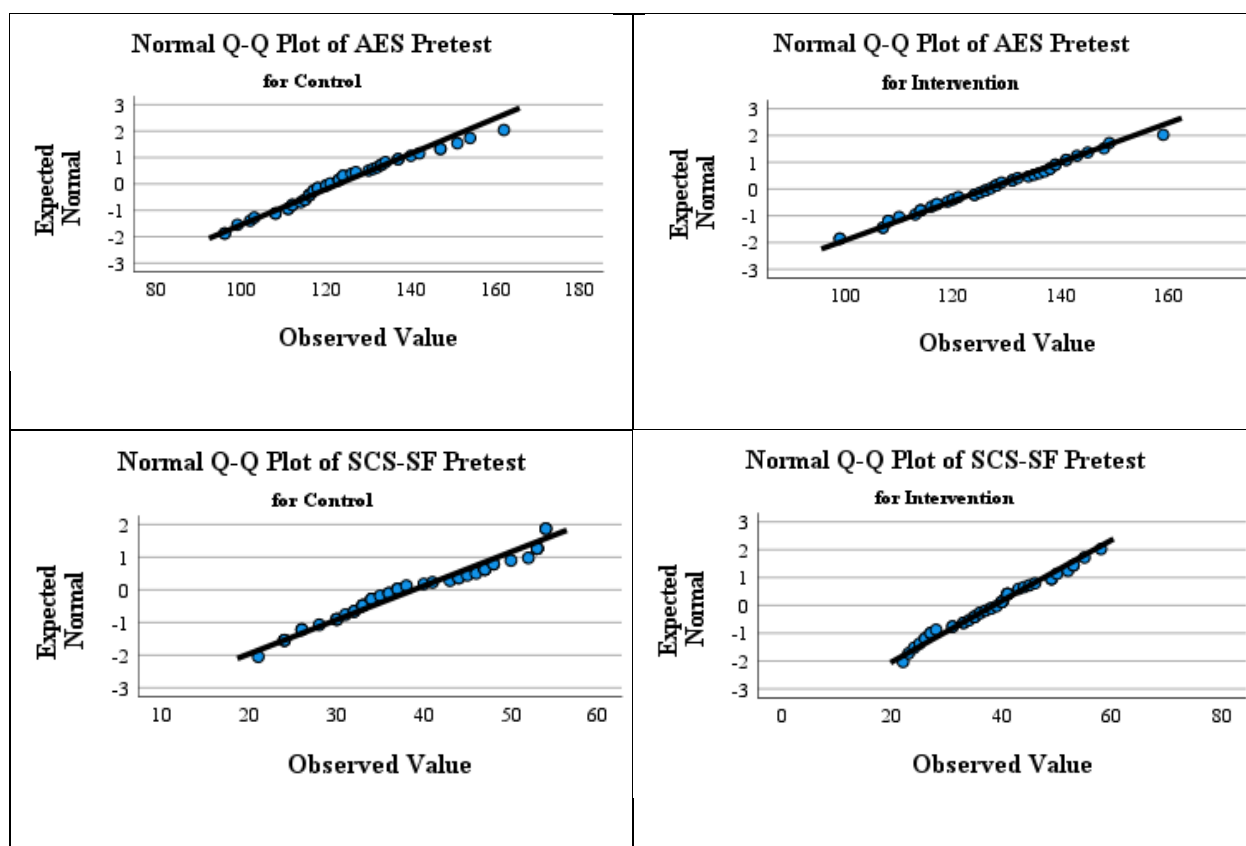


*Adherence Statistics from the Intervention Group*

Intervention participants were asked to complete weekly surveys (see Appendix E) to report their time spent on the activities, engagement level, activities chosen, and to rate the usefulness of the activities. This intervention includes mindfulness-based activities and Spijkerman et al. (2016) found adherence to be relevant—varying between 35% and 92%—in the studies included in their meta-analysis of online mindfulness-based interventions. Of the 46 intervention participants in this study, 20 completed all three surveys, 11 completed two surveys, 8 completed one survey, and 7 did not submit any weekly data. The 20 full completers of the weekly surveys represent 43% of intervention participants, and participation in the weekly

surveys decreased over time, starting with 36 in the first week and falling to 25 by the last week. Of course, participating in the study's data collection surveys was voluntary, so the low participation may be a signal that the participants were operating under significant time constraints. The possibility remains, and is unanswered, that participants may have completed the intervention activities but chose not to do the weekly surveys.

The mean engagement score was 3.8 in the first two weeks and 3.9 in the third week in response to the engagement question of "On a scale of 1 to 5, to what extent did you engage with the video and make use of the activities this week? (1 is not at all and 5 is very much)." If we assume the mid-point of the 5-point scale is average engagement, they rated their engagement level above average. The survey asked, "Approximately how many minutes total in the past week did you spend on practices or activities to build up your inner communication strength? (Include watching the video and reading the module instructions.)" Since participants self-reported the time spent developing their self-compassion abilities, this time is unverified. Table 10 reports the number of weekly survey participants, the time spent data by category, as well as weekly engagement scores.

**Table 10**

*Self-reported Time Spent and Engagement Data*

|  | Week 1 | Week 2 | Week 3 |
|---|---|---|---|
| Completed surveys | 36 | 29 | 25 |
| Mean engagement level (scale of 1-5) | 3.8 | 3.8 | 3.9 |
|  | *n* (% of Wk1 surveys) | *n* (% of Wk2 surveys) | *n* (% of Wk3 surveys) |
| Time: < 15 mins. | 5 (14%) | 4 (14%) | 3 (12%) |
| Time: 15-30 mins. | 13 (36%) | 13 (45%) | 10 (40%) |
| Time: 31-45 mins. | 9 (25%) | 6 (21%) | 8 (32%) |
| Time: 46-60 mins. | 5 (14%) | 5 (17%) | 4 (16%) |
| Time: 61-75 mins. | 1 (3%) | 1 (3%) | 0 |
| Time: >75 mins. | 3 (8%) | 0 | 0 |

It would not be possible to watch the weekly video, read the instructions, complete at least one activity, and write a reflection in less than 30 minutes. In the first week, 18 of 36 respondents (50%) reported spending 30 minutes or less with the module. These percentages increased to 59% (17 of 29) in the second week and 52% (13 of 25) for the final week, which means most of the weekly reporters did not fully complete the modules. Completing a weekly module in 45 minutes or less would be difficult, though possible, and would indicate that the student had not read through all the possible activities nor carefully considered their choice from the options provided in this Multiple Approaches to Understanding design. Using the data in Table 10, we see that 75% (27 of 36) of reporting students in week 1, 79% (23 of 29) of week 2 reporters, and 84% (21 of 25) of reporters in week 3 spent 45 minutes or less with the intervention.

Students were encouraged to try more than one activity each week to find the most effective awareness-building and self-compassion practices for themselves, and to repeat these activities throughout the week, which would require at least an hour per week. With mindfulness-based practices, studies support a positive relationship between time spent and impact (Goleman & Davidson, 2018; Spijkerman et al., 2016). Four participants reported at least one hour spent with the intervention the first week, only one participant invested over an hour during the second week, and no one reported spending more than one hour in the last week of the intervention. This data indicates adherence rates for this study were below the 35% minimum in the Spijkerman et al. (2016) meta-analysis. From the reported amounts of time spent, combined with the low participation in the voluntary weekly data collection surveys, it is reasonable to assume that most of the study's participants did not complete the intervention designed to increase their self-compassion skills.

### *Posttest Results*

Table 11 includes the posttest results for both dependent variables, along with the pretest data. The control group's mean AES posttest score was 121.04 ($SD = 21.19$) and the intervention group's posttest score was 126.04 ($SD = 13.81$). The large standard deviations indicate another wide range of scores at posttest, with the control group's AES standard deviation noticeably larger at the second data collection point. The posttest questions are presented in Appendix D. The normality of the scores was analyzed with results similar to the pretest graphs presented in Figure 3 and the assumption of normality in the posttest scores was supported.

**Table 11**

*Dependent Variables by Group at Pre- and Posttest*

|  | Group | Mean | Std. Deviation | N |
|---|---|---|---|---|
| AES Pretest | Control | 122.92 | 14.88 | 48 |
|  | Intervention | 126.17 | 13.67 | 46 |
|  | Total | 124.51 | 14.32 | 94 |
| AES Posttest | Control | 121.04 | 21.19 | 48 |
|  | Intervention | 126.04 | 13.81 | 46 |
|  | Total | 123.49 | 18.04 | 94 |
| SCS-SF Pretest | Control | 38.81 | 9.63 | 48 |
|  | Intervention | 38.48 | 9.13 | 46 |
|  | Total | 38.65 | 9.34 | 94 |
| SCS-SF Posttest | Control | 39.75 | 8.94 | 48 |
|  | Intervention | 39.59 | 7.88 | 46 |
|  | Total | 39.67 | 8.39 | 94 |

*Note.* The range of possible scores for the AES is 33 to 165, and the range for the SCS-SF is 12 to 60.

Figure 4 gives a visual representation of the mean scores and the 95% confidence interval for each score. A confidence interval set at 95% means there is a 95% chance that the true score for this measure for this population lies within this range (Lock et al., 2017). This graph illustrates a likely lack of significant change over time in the dependent variables for both groups (Lock et al., 2017), which will be confirmed by the repeated measures ANOVA results in the next section.

**Figure 4**

*Mean Score Comparison*



Error bars: 95% CI



Error bars: 95% CI
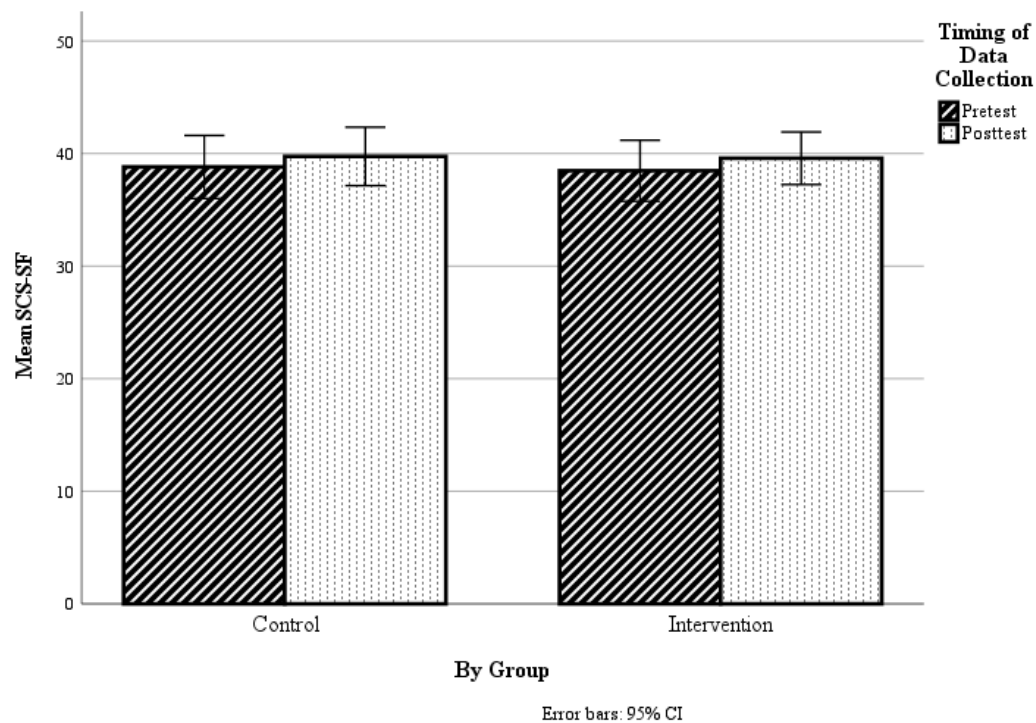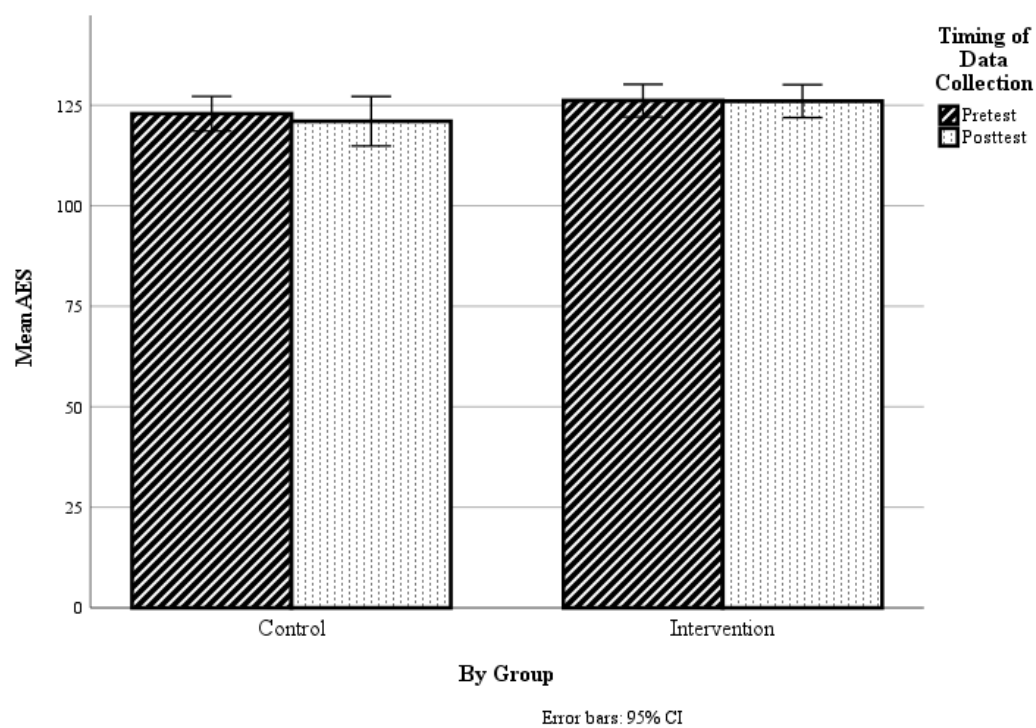
**Primary Research Question Results**

The primary research question of this study is "Will students' EI scores increase after completing the self-compassion intervention?" The hypotheses for testing this question with statistical analysis are:

$H_0$ (null hypothesis): There is no statistically significant improvement in mean AES scores measured repeatedly at pre- and posttest between the control and treatment groups.

$H_A$ (alternative hypothesis): There is a statistically significant improvement in mean AES scores measured repeatedly at pre- and posttest between the control and treatment groups.

The inferential statistical analysis did not provide evidence to reject the null hypothesis, which means the data indicated that EI scores did not increase as a result of the intervention.

A repeated measures ANOVA analysis used the independent variable (control or intervention group) as the between-subjects factor and the AES scores at two different points in time (pre- and posttest) as the within-subjects factor. The assumption of homogeneity of variances was supported for the AES pretest scores by a non-significant value for Levene's Test of Quality of Error Variances ($p = .800$), but this assumption may have been violated by the posttest scores ($p = .008$). This test signifies that the error variance for the control and intervention groups are similar at pretest, but potentially dissimilar at posttest. Though this test signifies that the variability of the AES scores at posttest for the control group may be different than the intervention group, Lock et al. (2017) state "we only worry if the sample standard deviation for one group is more than twice the standard deviation for another group" (p. 546), which is not the case for this data. The standard deviation for the control group is 21.19, and the

standard deviation for the intervention group is 13.81 at posttest (see Table 11), so the control group's posttest standard deviation is less than twice the pretest's standard deviation.

Sphericity is another assumption to check when using repeated measures ANOVA. However, when there are only two levels for the repeated measure, as is the case in this study with only a pre- and posttest, the sphericity assumption is always met (Roval et al., 2013). Additionally, there was no significant interaction between group and time, Wilks' Lambda = .992, $F(1, 92) = .697$, $p = .406$, which means that there is no significant difference in the effect of group on AES scores for pretest and posttest. If the two independent variables in this test— group and time—were interacting this might obscure the main effects of the statistical analysis which answers the research question (Roval et al., 2013).

The main effect for time was not significant and the effect size was small, Wilks' Lamba = .990, $F(1, 92) = .921$, $p = .340$, partial eta squared = .010. The scores did not significantly vary from pre- to posttest. Additionally, the main effect comparing the two groups was not significant, $F(1, 92) = 1.684$, $p = .198$ and the effect size was small with a partial eta squared of .018. There is no evidence from this analysis that the intervention improved the AES scores of these participants or that the results were significantly different between the two groups.

**Secondary Research Question Results**

The secondary research question of this study states, "Will students' self-compassion scores increase after completing the self-compassion intervention?" The hypotheses for testing this question with statistical analysis are:

$H_0$ (null hypothesis): There is no statistically significant improvement in mean SCS-SF scores measured repeatedly at pre- and posttest between the control and treatment groups.

H<sub>A</sub> (alternative hypothesis): There is a statistically significant improvement in

mean SCS-SF scores measured repeatedly at pre- and posttest between the control and

treatment groups.

The analysis did not provide evidence to reject the null hypothesis. A repeated measures

ANOVA analysis used the independent variable as the between-subjects factor and the SCS-SF

scores at pre- and posttest as the within-subjects factor. The assumption of homogeneity of

variances was supported by a non-significant value for Levene's Test of Quality of Error

Variances for the pretest mean scores ($p = .300$) and the posttest mean scores ($p = .494$). There

was no significant interaction between group and time, Wilks' Lambda $= 1.00$, $F (1, 92) = .15$, $p$

$= .902$.

Unfortunately, the main effect for time was not significant, Wilks' Lamba $= .977$, $F (1,$

$92) = 2.175$, $p = .144$, partial eta squared $= .023$, so these scores also did not significantly vary

from pre- to posttest and the effect size was small. Additionally, the main effect comparing the

two groups was not significant, $F (1, 92) = .021$, $p = .884$, partial eta squared $= .000$. As with the

AES scores, there is no statistical evidence that this intervention improved SCS-SF scores in

these participants.

Using only the intervention participants, a one-way between groups analysis of variance

examined the difference in the SCS-SF scores from the pre- to posttest between the students in

the three different participating courses. If the results varied significantly by course, this might

provide helpful insights about self-compassion development with these students and this specific

intervention. The EDU 234 participants showed the largest improvement in scores at 3.46 ($SD =$

6.09) compared to .89 ($SD = 5.09$) for BMGT 335 and a decrease in scores for the BGEN 217

students, as shown in Table 12.

**Table 12**

*SCS-SF Difference in Mean Scores From Pre- to Posttest*

|  | *N* | Mean | *SD* | 95% Confidence Interval for Mean | |
|---|---|---|---|---|---|
|  |  |  |  | Lower Bound | Upper Bound |
| BMGT 335 | 19 | .89 | 5.09 | -1.56 | 3.35 |
| EDU 234 | 13 | 3.46 | 6.09 | -.22 | 7.14 |
| BGEN 217 | 14 | -.79 | 8.12 | -5.47 | 3.90 |
| Total | 46 | 1.11 | 6.48 | -.82 | 3.03 |

However, the one-way between-group ANOVA results did not show a statistically significant difference between the groups with $p = .235$, as seen in Table 13.

**Table 13**

*ANOVA of SCS-SF Differences From Pre- to Posttest*

|  | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 123.079 | 2 | 61.540 | 1.497 | .235 |
| Within Groups | 1767.377 | 43 | 41.102 |  |  |
| Total | 1890.457 | 45 |  |  |  |

The adherence data provided another opportunity to analyze potential differences among intervention participants. A post-hoc analysis compared the students who did not report adherence data or reported spending less than thirty minutes on average per week ($n = 29$) with the students who reported averaging more than thirty minutes per week ($n = 17$) engaging with the activities. The repeated measures ANOVA analyzed the pre- and posttest SCS-SF scores as the within-subjects factor and the between-subjects factor split the intervention participants into two groups based on the adherence data. The assumption of homogeneity of variances was not violated for the pretest scores ($p = .531$) or the posttest scores ($p = .223$). In addition, a significant interaction effect did not appear ($p = .884$).

As with the previous repeated measures ANOVAs, the main effect for time was not significant with Wilks' Lamba = .971, $F$ (1, 44) = 1.313, $p$ = .258, partial eta squared = .029. As shown in Table 14, the mean posttest scores for the group that reported more time spent on the activities improved by 1.3 points and the other group's mean scores improved at posttest by 1.0 point.

**Table 14**

*SCS-SF at Pre- and Posttest Split by Time Spent on Intervention*

|  | Group | Mean | Std. Deviation | N |
|---|---|---|---|---|
| SCS-SF Pretest | Less Time | 36.07 | 8.19 | 29 |
|  | More Time | 42.59 | 9.40 | 17 |
|  | Total | 38.48 | 9.13 | 46 |
| SCS-SF Posttest | Less Time | 37.07 | 7.90 | 29 |
|  | More Time | 43.88 | 5.84 | 17 |
|  | Total | 39.59 | 7.88 | 46 |

However, there was a significant main effect between the groups with $F(1,44) = 9.031$, $p$ = .004, and partial eta squared = .170. This means that the group which spent time to properly complete the intervention started with significantly higher scores on the SCS-SF pretest than the group which did not report adherence data or fully complete the modules. The pretest scores were a good predictor of which students would report adherence data and spend enough time on average over three weeks to complete the intervention's activities.

**Threats to Validity**

Despite the lack of statistically significant findings, there are still threats to the validity of the data that need to be considered because these threats may help explain the results of this quasi-experiment with intervention and control groups.

*Experimenter Effect*

Active effects associated with my behavior in the classroom during the data collection may have impacted the participants answers to the questions on the scales (Bracht & Glass, 1968). As the instructor for one of the six courses, the participants from BMGT 335 had more interaction with me on the day of the pretest before the data was collected. Some of the participants in ACTG 201, BMKT 325, ECNS 201, and BGEN 217 had previous experience with me as their instructor in other courses, so their perceptions of me as the experimenter would be different than the participants who did not know me. I attempted to control for the experimenter effect by using the same introductory script in all the courses during the data collection process but found it difficult to stand in front of a group reading a script instead of speaking naturally to them directly and making eye contact. As a result, my introduction varied a bit in each classroom. I also had time to speak individually with some of the students before the data collection in the small class setting, so these interactions may have impacted participants' perceptions of me and potentially their responses to the instruments used in the study.

*Measurement of the Dependent Variables*

The instruments used to measure the dependent variables rely on accurate self-reporting, but study participants' ratings of their own attitudes and performance may not align with their actual behavior or abilities (D. Dunning et al., 2003, 2004). Though participants were assured that their answers were anonymous and directed to answer without regard to what others might think of their answer, it is common for participants to consider the social desirability of their answers, which can lead to inaccurate scores (Paulhus & Reid, 1991). Using the self-report AES scale to measure EI in this study may have contributed to the lack of significant results.

As discussed in Chapter II, the gap between self-reported and actual behavior is one of the cornerstones of the disagreements in the EI literature about which instruments are appropriate to measure EI and how to categorize EI studies for meta-analysis. The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) addresses this concern with a cognitive approach to measuring EI abilities (Mayer et al., 2003) and the Emotional and Social Competency Inventory (ESCI) gathers behavioral data about an individual from multiple people in their personal and professional sphere (Hay Group, 2011). Boyatzis et al. (2015) discussed the potential for measuring the self-awareness component of EI by comparing a self-assessed score to a behavioral-based score made by an observer. The difference between the two perceptions captured in the scores "is known as the self-other-agreement" (Boyatzis et al., 2015, p. 3) which is a potentially improved measure of self-awareness. For example, a person rates themselves high for their listening skills but an observer rates them low. In this case, there is a large difference in self-other-agreement, which means the person lacks self-awareness.

In addition to using other measurement scales, the content of the intervention may have impacted the scores. The first week of the intervention focused on improving students' self-awareness skills. If successful, participants would be more aware of themselves at posttest, which may have improved the accuracy of their AES and SCS-SF scores at the end of the block. If the students had over-estimated their EI and self-compassion abilities on the pretest—before developing their self-awareness skills during the intervention—then any potential improvement in the scores would be masked by the inflated pretest scores. The tendency to over-estimate one's abilities is common with self-reported scales (D. Dunning et al., 2003, 2004; Paulhus & Reid, 1991).

Self-compassion is also measured in the literature with a 26-item version of the Self-Compassion Scale, which allows for the reliable analysis of sub-scales for self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification (Neff, 2003b). If this scale had been used, perhaps the data analysis may have found a significant difference over time between the groups for one or more of the components of self-compassion.

### Interaction of Time of Measurement and Treatment Effects

As Bracht and Glass (1968) have noted, the effect of an intervention may vary over time. Asking participants to rate their self-compassion, for example, at a third time point in time may produce different scores. For students who continued to practice awareness-building activities or use self-compassion skills as challenging experiences occurred in their lives, the scores may improve over time. Alternatively, scores may also decrease over time for participants, especially for participants who were not highly engaged with the intervention or attracted to the idea of developing their intrapersonal communication skills.

### Testing

Since the tests used the same instruments and were given only three weeks apart, perhaps the participants from the intervention group still remembered their original responses and made the same choice at posttest without careful consideration.

### Selection-History Interaction

The use of multiple courses and instructors within the study may have contributed to the lack of significant results. Cook and Campbell (1979) explain that this validity threat "results from the various treatment groups coming from different settings so that each group could experience a unique local history" (p. 52). When the posttest data was collected, the participants of each class were experiencing different situations. The EDU 234 students were eating donuts

and celebrating the last day of the block, the BGEN 217 students were waiting to give their final presentations, the BMGT 335 students were working in teams to prepare for final presentations the following day, the BMKT 325 class was near the end of the last day of lecture before finals, and the ECNS and ACTG 201 students were preparing to take their final exams. These situations may have influenced the participants' emotional states as they answered the AES and SCS-SF questions. Similarly, the pretest data may have been influenced by the participants' feelings toward the course subject matter, instructor, setting, and a host of differences between the courses involved in the study.

*Experimental Mortality*

Attempting to control for this threat may have impacted the accuracy of the data at posttest. By only including participants who completed both the pre- and posttests in the study— and therefore the drawing for the $100 gift card for participants—I may have incentivized participants who were not seriously considering their answers to the questions to remain in the study. For the control group especially, who did not understand why they were being asked about their emotional responses and attitudes, this may have contributed to the larger standard deviation (SD = 21.19) in the posttest scores compared to the standard deviation (SD = 14.88) for this same group at pretest.

**Summary of the Results**

The scores of the dependent variables at both time periods varied widely within each group, as shown in the standard deviations for the mean scores. Additionally, the pretest scores were similar between the intervention and control groups and did not change much over time. Adherence data indicate that a minority of participants fully completed the intervention. Based on the data analysis, the null hypotheses related to both research questions could not be rejected.

These results do not provide empirical support for using this asynchronous self-compassion

intervention with these participants to increase EI, as measured by the AES, or self-compassion,

as measured by the SCS-SF.

**Chapter V: Conclusions and Recommendations**

Embracing mistakes as learning opportunities is difficult because mistakes are associated with pain and suffering. Since compassion is the desire to act to alleviate suffering for others and oneself (Singer & Klimecki, 2014), developing undergraduates' compassionate abilities may help them learn from their mistakes and successfully navigate college's challenges. Students also need to motivate themselves and manage their intrapersonal states while they are earning their degrees. The concepts of self-compassion and emotional intelligence (EI) have been extensively studied and may offer guidance on creating undergraduate interventions to develop supportive intrapersonal skills and abilities. Interventions have successfully increased self-compassion in participants (Bluth & Eisenlohr-Moul, 2017; Donovan et al., 2021; Finlay-Jones et al., 2017; Ko et al., 2018; Neff & Germer, 2013; Smeets et al., 2014), and studies also show that EI can be developed with undergraduates (Clark et al., 2003; Nelis et al., 2011; Schutte & Malouff, 2002; Thompson et al., 2020).

EI is broadly defined as "the abilities to regulate and recognize emotions in ourselves and in others" (Goleman, 2001, p. 14) and "to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990, p. 189). The self-awareness to notice painful emotions and the self-management to choose a compassionate response are both aspects of the theory of emotional intelligence (Goleman, 1995, 1998; Mayer & Salovey, 1997; Salovey & Mayer, 1990). Self-compassion research supports a correlation between undergraduates' level of self-compassion and conscientiousness (Neff, Rude & Kirkpatrick, 2007), well-being (Neely et al., 2009), psychological health (Fong & Loi, 2016), and ability to weather difficulties (Terry et al., 2013). Self-compassion is significantly positively related to students' self-reported tendencies to ask questions in class and seek help outside of class (Long & Neff, 2018). Missing goals can be

disappointing, but self-compassion may help protect students from the associated negative feelings (Hope et al., 2014; Leary et al., 2007) and encourage focus and intrinsic motivation (Neff et al., 2005). A few studies have examined correlations between self-compassion and emotional intelligence (Christopher et al., 2016; di Fabio & Saklofske, 2021; Heffernan et al., 2010), but what remains to be studied is whether an intervention to develop self-compassion will increase emotional intelligence.

The purpose of this quasi-experimental, quantitative study was to measure if a self-compassion intervention could improve undergraduate students' EI. The two research questions in this study are:

Primary: Will students' EI scores increase after completing the self-compassion intervention?

Secondary: Will students' self-compassion scores increase after completing the self-compassion intervention?

Two self-report scales were chosen as the instruments to measure EI and self-compassion in this study: the Assessing Emotions Scales (AES) and the Self-Compassion Scale-Short Form (SCS-SF). Study participants ($n = 94$) answered these instruments' questions at the beginning and end of a 3-week period. Approximately half of the participants completed the self-compassion intervention as part of assigned coursework between the two data collection points, and the other half were in a control group which did not receive any self-compassion or emotional intelligence instruction. The intervention and control groups' mean scores at the beginning of the study were not significantly different from each other. A repeated measures analysis of variance of the two groups' scores collected at pre- and posttest did not provide evidence of any statistically significant difference in scores over time or between the groups.

However, adherence data indicate many participants did not actively participate in the asynchronous intervention. Wide ranges of scores were observed with large standard deviations accompanying the mean scores. As a result, the study did not find statistically significant empirical support for using this asynchronous intervention to increase AES or SCS-SF scores with these undergraduate students in a 3-week period. Nevertheless, this study speaks to a gap in the literature, though not the gap it was originally designed to address.

**The Findings' Relationship to the Literature**

This study originally sought to address a gap in the literature measuring the use of self-compassion interventions to increase undergraduates' EI abilities and competencies. After reviewing the self-compassion and EI literature, the concepts appeared to align and overlap: the mindfulness of self-compassion with appraisal of emotions in EI, the common humanity of self-compassion with intra- and interpersonal use of emotions in EI, and the self-kindness of self-compassion with emotion regulation aspects of EI. Additionally, previous experimental studies reported increases in EI after interventions that did not directly teach EI theories, such as service-learning activities (Manring, 2012) and mindfulness-based practices (Christopher et al., 2016). However, this self-compassion intervention did not significantly change participants' self-compassion scores using the SCS-SF, so the literature gap remains. We still do not know if an effective self-compassion intervention could increase EI levels in undergraduates.

After considering the results of this study, a literature gap appears that was not initially identified. Most of the self-compassion study literature uses volunteers who were recruited to attend trainings and participate in studies. These studies report significant results, as well as medium to large effect sizes (Albertson et al., 2015; Andersson et al., 2021; Dundas et al., 2017; Hasselberg & Rönnlund, 2020; Mosewich et al., 2013; Neff et al., 2020; Smeets et al., 2014). In

contrast, this study recruited participants from students who were assigned self-compassion building activities as part of required assignments in undergraduate courses for credit. The self-compassion training modules were low stakes assignments in the courses' overall grading criteria, but students who chose not to complete the reflection assignments did not earn those points toward their course grade. Participants were unaware of these activities when they registered for the classes since none of the course descriptions mention self-compassion or emotional intelligence. There is a possibility that students in BMGT 335 spoke to previous students about the self-compassion activities in this course before they registered, but the course is required for business majors at the research site, so it is highly unlikely the existence of these activities influenced their decision to register. The self-compassion module was completely new content during the study period for the other two intervention courses. To be clear, participants in this study did volunteer to complete the confidential and anonymous pre- and posttests with the SCS-SF and AES scale questions, they simply did not volunteer to take the intervention.

When study participants are recruited to do activities or attend classes designed to improve their self-compassion abilities (Bluth & Eisenlohr-Moul, 2017; Donovan et al., 2021; Dundas et al., 2017; Finlay-Jones et al., 2017, 2021; Hasselberg & Rönnlund, 2020; Neff et al., 2020; Neff & Germer, 2013) or to gain skills to handle challenges (Albertson et al., 2015; Mantelou & Karakasidou, 2017; Matos et al., 2017; Moore et al., 2020; Mosewich et al., 2013,) they may begin the process with an expectation that the intervention will be effective. Assuming rational behavior, these participants are willing to invest time and effort, so they likely expect the intervention to produce results. In these situations, participants are vulnerable to the placebo effect which threatens the external validity of the results (Bracht & Glass, 1968). Andersson et al. (2020) and Ko et al. (2018) identified this self-selection bias as a limitation in their studies of

compassion training for undergraduates. "Self-selection bias is the failure to recognize when observed differences in groups are the result of self-selection rather than the characteristics of the group or individuals within the group" (James, 2006, p. 561). Bracht and Glass (1968) recommend using active control groups to minimize this validity threat, but active control group studies require more resources to develop and deliver an alternative intervention to half the participants. This expense may explain why several self-compassion studies reviewed in Chapter II did not use active control groups (e.g., Albertson et al., 2015; Bluth & Eisenlohr-Moul, 2017; Donovan et al., 2021; Dundas et al., 2017; Finlay-Jones et al., 2017; Hasselberg & Rönnlund, 2020; Mantelou & Karakasidou, 2017; Matos et al., 2017; Neff et al., 2020).

In addition to the self-selection bias issue, using volunteers produces many self-compassion studies that are predominantly or exclusively using participants who identify as female (e.g., Donovan et al., 2021; Dundas et al., 2017; Finlay-Jones et al., 2017; Mantelou & Karakasidou, 2017; Matos et al., 2017; Neff et al., 2020; Neff & Germer, 2013; Taylor et al., 2020). People socialized as female are often encouraged to act compassionately toward others and to put the needs of others before their own in a care-giving capacity (Neff, 2021). The founder of the Mindful Self-Compassion curriculum estimates that 85% of participants are women (Neff, 2021). This study of 94 participants included 46 students (49%) identifying as male and 17 of those students were in the intervention group. This study contributes to a gap in the literature by using a substantial percentage of participants who identify as male and not using participants who volunteered for the intervention. Several conclusions for future application and research are also drawn from this study.

**Conclusions**

After considering the results presented in Chapter IV, four main conclusions emerge: (a) asynchronous instruction was possibly inappropriate for these students, (b) a 3-week duration is perhaps too brief, (c) large standard deviations are challenging, and (d) there may be an alternative application for this intervention.

*Asynchronous Mismatch with Participants*

The intervention was delivered asynchronously via a learning management system to students in face-to-face classes. These students' preference for in-person instruction is unknown, but the fact that they were enrolled in a face-to-face class may indicate a partiality to synchronous instruction. For this population, using class time to show the instructional videos and then walking through the different options together before sending students off to choose their own skill building activity may be more effective. In fact, after the study the instructor of EDU 234 shared that she had used class time to show the weekly videos. Though no statistically significant difference in scores was observed between the three intervention classes, the EDU 234 students' mean SCS-SF score improvement from pre- to posttest was the largest (see Table 12) of the three classes. However, other differences between the groups may have contributed to the SCS-SF score improvements, such as the percentage of students who identified as male, which was much lower in EDU 234 (8%) compared to BMGT 335 (47%) and BGEN 217 (50%), or the fact that this was a class for education majors instead of business majors. In addition, group activities to develop self-compassion were used in the Mindful Self-Compassion training (Germer & Neff, 2018) and the Making Friends with Yourself curriculum (Bluth et al., 2016; Donovan et al., 2021) studies, so perhaps group work would be more effective than the individual exercises used in this study's intervention.

***Dur****ation***

The duration of this intervention may not have been long enough to produce statistically significant changes in the SCS-SF or the AES instruments with this population. Though previous studies reported an increase in self-compassion during interventions lasting up to three weeks (Albertson et al., 2015; Dundas et al., 2017; Hasselberg & Rönnlund, 2020; Matos et al., 2017; Mosewich et al., 2013; Smeets et al., 2014), those studies used participants who volunteered for the interventions. As volunteers, participants may have been more motivated to work with the curriculum and they also spent more time per week with the intervention than this study's participants.

Hasselberg and Rönnlund's (2020) participants spent approximately 75 minutes per week, according to adherence data collected from surveys and usage logs, Albertson et al. (2015) participants reported approximately 72 minutes per week, and participants from the Smeets et al. (2014) study met together for 90 minutes the first two weeks and 45 minutes during the final week in addition to time spent on homework. As discussed in Chapter IV, most of this study's participants (75% in week 1, 79% in week 2, and 84% in week 3) who reported adherence data spent 45 minutes or less with the intervention tutorial and activities. Extending the intervention for more weeks may have significantly helped these participants develop their self-compassion skills, and the literature supports the effectiveness of longer interventions (Andersson et al., 2021; Finlay-Jones et al., 2017; Mantelou & Karakasidou, 2017; Neff et al., 2020; Neff & Germer, 2013). Collecting data about the time participants spent learning about self-compassion and developing their abilities was useful in analyzing the data of this study and crucial for understanding the results.

### *Wide Range of Scores*

The scores on the instruments used to measure EI and self-compassion were not clustered around the means for either dependent variable. Instead, the data exhibit large standard deviations (see Table 11), especially for the control group's mean AES score at posttest. If the standard deviations were smaller, it would be more likely that a change over time in the scores could be attributed to the self-compassion intervention (the independent variable) with a statistically significant test result (Lock et al., 2017). Perhaps the use of a monetary incentive for participants to complete both and pre- and posttest contributed to this outcome. Participants who were not seriously considering their answers to the questions and typically would have withdrawn from the study may have remained because of the gift card incentive. For the control group especially, who did not understand why they were being asked about their emotional responses and attitudes, this may have contributed to the larger standard deviation (SD = 21.19) in the posttest scores compared to the standard deviation (SD = 14.88) for this same group at pretest.

Additionally, the use of multiple courses and instructors within the study may have contributed to the large standard deviations since the posttest data was collected when participants of each class were experiencing different situations. The EDU 234 students were celebrating the last day of the block, the BGEN 217 students preparing to give their final presentations, the BMGT 335 students were working in teams, the BMKT 325 class was near the end of the last day of lecture before finals, and the ECNS and ACTG 201 students were preparing to take their final exams. These situations may have influenced the participants' emotional states as they answered the AES and SCS-SF questions. The large variation in scores made it highly unlikely any statistically significant results would appear in this study.

*Alternative Application for the Intervention*

Instead of using this asynchronous intervention as part of course curriculum, it may be better suited for students who self-select or have identified a personal desire to develop adaptive coping self-management and self-awareness abilities. The director of the campus counseling center at the research site reviewed this intervention before the study and uses the self-compassion concept with students in group practices. The center may be able to use the asynchronous modules with some of the students they support. This use case is more consistent with the other studies that show significant results with medium to large effects using volunteers (Albertson et al., 2015; Andersson et al., 2021; Dundas et al., 2017; Hasselberg & Rönnlund, 2020; Mosewich et al., 2013; Neff et al., 2020; Smeets et al., 2014). The counseling center could also use the SCS-SF or the 26-item Self-Compassion Form to measure effectiveness over time with their students to inform their continued use of the intervention. Measuring the intervention's impact with a different group of participants is one of several recommendations for future research.

**Recommendations for Future Research**

Future research recommendations will be categorized in this section as they relate to the intervention or the study design.

*Intervention-related Recommendations*

Future attempts to answer the research questions for the population studied should consider using alternative self-compassion interventions since participants in this study did not record significantly higher self-compassion scores on the posttests. At least seven options should be considered for those creating a new intervention for future studies. First, synchronous, in-person interventions could be tested with this population to see if the results may vary from this

study. Second, group activities could be used in the intervention instead of the individual activities used in this study. Third, the intervention could be extended beyond three weeks. Fourth, the intervention's design could be changed to require or encourage more time spent practicing skills development each week. Fifth, a different instructor could deliver the intervention and lead the activities. Sixth, since the SCS-SF pretest scores were a good predictor of the time students would spend on the intervention activities, lower pretest score participants could be provided with a different version of the intervention beginning with an activity to focus these students on the benefits of committing enough time to fully engage with the content. Finally, a different instructional design model could be used to create the intervention. The choice of the Multiple Approaches to Understanding instructional design model (Gardner, 1999) perhaps impacted the results. With this model, each student chose their own weekly activities which means they each had a different instructional experience. With a variety of activities, perhaps some were ineffective and therefore students who chose those activities did not develop their self-compassion skills.

Instead of creating a new intervention, future researchers could test existing self-compassion curriculum with this population. This would require financial resources to purchase access to the training for each participant, but these interventions have produced improved self-compassion scores with other populations (Bluth et al., 2016; Donovan et al., 2021; Neff et al., 2020; Neff & Germer, 2013). Testing existing curriculum with the population at this research site would also add an unstudied perspective to the literature.

### *Study Design and Implementation Recommendations*

This study highlights the importance of gathering adherence data in future studies with intervention groups. Analyzing the results without knowing how much time the participants

spent watching video tutorials, reading direction, and doing activities to develop their self-compassion may have led to different conclusions. I was surprised by the low amount of reported time, especially after reading the reflection assignments students submitted as part of the BMGT 335 course which I taught during the study. However, the students who shared stories of positive interactions with the module in their assignments may not be the same participants who reported data in the anonymous and confidential weekly time and engagement surveys since less than half of the intervention participants submitted all three weekly surveys. Collecting data from usage logs for online interventions may be beneficial, when possible, since self-reported adherence data could be influenced by participants' decisions to give socially desirable, but inaccurate, responses.

Gathering qualitative data in future studies could provide insights to guide the application of self-compassion and EI interventions and answer new research questions about the potential overlap and alignment of the two concepts. Comments written by BMGT 335 students in the final reflection activity provide a sense of the qualitative data that could be gathered and analyzed:

- "One important idea that I learned is to be more kind and patient with myself when I make mistakes or get frustrated."
- "I will take with me the idea that we are all human, everyone makes mistakes, and need to assess our emotions."
- "After doing these exercises, I've noticed myself being kinder to ME! I am my worst critic, and these exercises are helping me to be more openminded. An important thing I learned from this module is to take your fierce friend with you everywhere in order to move past things."

- "Overall, this experience has helped me deal with my emotions. One important idea that I will take forward with me for the rest of this semester will be learning how to control my emotions and keep them under control when in a manager/leader role."

- "Taking a moment to think, empathize, and analyze before responding has already helped me respond more appropriately in multiple situations."

This study included a small number of participants ($n = 12$) with previous meditation experience, which did not allow for meaningful comparisons of score differences between meditators and non-meditators. Future studies with larger groups of meditators would allow for comparisons that may inform similar research questions.

Using students who do not volunteer to participate in self-compassion interventions, as in this study, may be an option for future study designs to reduce the impact of self-selection bias when active control groups are not employed. However, using participants who did not volunteer highlights the importance of collecting adherence data and using modalities that support engagement and participation by these students. Alternatively, future researchers may consider using participants from this population who volunteer to develop intrapersonal skills and then use an active control group design. These participants could be randomly assigned to the self-compassion intervention or a control group doing an alternative intervention related to the recruitment strategy.

Future researchers could use different measurements to analyze participants' EI and self-compassion. As discussed in the literature review section, several options are available to measure EI, including measures that do not rely on accurate self-reporting by participants. Self-compassion is also measured with a 26-item scale which could be used in future studies. In addition, future researchers should consider using the newly developed State Self-Compassion

Form (Neff et al., 2021) designed for experimental studies. All the self-compassion measurement tools rely on self-reporting, but the State Self-Compassion Form is accompanied by a self-compassionate mind state induction activity with a compliance check for the intervention and control participants. Given the value of adherence data, perhaps this compliance check process would be helpful with these participants.

Challenges unique to the research site could be addressed in future studies. Conducting this same study at a different institution may produce different results that would also add to the literature on these topics. With a small population of students, several students knew me when I requested their participation in the study. Future research could use an off-campus person unfamiliar to the students to collect the data, read word for word off a script, and minimize the experimenter threat to validity. This study also used participants in multiple courses, but future research could be limited to students in the same classes. As previously discussed, the students were experiencing different circumstances in their courses at the time of the posttest, which may have contributed to the large standard deviations for the mean scores. Some of these students were in stressful situations, such as preceding exams and presentations, when the posttest data was collected, so future studies could take care to collect data when students are in a less stressful circumstances. Finally, using students in block courses that are only 18 business days long does not allow for delivering content or gathering data in the classroom setting for longer time periods. Future research could use participants in longer duration courses and collect data at more than two time periods.

**Summary**

The intra- and interpersonal worlds of students are important and often overlooked in the educational system's focus on grades and academic achievement (Kabat-Zinn, 2014). "Education

in our time should provide the basis for enhanced understanding of our several worlds: the

physical world, the biological world, the world of human beings, the world of human artifacts,

the world of self" (Gardner, 1999, p. 72). Developing the intrapersonal skills, abilities, and

competencies of EI may improve academic performance for students today and job performance

in the future. Tender self-compassionate responses to mistakes and fierce self-compassionate

attitudes to challenges may also improve students' performance and well-being. This

experimental study did not produce significant results with these participants, but the

intervention did create awareness with students about these concepts and skills which they may

choose to develop in the future. Personally, self-compassion has helped me navigate the

struggles and challenges of designing this study and writing this dissertation, so I plan to

continue using practices from this intervention to develop my own self-compassion, self-

awareness, and self-management competencies.

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**Appendix A**

**Consent Form for Intervention Group**

Welcome to the emotional intelligence study!

In this course, your instructor has included an online module with activities to help you develop skills to deal with setbacks, mistakes, and painful moments. This module is one of the assignments for this course and there is no additional course fee for gaining access to the module.

This study is interested in understanding the impact of this module on emotional intelligence. **Your participation in this research is voluntary. Participation in this study is separate from course requirements and declining to participate or withdrawing from the study will have no negative effect on your grade or standing in the program. You have the right to withdraw at any point during the study, for any reason, and without any prejudice.**

The process to measure the impact involves completing short questionnaires that you will take during class at the beginning and end of the block. Each time it should take you around 8 minutes of class time to complete the questionnaire. In addition, you will take three weekly surveys as you progress through the assigned module and each survey will take approximately 5 minutes.

Your responses will be anonymous and confidential. You will physically draw a craft stick with a unique code from a bucket in class so that the researcher will not know your code. You will enter this code each time you answer questions for this study. At the end of the study, participants who complete all the questionnaires and surveys will be entered into a drawing for a $100 gift card. The winning code will be announced via email on the last day of the block and the winner will claim the prize by presenting their coded craft stick to Denise Holland

([denise.holland@umwestern.edu](mailto:denise.holland@umwestern.edu), office at BTB 212). Denise does not have access to the study data, so the winner's responses will remain anonymous.

The data will be stored in password protected accounts and downloaded to password protected files on a laptop. The researcher and her dissertation and statistical analysis advisors will have access to the data. The anonymous data will be stored indefinitely and may be shared with other researchers or used for future research studies. We will not ask for your additional informed consent for these other studies. If you would like to contact the Principal Investigator in the study to discuss this research, please e-mail Debbie Huber, [debbie.huber@umwestern.edu](mailto:debbie.huber@umwestern.edu).

You will not receive direct benefits from participating in the study. Risks or discomforts from this research include uncomfortable feelings that may arise. If you would like to further discuss your feelings regarding the information in the module or the questionnaires, UMW Student Counseling Services is ready to help (call 406-683-7388 or click the Counseling icon in Moodle).

By clicking the consent button below, you acknowledge that your participation in the study is voluntary, you are at least 18 years old, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

○ I consent, begin the study

○ I do not consent (I do not wish to participate or I am younger than 18)

**Appendix B**

**Consent Form for Control Group**

Welcome to the emotional intelligence study!

This study is interested in understanding the impact of an inner communication strength training module on emotional intelligence. **Your participation in this research is voluntary. Participation in this study is separate from course requirements and declining to participate or withdrawing from the study will have no negative effect on your grade or standing in the program. You have the right to withdraw at any point during the study, for any reason, and without any prejudice.**

The process to measure the impact involves completing two short questionnaires that you will take during class at the beginning and end of the block. Each time it should take you around 8 minutes of class time to complete the questionnaire. Your scores will be compared to students in other classes who complete the module.

Your responses will be anonymous and confidential. You will physically draw a craft stick with a unique code from a bucket in class so that the researcher will not know your code. You will enter this code each time you answer questions for this study. At the end of the study, participants who complete all the questionnaires and surveys will be entered into a drawing for a $100 gift card. The winning code will be announced via email on the last day of the block and the winner will claim the prize by presenting their coded craft stick to Denise Holland (denise.holland@umwestern.edu, office at BTB 212). Denise does not have access to the study data, so the winner's responses will remain anonymous.

The data will be stored in password protected accounts and downloaded to password protected files on a laptop. The researcher and her dissertation and statistical analysis advisors

will have access to the data. The anonymous data will be stored indefinitely and may be shared

with other researchers or used for future research studies. We will not ask for your additional

informed consent for these other studies. If you would like to contact the Principal Investigator in

the study to discuss this research, please e-mail Debbie Huber, debbie.huber@umwestern.edu.

You will not receive direct benefits from participating in the study. Risks or discomforts

from this research include uncomfortable feelings that may arise. If you would like to further

discuss your feelings regarding the information in the questionnaires, UMW Student Counseling

Services is ready to help (call 406-683-7388 or click the Counseling icon in Moodle).

By clicking the consent button below, you acknowledge that your participation in the study

is voluntary, you are at least 18 years old, and that you are aware that you may choose to

terminate your participation in the study at any time and for any reason.

○ I consent, begin the study

○ I do not consent (I do not wish to participate or I am younger than 18

**Appendix C**

**Pretest Questions**

Q1. What course are you presently taking?

○ BMGT 335

○ ECNS 201

○ EDU 234

○ BGEN 217

○ BMKT 325

○ ACTG 201

○ I am taking two of the courses listed here during this block

*If participants chose BMGT 335, EDU 234, or BGEN 217, then they were shown the intervention group consent form. If they chose any of the other three classes, they were shown the control group consent form. If they chose the last option, they were sent to the final page of the study because they were ineligible to participate. If they saw a consent form and agreed to participate, they saw the next question.*

Q2. How I typically act towards myself in difficult times

Please read each of the 12 statements carefully before answering. Indicate how often you behave in the state manner.

*The 5-point scale answer options participants see for each statement are: Almost never (1), Occasionally (2), About half of the time (3), Fairly often (4) and Almost always (5).*

When I fail at something important to me I become consumed by feelings of inadequacy.

I try to be understanding and patient towards those aspects of my personality I don't like.

When something painful happens I try to take a balanced view of the situation.

When I'm feeling down, I tend to feel like most other people are probably happier than I am.

I try to see my failings as part of the human condition

When I'm going through a very hard time, I give myself the caring and tenderness I need.

When something upsets me I try to keep my emotions in balance.

When I fail at something that's important to me, I tend to feel alone in my failure.

When I'm feeling down I tend to obsess and fixate on everything that's wrong.

When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are

shared by most people.

I'm disapproving and judgmental about my own flaws and inadequacies.

I'm intolerant and impatient toward those aspects of my personality I don't like.

*This is the end of Q2, the Self-Compassion Scale-Short Form.*


Q3. Each of the following 33 items asks you about your emotions or reactions associated with emotions. After deciding whether a statement is generally true for you, use the 5-point scale to respond to the statement. There are no right or wrong answers. Please give the response that best describes you. (This is the last set of 5-point scale questions.)

*The 5-point scale answer options are: Strongly disagree (1), Somewhat disagree (2), Neither agree nor disagree (3), Somewhat agree (4) and Strongly agree (5).*

I know when to speak about my personal problems to others.

When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.

I expect that I will do well on most things I try.

Other people find it easy to confide in me.

I find it hard to understand the non-verbal messages of other people.

Some of the major events of my life have led me to re-evaluate what is important and not

important.

When my mood changes, I see new possibilities.

Emotions are one of the things that make my life worth living.

I am aware of my emotions as I experience them.

I expect good things to happen.

I like to share my emotions with others.

When I experience a positive emotion, I know how to make it last.

I arrange events others enjoy.

I seek out activities that make me happy.

I am aware of the non-verbal messages I send to others.

I present myself in a way that makes a good impression on others.

When I am in a positive mood, solving problems is easy for me.

By looking at their facial expressions, I recognize the emotions people are experiencing.

I know why my emotions change.

When I am in a positive mood, I am able to come up with new ideas.

I have control over my emotions.

I easily recognize my emotions as I experience them.

I motivate myself by imagining a good outcome to tasks I take on.

I compliment others when they have done something well.

I am aware of the non-verbal messages other people send.

When another person tells me about an important event in their life, I almost feel as though I

experienced this event myself.

When I feel a change in emotions, I tend to come up with new ideas.

When I am faced with a challenge, I give up because I believe I will fail.

I know what other people are feeling just by looking at them.

I help other people feel better when they are down.

I use good moods to help myself keep trying in the face of obstacles.

I can tell how people are feeling by listening to the tone of their voice.

It is difficult for me to understand why people feel the way they do.

*This is the end of Q2, the Assessing Emotions Scale.*

Q4: Please enter the code on your craft stick _____

Q5: What is your current grade level?
- First-year student
- Sophomore
- Junior
- Senior

Q6: What is your current age?
- 18
- 19
- 20
- 21
- 22
- 23
- Enter age if older than 23 _____

Q7: Which of the following most accurately describes you?
- I am a man
- I am a woman
- I am nonbinary / transgender / third gender
- I prefer to self-describe _____
- I prefer not to answer

Q8: Do you regularly practice meditation or contemplation?

- o      Yes
- o      No

*If Yes, the next questions appear. If No, this is the last question.*

Q9: How many minutes per week do you spend practicing meditation or contemplation on an average week?

Q10: How many months of your life have you been practicing?

Q11: What percent of your lifetime practice has been spent with each of the types of meditation / contemplation practice listed below? (The total should equal 100)

Focused attention : _____
Open awareness : _____
Compassion or lovingkindness : _____
Other : _____
Total : _____

## Appendix D

## Posttest Questions

Q1. What course are you presently taking?

○ BMGT 335

○ ECNS 201

○ EDU 234

○ BGEN 217

○ BMKT 325

○ ACTG 201

○ I am taking two of the courses listed here during this block

Q2: Please enter the code on your craft stick _____

Q3. How I typically act towards myself in difficult times

Please read each of the 12 statements carefully before answering. Indicate how often you behave in the state manner.

*The 5-point scale answer options participants see for each statement are: Almost never (1), Occasionally (2), About half of the time (3), Fairly often (4) and Almost always (5).*

When I fail at something important to me I become consumed by feelings of inadequacy.

I try to be understanding and patient towards those aspects of my personality I don't like.

When something painful happens I try to take a balanced view of the situation.

When I'm feeling down, I tend to feel like most other people are probably happier than I am.

I try to see my failings as part of the human condition

When I'm going through a very hard time, I give myself the caring and tenderness I need.

When something upsets me I try to keep my emotions in balance.

When I fail at something that's important to me, I tend to feel alone in my failure.

When I'm feeling down I tend to obsess and fixate on everything that's wrong.

When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are

      shared by most people.

I'm disapproving and judgmental about my own flaws and inadequacies.

I'm intolerant and impatient toward those aspects of my personality I don't like.


Q4. Each of the following 33 items asks you about your emotions or reactions associated with

emotions. After deciding whether a statement is generally true for you, use the 5-point scale to

respond to the statement. There are no right or wrong answers. Please give the response that best

describes you. (This is the last set of questions—you are almost done!)

> *The 5-point scale answer options that appear for each line are: Strongly disagree (1),*
>
> *Somewhat disagree (2), Neither agree nor disagree (3), Somewhat agree (4) and Strongly*
>
> *agree (5).*

I know when to speak about my personal problems to others.

When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.

I expect that I will do well on most things I try.

Other people find it easy to confide in me.

I find it hard to understand the non-verbal messages of other people.

Some of the major events of my life have led me to re-evaluate what is important and not

important.

When my mood changes, I see new possibilities.

Emotions are one of the things that make my life worth living.

I am aware of my emotions as I experience them.

I expect good things to happen.

I like to share my emotions with others.

When I experience a positive emotion, I know how to make it last.

I arrange events others enjoy.

I seek out activities that make me happy.

I am aware of the non-verbal messages I send to others.

I present myself in a way that makes a good impression on others.

When I am in a positive mood, solving problems is easy for me.

By looking at their facial expressions, I recognize the emotions people are experiencing.

I know why my emotions change.

When I am in a positive mood, I am able to come up with new ideas.

I have control over my emotions.

I easily recognize my emotions as I experience them.

I motivate myself by imagining a good outcome to tasks I take on.

I compliment others when they have done something well.

I am aware of the non-verbal messages other people send.

When another person tells me about an important event in their life, I almost feel as though I

experienced this event myself.

When I feel a change in emotions, I tend to come up with new ideas.

When I am faced with a challenge, I give up because I believe I will fail.

I know what other people are feeling just by looking at them.

I help other people feel better when they are down.

I use good moods to help myself keep trying in the face of obstacles.

I can tell how people are feeling by listening to the tone of their voice.

It is difficult for me to understand why people feel the way they do.

**Appendix E**

**Weekly Questions for Intervention Participants**

**Week 1**

Q1: Enter the code on your craft stick. (Reminder: your responses are confidential and

anonymous.) _____

Q2: Which exercise(s) did you choose to complete? (Choose all that apply)

☐      Walk & Sit in Nature

☐      Breathing Exercise

☐      Mindful Coloring

☐      Musical Awareness

☐      Focused Attention Development

☐      Yoga

Q3: Rate the usefulness of this week's exercises below:

| | Didn't choose this exercise | Useless | Not very useful | Not useless or useful | Moderately useful | Very useful |
|---|---|---|---|---|---|---|
| Walk & Sit in Nature | ○ | ○ | ○ | ○ | ○ | ○ |
| Breathing Exercise | ○ | ○ | ○ | ○ | ○ | ○ |
| Mindful Coloring | ○ | ○ | ○ | ○ | ○ | ○ |
| Musical Awareness | ○ | ○ | ○ | ○ | ○ | ○ |
| Focused Attention Development | ○ | ○ | ○ | ○ | ○ | ○ |
| Yoga | ○ | ○ | ○ | ○ | ○ | ○ |

Q4: On a scale of 1 to 5, to what extent did you engage with the video and make use of the activities this week? (1 is not at all and 5 is very much)

Q5: Approximately how many minutes total in the past week did you spend on practices or activities to build up your inner communication strength? (Include watching the video and reading the module instructions.)

○ Less than 15 minutes

○ 15-30 minutes

○ 31-45 minutes

○ 46-60 minutes

○ 61-75 minutes

○ More than 75 minutes

**Week 2**

Q1: Enter the code on your craft stick. (Reminder: your responses are confidential and anonymous.) _____

Q2: Rate the usefulness of the Moment for Me exercise from week 2 when you chose from warm, providing, protecting, or motivating (1 is useless and 5 is very useful):

Q3: Which skill development exercise(s) did you choose to complete? (Choose all that apply)

☐      Compassionate movement

☐      Find your walk-up song

☐      Practice friendliness

☐      Soothing touch

☐      Journal

Q4: Rate the usefulness of this week's exercises below:

| | Didn't choose this exercise (1) | Useless (2) | Not very useful (3) | Not useless or useful (4) | Moderately useful (5) | Very useful (6) |
|---|---|---|---|---|---|---|
| Compassionate movement | ○ | ○ | ○ | ○ | ○ | ○ |
| Find your walk-up song | ○ | ○ | ○ | ○ | ○ | ○ |
| Practice friendliness | ○ | ○ | ○ | ○ | ○ | ○ |
| Soothing touch | ○ | ○ | ○ | ○ | ○ | ○ |
| Journal | ○ | ○ | ○ | ○ | ○ | ○ |

Q5: On a scale of 1 to 5, to what extent did you engage with the video and make use of the activities this week? (1 is not at all and 5 is very much)

Q6: Approximately how many minutes total in the past week did you spend on practices or activities to build up your inner communication strength? (Include watching the video and reading the module instructions.)

○ Less than 15 minutes

○ 15-30 minutes

○ 31-45 minutes

○ 46-60 minutes

○ 61-75 minutes

○ More than 75 minutes

**Week 3**

Q1: Enter the code on your craft stick. (Reminder: your responses are confidential and anonymous.) _____

Q2: Which exercise(s) did you choose to complete? (Choose all that apply)

☐ Write a letter to yourself

☐ Body Scan

☐ Walking in Friendliness

☐ Draw Fierce & Compassionate Friends

☐ Moment for Me

☐ Gratitude Practice

Q3: Rate the usefulness of this week's exercises below:

| | Didn't choose this exercise | Useless | Not very useful | Not useless or useful | Moderately useful | Very useful |
|---|---|---|---|---|---|---|
| Write a letter to yourself | ○ | ○ | ○ | ○ | ○ | ○ |
| Body Scan | ○ | ○ | ○ | ○ | ○ | ○ |
| Walking in Friendliness | ○ | ○ | ○ | ○ | ○ | ○ |
| Draw Fierce & Compassionate Friends | ○ | ○ | ○ | ○ | ○ | ○ |
| Moment for Me | ○ | ○ | ○ | ○ | ○ | ○ |
| Gratitude Practice | ○ | ○ | ○ | ○ | ○ | ○ |

Q4: On a scale of 1 to 5, to what extent did you engage with the video and make use of the activities this week? (1 is not at all and 5 is very much)

Q5: Approximately how many minutes total in the past week did you spend on practices or activities to build up your inner communication strength? (Include watching the video and reading the module instructions.)

○ Less than 15 minutes

○ 15-30 minutes

○ 31-45 minutes

○ 46-60 minutes

○ 61-75 minutes

○ More than 75 minutes