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Can We Teach Emotional Intelligence?

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CAN WE TEACH EMOTIONAL INTELLIGENCE?

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ABSTRACT

Although there are hundreds of programs in thousands of schools that claim to enhance some aspect of emotional intelligence (EI), research has yet to show that it can in fact be enhanced. This study used proven behavioral self-modification techniques in semester-long Psychology of Adjustment courses to help undergraduate college students improve their EI. Students used the techniques in their own self-change projects, choosing EI topics such as assertiveness, empathy, self-regard, and emotion management. The course also included instruction on EI, as well as on theory and strategies from rational emotive therapy. Students in the treatment group (n=79) and control group (n=74) took three validated EI tests in the beginning of the semester, and again at the end. In a MANOVA including change scores (pretest scores subtracted from posttest scores) on all three EI tests, the treatment group showed significantly more improvement (F = 3.236, p = .001) than the control group, suggesting their participation in the course contributed to an overall improvement in EI. The treatment group improved significantly more than the control group on some subscales of the Mayer, Salovey and Caruso Emotional Intelligence Test (MSCEIT), the Bar-On Emotional Quotient Inventory (EQ-i), and the Emotional Competence Inventory (ECI). These tests are based on the three more prominent and researched models of EI in the literature. These are encouraging findings for educational programs that seek to improve EI.

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LIST OF ABBREVIATIONS

EI—emotional intelligence, in this text referring to the overall topic, not a specific theory or model (unless combined as Ability EI, see below)

Ability EI—Mayer, Salovey, and Caruso's mental-ability model of EI, defined briefly as "an intelligence that processes and benefits from emotions" (the mental abilities model of EI)

MSCEIT—Mayer, Salovey, and Caruso Emotional Intelligence Test, a performance-based instrument developed by the authors of the Ability EI model

EQ—*Emotional Quotient*, Reuven Bar-On's model of emotional and social intelligence, defined as an "array of emotional, personal, and social abilities that affect one's overall ability to effectively cope with daily demands and pressures" (the psychological resilience model of EI)

EQ-i—The Emotional Quotient Inventory, a self-rated instrument developed by Bar-On

EC—*Emotional Competence,* Goleman and Boyatzis' model defined as a "learned capability based on emotional intelligence that results in outstanding performance at work" (the business leadership model of EI)

ECI—The Emotional Competence Inventory, developed by Goleman and colleagues, which has subjects rate themselves or asks others to rate them

CHAPTER 1

INTRODUCTION

Can emotional intelligence (EI) be improved? The goals of this project were to a) develop an intervention for improving EI in undergraduate psychology courses; b) analyze outcomes of the intervention; and c) clarify the concept of emotional intelligence through analysis of which components can be changed.

The main research questions were:

1) Can EI be taught?
2) Which components of EI can be changed?
3) Can undergraduate students improve EI in a semester-long course?
4) Are behavior-modification techniques effective for improving EI?

According to the Collaborative for Academic Social and Emotional Learning (CASEL, 2003a) at the University of Illinois, there are currently hundreds of programs in thousands of schools that profess to enhance some aspect of EI. Many of these programs were started for some other purpose, with little actual EI content, before the term "emotional intelligence" became popular, and few of them are empirically shown to work (Zeidner, Roberts, & Matthews, 2002). Their claims may not be confirmed until instruments currently being developed to measure EI in children (i.e., Six Seconds, 2001) are validated and used in a solid research design.

Nevertheless, there is a rising call for education to take responsibility for the emotional and social growth of students, from primary school up to higher education (Goleman, 1995; Izard et al., 2001; Liff, 2003; Parker et al., 2004; The Collaborative for

Academic Social and Emotional Learning, 2003b). This may be partially due to the possible link between EI and academic achievement (Izard et al., 2001; Parker et al., 2004; The Collaborative for Academic Social and Emotional Learning, 2003b); the need for education to take a more holistic approach; as well as a need to counteract the alleged "emotional decay" in today's American society (Goleman, 1995; Greenspan, 1998).

This study developed an intervention for undergraduate students, for whom validated tests of EI are available. Recognizing the importance of self-directed change for young adults, proven self-modification techniques (discussed later) were taught to help students design and implement their own plans for change. The intervention used a two-level approach to EI. The first level is a set of basic EI abilities that every student should possess in order to function emotionally and socially. The second level is a collection of competencies that have been identified by researchers as possible outcomes of emotional intelligence (Bar-On, 2000; Cherniss, 2000a; Matthews, Zeidner, & Roberts, 2002). Whether students value, implement, or feasibly change the competencies in this second level depends on the students' context, so they were encouraged to work on a competency that best fits their own situation.

Proponents of the ability model of EI (described later) are still not sure how much these basic abilities constitute a fixed trait or a teachable skill. John Mayer and Peter Salovey, who first began describing "emotional intelligence," believe that there may be potential for concentrated training to improve emotional skills and knowledge (i.e., emotional education); however, they are not sure whether scores on their measure, the Mayer, Salovey, & Caruso Emotional Intelligence Test (MSCEIT), would actually

improve after training (Caruso, 2004). This study assessed the potential for concentrated training to improve scores on the MSCEIT.

Other models of "emotional intelligence" (perhaps more appropriately called models of emotional functioning) are more context-specific and complex than the ability model. They are unconvincing in terms of their ability to explain a unified concept of EI. However, their parts have value in their separately established connection to effectiveness in social and emotional situations. The variety of skills they describe may depend on the more basic EI abilities proposed by Mayer and colleagues. Some of these more context-specific skills have been trained and improved in business contexts (Sala, 2003). This study will analyze change in these "emotional competencies" in an undergraduate college course. The following section describes models of EI further.

Literature Review

Models of Emotional Intelligence

Although there are several models and measures of EI, there are three major perspectives that have received the most attention and generated the most research. The first is the Mayer, Salovey, & Caruso (2000) model of *emotional intelligence* that frames EI as a group of mental abilities that process emotions. The second is the Bar-On (2000) model of *emotional and social intelligence* that frames EI as the personal characteristics that allow one to adapt emotionally and socially to everyday challenges. And the third is Goleman & Boyatzis' (Boyatzis, Goleman, & Rhee, 2000) model of *emotional competence* that frames EI as a group of abilities and skills in the emotional and social realm that predict career success.

Because they were constructed in different contexts for very different reasons, these three models are quite different from each other in how they define and measure emotional intelligence. The Mayer, Salovey, & Caruso model was constructed in the context of research on intelligence and emotions. Its purpose is to define a kind of intelligence that involves emotional information. The Bar-On model was constructed in the context of mental health. Its purpose is to identify people who would adapt well emotionally and socially to everyday stressors. The Goleman model was constructed in the context of business leadership. Its purpose is to identify people who would function well emotionally and socially at work.

I argue that EI can be viewed as the foundation of a more comprehensive model of *emotional functioning* that branches up to more complex and context-specific skills. On the most basic level, emotional intelligence is a set of *abilities* (general traits that affect performance across a variety of tasks) that every person must possess in order to function in society. These abilities may be relatively stable within individuals and across situations, but different between individuals. They are so far best represented by Mayer, Salovey, and Caruso's model.

In higher levels of emotional functioning, there are more complex *skills* (proficiency on specific tasks) that are more situation-specific. Some people may not need them, and those who have mastered them may not use them all the time. These skills, though they may rely on EI abilities, may also include preferences, temperament, and context, in order to explain everyday emotional functioning. These are better described by Bar-On's model or Goleman and Boyatzis' model, depending on the context (clinical or business, respectively).

The Mental Ability Model of Emotional Intelligence

Mayer, Salovey, and Caruso (2000) stress that *emotional intelligence* is actually "an intelligence that processes and benefits from emotions" (p. 105). They say "emotional intelligence" should explain performance on a variety of tasks involving emotional information. In order to assess this, the Mayer, Salovey, & Caruso Emotional Intelligence Test (MSCEIT) includes various tasks meant to measure processing of emotional information, such as rating emotions on faces or pictures, choosing the best explanation or strategy for vignettes describing a variety of emotional and social situations, and relating emotions to other sensations, such as color or temperature. This scale is described further in the Methods section.

A type of intelligence should function in a consistent domain. Mayer, Salovey and Caruso (2000) stipulate that because emotions convey set meanings and develop in predictable patterns, they "satisfy a complex, coherent, and consistent symbol system that can be puzzled over, understood, and planned for in abstract thought" (p. 107).

Mayer, Salovey, & Caruso's mental-ability model of EI (called *Ability EI* for the rest of this paper) is hierarchical, starting with overall Ability EI, then two main areas: Experiencing Emotions and Reasoning Emotions.

Experiencing Emotions is the first main area of Ability EI. It describes one's ability to perceive, respond to, and express emotions, regardless of one's understanding of it. It measures the ability to read emotions on people's faces, and to compare emotional information with other sensory experiences, such as color, temperature, or

sound. There are two branches under Experiencing Emotions: Perceiving and Using emotions.

Perceiving Emotions involves "registering, attending to, and deciphering emotional messages as they are expressed in facial expressions, voice tone, objects of art, and other cultural artifacts" (Mayer, Salovey et al., 2000, p. 109).

Using Emotions involves how emotions enter the cognitive system and alter cognition to assist thought. This particular branch of Ability EI contrasts with the common belief that emotions impede thinking. While cognition can be impeded by anxiety, ways that emotions facilitate cognition include imposing priorities so that the cognitive system attends to what is most important, changing cognition according to mood, shifting points of view, and thinking about a problem more deeply and creatively (Mayer, Salovey et al., 2000).

Reasoning Emotions is the second main area of Ability EI. The authors also call it *Strategic EIQ* (Mayer, Salovey, & Caruso, 2002). This area involves the ability to understand what emotions signify and to manage them, regardless of ability to perceive emotions accurately. The two branches under Reasoning emotions are Understanding and Managing emotions.

Understanding Emotions involves cognitive processing of emotional information—the meaning, development, and relationships between emotions.

Managing Emotions involves maintaining or changing one's own and others' emotions.

Unlike mathematical formulae, questions about emotions do not necessarily have an absolute correct answer. Mayer and colleagues argue that there can be "right answers"

to questions of emotions, basing their argument on the idea that evolution and culture culminate into consistent emotionally signaled information (Mayer, Caruso, & Salovey, 2000). They determine the "right answers" to their items in three ways: Target criteria (i.e., asking the person in the picture how he or she is feeling), expert criteria (the answers of clinical psychologists and emotion researchers), and consensus criteria (the answers of thousands of people).

Other Models of Emotional Functioning

While the Ability EI model may best describe a kind of intelligence underlying emotional functioning, it does not account for when, how, or why a person may use such abilities. Other models of emotional functioning incorporate such things as ethics (e.g., transparency), priorities for attention (e.g., organizational awareness), self-concept (e.g., self-regard), or coping strategies (e.g., stress tolerance or conflict management), in order to explain how EI might be expressed in everyday life.

The difference between the Ability EI model and other models may be illustrated by the difference between *abilities* and *skills*, as developed by Fleishman (1975) and explained by Landy (1989, p. 677):

> Fleishman made the distinction between *abilities*, which he defines as the more general traits of individuals inferred from intertask correlations, and *skills*, which are defined in terms of performance of specific tasks. Thus, *abilities* are seen as the attributes the individual has inherited or acquired in previous situations and brings to the new task situation. *Skill* is the level of proficiency attained on the

task as a function of the level of ability, or abilities, the individual possesses and the particular strategies developed in the task situation.

The following two major models of "emotional intelligence" appear to describe more situation-specific skills than the Ability EI model.

The Emotional Quotient Model: EI as psychological resilience. Reuven Bar-On defines *emotional and social intelligence* in terms of an "array of emotional, personal, and social abilities that affect one's overall ability to effectively cope with daily demands and pressures…based on a core capacity to be aware of, understand, control, and express emotions effectively" (Bar-On, 2000, pp. 373-374). Though Bar-On uses the term "emotional and social intelligence," for the purposes of clarity, his model will be referred to as *emotional quotient (EQ)* in this paper.

EQ is conceptualized as fifteen characteristics organized into five categories (Bar-On, 2000):

1. Intrapersonal EQ (including self-regard, emotional self-awareness, assertiveness, independence, and self-actualization)
2. Interpersonal EQ (including empathy, social responsibility, and interpersonal relationship)
3. Stress Management EQ (including stress tolerance and impulse control)
4. Adaptability EQ (including reality testing, flexibility, and problem solving)
5. General Mood EQ (including optimism and happiness)

EQ is called a "mixed model" by other EI theorists, because it includes basic abilities similar to Ability EI (e.g., emotional self-awareness), and some characteristics

that relate to intelligence (e.g., problem solving), but also includes characteristics that may have little relation to intelligence (e.g., happiness). Bar-On argues that in order for emotional intelligence scales to measure one's overall ability to cope effectively with daily demands and pressures, a certain level of complexity is necessary. To measure EQ, Bar-On (1997) developed the Emotional Quotient Inventory (EQ-i), which has subjects rate themselves on a scale of 1-5 on items such as "I like helping people" and "I have good self-respect." This scale is described further in the Methods section.

The Emotional Competence Model: EI as business leadership. Daniel Goleman's main focus has been on workplace success and leadership, relying heavily on the work of Richard Boyatzis (Boyatzis, 1994; Boyatzis & Burruss, 1995). According to the Goleman and Boyatzis' model, *emotional competence (EC)* is defined as a "learned capability based on emotional intelligence that results in outstanding performance at work" (Goleman, 1998, p. 9). They explain, "emotional intelligence is observed when a person demonstrates the competencies that constitute self-awareness, self-management, social awareness, and social skills at appropriate times and ways in sufficient frequency to be effective in the situation" (Boyatzis et al., 2000, p. 344).

The EC model lists 20 competencies, arranged in four clusters (Sala, 2002a):

1. Self-Awareness (Emotional Self-Awareness, Accurate Self-Assessment, Self-Confidence)
2. Social-Awareness (Empathy, Organizational Awareness, Service Orientation)
3. Self-Management (Emotional Self-Control, Transparency, Optimism, Adaptability, Achievement Orientation, Initiative), and

4. Relationship Management (Developing Others, Inspirational Leadership, Influence, Change Catalyst, Conflict Management, and Teamwork & Collaboration)

Goleman's measure, the Emotional Competence Inventory (ECI) is partially based on the Self-Assessment Questionnaire (Boyatzis, 1994), which was formed from hundreds of studies of effective and desirable qualities in managers and business leaders (Boyatzis, 1982). The ECI has subjects rate themselves, and also has other raters (i.e., supervisors, peers, etc.) rate the subject on a 1-5 scale, with an "I don't know" option, on items like "admits mistakes" and "inspires people." The ECI is described further in the Methods section.

Like Bar-On's EQ model, Goleman's EC model collects a variety of factors that cover both preferences and abilities, from more general to more specific.

Can They Complement Each Other?

Ability EI may be useful for explaining one's emotional competencies. Mixed models like emotional competencies or emotional quotient may best serve as guides for exploring the expression and outcomes of Ability EI. High scores on certain branches of the MSCEIT may correlate with high scores on certain subcategories of the ECI or the EQ-i. High Ability EI may also predict a person's potential to improve on EQ and EC skills. For example, in order to improve one's ability to empathize, one must be adept at perceiving and understanding emotions. In order to improve in conflict management, one must be capable of using and managing emotions.

There is a mild correlation (r = .21) between Ability EI, measured with the MSCEIT, and EQ, measured with the EQ-i (Brackett & Mayer, 2003). The nature of this relationship may be that they measure different levels of emotional functioning, one building on top of the other.

Many researchers have suggested that the ability to perceive, use, understand, and manage emotions, as described in the Ability EI model, constitutes the essence of what emotional intelligence is; while the mixed models (EC or EQ) may explain outwardly expressed indicators of actual emotional intelligence (Ability EI). However, this proposal has not yet been tested. Future research needs to address these issues in order to come up with a more useful, parsimonious understanding of the construct.

Self-Regulation and EI

The concept of self-regulation is woven boldly through models of emotional intelligence. Bar-On (2000) includes impulse control in the Stress Management branch of EQ. Managing Emotions, the highest branch of Mayer, Salovey, and Caruso's (2000) Ability EI model, could perhaps be synonymous with self-regulation of emotions. And Self-Management, including Emotional Self-Control, is one of Goleman's main EC categories (Boyatzis et al., 2000). This suggests a very strong relationship between self-regulation skills and emotional intelligence.

Self-regulation consists of being aware of oneself and regulating one's own thoughts, behaviors, and feelings according to a desired standard (Watson & Tharp, 2006, in press). It involves strategies such as self-talk, planning, and problem solving.

Could self-regulation be the link between mental emotional abilities (Ability EI) and the more complex and context-specific emotional competencies (EC and EQ)? It may be that the four basic EI abilities (perceiving, using, understanding, and managing emotions) are prerequisites for effective self-regulation.

Self-regulation strategies may be the means by which people can improve on emotional competencies such as stress tolerance, optimism, conflict management, and assertiveness. When people learn a new behavior, they use self-regulation to move from other-regulated behavior to automated behavior (Tharp & Gallimore, 1988). This pattern is common for the development of all skills, and therefore self-regulation is a key component in any behavioral improvement efforts.

Self-Modification and Emotional Competencies

Self-regulation may be a primary area to target in efforts to improve the qualities and abilities described in the EC, EQ, or Ability EI models. Self-modification plans—explicit and detailed self-regulation efforts—have been found to improve many aspects of life that may be related to emotional intelligence. Self-modification techniques include self-directed goals, reflection, record keeping, antecedent-behavior-consequence analysis, self-rewards, and self-punishments (Watson & Tharp, 2006, in press). These techniques are meant to bring habitual behaviors out of automation and into consciousness so that they can be adjusted and regulated.

Training programs that utilize these techniques have been found to:

1) Reduce hostility, depression, and anxiety (Deffenbacher & Shepard, 1989; Gidron, Davidson, & Bata, 1999);

2) Improve self-awareness, empathy, conflict management, stress management, and self-management (Cherniss, 2000b);
3) Improve social problem-solving and prosocial behavior (Topping, Holmes, & Bremmer, 2000);
4) Improve self-assessment, interpersonal relationships, and coping with stress (Monroy, Jonas, Mathey, & Murphy, 1997; Young & Dixon, 1996);
5) Improve coping with panic attacks (Gould & Clum, 1995); and
6) Reduce conflicts with coworkers (Maher, 1985).

These are just a few examples of the many ways self-modification programs have improved people's emotional functioning. Such programs, whether they target emotional functioning or other aspects of life, have been effectively serving people for many years. Instructors who teach self-modification techniques report that their students are able to reach their own goals for change up to 83% of the time (Dodd, 1986; Hamilton, 1980).

It may be possible for Ability EI to be changed through the same types of processes. Proponents of Ability EI do suggest that "an ability approach to emotional intelligence can focus on skill development or knowledge acquisition, as opposed to the enhancement of personality" (Mayer, Caruso et al., 2000, p. 337).

Improving EI

The evident potential for interventions to improve competencies in the EC model shed a positive light on the possibilities promised in the emotional intelligence arena. For example, in the Weatherhead competency-based MBA program at Case Western Reserve University, students showed improvement in 50-100% of the competencies (from the EC

model) they tested (Boyatzis, 2001; The Consortium for Research on Emotional Intelligence in Organizations), and even continued to improve after the program (Boyatzis & Oosten, 2002). In this program, students participate in a course focused on self-directed plans for improving EC, and continue to emphasize EC throughout their MBA training. As another example, in the Professional Fellows Program for executives, 45-55 year-old professionals and executives improved on 67% of the competencies taught in that course (Ballou, Bowers, Boyatzis, & Kolb, 1999), contradicting the claim that you can't teach an old dog new tricks. However, the version of the Emotional Competence Inventory used in studies like these has evolved, necessitating new studies using the latest version of the scale.

There is still a question of whether qualities in the EQ model can be improved. Because of the strong correlation between EQ-i scores and relatively static personality traits (scores on the Big Five), some researchers have suggested that EQ might be difficult to change (McCrae, 2000). However, the correlation between EQ and personality traits does not imply that there is *no* correlation between EQ and environment. The overlap between EQ characteristics and EC competencies (i.e., they both list empathy, self-awareness, adaptability, and self-confidence/self-regard), and the research on increasing such competencies, suggests that EQ may be malleable. More research is needed to determine whether EQ is in fact more than simply a specific personality type, and whether it can change with practice.

Researchers have yet to make a case for the malleability of Ability EI (i.e., whether scores on the MSCEIT can be improved). If Ability EI can in fact be improved, self-modification strategies may be an effective way to do it. The effectiveness of self-

modification strategies for enhancing a number of emotion-related criteria support this possibility. Research is needed to see if self-modification programs can improve the basic abilities described by Mayer, Salovey, and Caruso (2000), and not just specific social behavioral patterns. If Ability EI can be improved, there may be potential for interventions to have more transferable outcomes, since the basic EI abilities are less context-specific and affect every aspect of life.

This study attempted to address these issues by:

1. Designing and implementing an intervention for improving EI with self-modification techniques (described below and outlined in the methods section).
2. Analyzing changes from pretest to posttest scores on the MSCEIT, the ECI, and the EQ-i for students in the intervention compared to a control group.

Intervention

In their critical review of programs meant to "teach" emotional intelligence, Zeidner, Roberts, & Matthews (2002) concluded that most school-based EI interventions possess very little actual EI content, do not clearly conceptualize EI, and rarely show empirical evidence of effectiveness. For developing, implementing, and evaluating a successful EI intervention program, they suggest the following guidelines (Zeidner et al., 2002):

1. Base EI intervention programs on a solid conceptual framework, including a clear definition and rationale connecting the concept of EI to program objectives and methods.
2. Carefully specify program goals and behavioral outcomes, targeting specific components of EI.

3. Identify educational, sociocultural, and developmental context for program implementation, considering the culture, age, gender, socioeconomic status, and developmental period of the students, as well as the culture of the school the program is embedded in.
4. Fully integrate EI programs into the school educational and instructional curriculum, spanning a variety of experiences and course subjects, as well as an extensive time period, in order for lasting changes to happen.
5. Make provisions for practice and for generalizing the domain of emotional skills across different classes of behavioral performance, and from classroom to non-classroom contexts.
6. Ensure professional development of program personnel.
7. Use robust experimental, psychometrically sound designs for assessing program effectiveness.
    a. When possible, randomly assign students or classrooms.
    b. When possible, include pretest scores.
    c. Ensure high-quality program monitoring and implementation.
        i. Periodically monitor the program's implementation according to established objectives and criteria using multiple indicators.
        ii. Periodically use structured classroom observations of both the program and the comparison.
    d. Use reliable and validated measures of EI.
    e. Evaluate the aptitude by treatment interactions.

The current program followed these guidelines as much as possible, given the time and institutional constraints surrounding it.

1. The conceptualization of EI that the experimental courses were designed around is represented in Appendix A. In order to incorporate the three main models of EI, a two-level definition was used, with Ability EI as the base, and the more context-specific, mixed-list models building on top.
2. Program goals and behavioral outcomes were identified and monitored using a checklist for lesson plan development (Appendix B), and the syllabus for the course (Appendix C). Students further identified specific outcomes for their self-change plans related to EI.
3. The course was consistent with the educational context of the university. Students were diverse in culture, age, gender, socioeconomic status, and developmental period in college, so instructor-student meetings and feedback were adjusted to make the intervention as individualized as possible.
4. It was not possible to incorporate components of the intervention across the university curriculum.
5. However, the nature of students' self-change plans and classroom assignments ensured that they practiced and generalized target skills and behaviors across a variety of non-classroom contexts.
6. The two instructors for the intervention course used the same materials and met frequently to discuss lesson plans and standards.
7. Randomization of subjects or classes was not possible. Program implementation was monitored as instructors observed each other's classes, discussed the results

of quizzes, group activities and writing assignments, and adjusted accordingly. The instruments used were the most researched and validated in the field of EI.

There were two core components to the intervention. The first was instruction and training in self-modification theory and techniques, using Watson & Tharp's (2002) *Self-Directed Behavior*. This textbook is in its eighth edition, with the ninth edition in press, and has been used successfully in psychology courses across the nation for decades. Students were instructed on self-regulation theory, specifying target behaviors for change, observation and recording, antecedent-behavior-consequence analysis, change strategies, shaping, imagined rehearsal, modeling, self-coaching, discovering and using reinforcers, etc. They were guided to discover and target areas for improving emotional intelligence and develop a self-change plan using self-modification techniques. In-class exercises included modeling, case studies, group problem solving, and practice of self-modification techniques. Students also met individually with the instructor for guidance.

Students worked on a variety of target behaviors. For example, some students wanted to work on self-regard. They kept track of their emotions and positive and negative thoughts about themselves. They planned to replace negative thoughts with realistic, positive ones, and record times when they successfully did so. Some students worked on assertiveness, keeping track of how often they tried to start a conversation with a classmate or coworker. One very shy international student followed small shaping steps (incremental approximations toward the goal) to practice speaking English, first with other international students, then with a mixed group of international students and native English speakers, then one-on-one with native English speakers. Some students

worked on resisting peer pressure to party late at night or to play when they should study. Some students worked on "road rage," recording times when they got angry on the road, then practicing and recording calming strategies or alternative thoughts. Some students worked on empathy, recording times when they took time to listen to someone and ask questions, and practicing listening techniques. Some students worked on time management, quitting smoking, or losing weight. These were instructed to focus heavily on the emotional aspects of self-control.

The second major component of the intervention was instruction and training in emotional intelligence. Students learned about the different models of EI, application of EI to their own lives, and the value of improving emotional and social skills. *The Emotionally Intelligent Manager* (Caruso & Salovey, 2004) was used to help students understand the basic abilities of EI. This book also includes suggestions for improving EI abilities, which students could use as part of their projects. Exercises like emotional charades, case studies, group discussion, rating and describing emotions to each other, and other activities were used in class to train the basic EI abilities. Training in managing emotions was further supplemented by *How You Feel is Up to You* (McKay & Dinkmeyer, 2002), which discusses the influence of our thoughts on our feelings and also includes suggestions and helpful exercises based on rational emotive therapy.

CHAPTER 2

METHOD

Research Design

Students in the experimental and comparison classes were assessed on three validated scales, based on the three major models of EI, at the beginning and end of the Spring 2005 semester. The control group received general instruction about psychology, while the experimental group received instruction in emotional intelligence and using self-modification to improve EI. Besides in-class training, students in the experimental classes designed and implemented their own plans for improving EI. Control group participants were given consent forms, one copy to sign and one copy to keep (see Appendix D) with both the pretest and posttest assessment packets. For the treatment group, an explanation of the research was given at the beginning of the semester (see Appendix E). Confidentiality of materials was assured, and students understood that all class work, including assessments, were required for the purposes of the course and they would have the choice at the end of the semester whether to release their information for the study. The treatment group was given consent forms, one copy to sign and one copy to keep (see Appendix F) at the end of the semester, and the instructors did not view them until after grades were submitted.

Participants

This study used intact courses. The treatment group consisted of undergraduate students in three Psychology of Adjustment (PSY 170) courses (n = 101), two at the University of Hawai‘i, and one at Kap‘iolani Community College. Psychology of

Adjustment courses were chosen because the course description fits the current project goals and the chosen textbooks. The control group consisted of undergraduate students in five Survey of Psychology (PSY 100) courses (n = 118) at Kapʻiolani Community College. The Survey of Psychology courses were chosen because they were unlikely to discuss EI or teach ways to improve emotional functioning, yet Survey of Psychology students would share some curiosity about human behavior with Psychology of Adjustment students. Both Survey of Psychology and Psychology of Adjustment fulfill a general curriculum requirement, and therefore students from a variety of majors would register for them. Kapʻiolani Community College has several Survey of Psychology lecture courses, whereas University of Hawaiʻi at Manoa has a student-paced unit mastery program (Carlson, 2003) that was deemed incomparable to the Psychology of Adjustment courses.

There were 138 females and 81 males. The mean age was 21.9 (range 18-53). The mean year in school was 2.18 (range1-5).

There was a concern that the treatment group might improve more than the control group due to a tendency toward self-improvement behaviors because they signed up for a course (Psychology of Adjustment) that is based on self-improvement, while the control group signed up for a course (Survey of Psychology) that is based on a survey of theory and research. To assess this, students were asked a few questions about tendencies toward self-improvement such as "I try to improve myself in many ways," and "I sign up for classes that I think will help me become a better person" (rated 1-5). The two groups did not differ significantly on these questions (see Appendix G), so any differences between them on EI improvement may not be due to self-improvement tendencies.

EI Instruments

The Mayer, Salovey & Caruso Emotional Intelligence Test (MSCEIT)

The MSCEIT consists of 141 items and takes approximately 35 minutes to complete. Students took it online through Multi-Health Systems, the publisher of the test. It is made up of tasks meant to objectively assess Experiencing Emotions (including perceiving and using emotions) and Reasoning Emotions (including understanding and managing emotions) (Mayer, Caruso et al., 2000).

The Perceiving Emotions branch requires subjects to rate the extent to which certain emotions are represented in pictures of faces, landscapes, and designs. The Using Emotions branch is measured by vignettes in which subjects rate different emotions according to how useful they would be in certain situations and also identifying how much certain emotions are related to other sensations like colors and temperature. The Understanding Emotions branch has subjects identify how certain emotions blend together (i.e., "love" involves "happiness" and "acceptance"), and how some emotions transition to others (i.e., "anger" escalates to "rage"). The Managing Emotions branch asks subjects to rate the usefulness of certain strategies for maintaining, changing, or escalating emotions.

The MSCEIT has a split-half reliability of .91 (Mayer et al., 2002). For discriminant validity, the MSCEIT correlates moderately (r = .34 and .38) with the Army Alpha Vocabulary Scale, indicating a relationship with, but independence from, intelligence (Mayer, Caruso, & Salovey, 1999). There is virtually no correlation (r = .02) with the impression management scale of the 16 Primary Factors Test (Caruso, Mayer, &

Salovey, 2002), supporting the authors' claim that the MSCEIT is not biased by socially desirable responding. Predictive validity findings include correlations with team management and job performance, and negative correlations with socially deviant behavior (Mayer et al., 2002).

The Emotional Quotient Inventory (EQ-i)

The EQ-i (Bar-On, 2000) is self-rated, has 133 items, and takes approximately 40 minutes to complete (also online with Multi-Health Systems). The respondents rate themselves from 1 (very seldom or not true of me) to 5 (very often true of me or true of me) on statements like "I have strong impulses that are hard to control," "I have good relations with others," or "I believe in my ability to handle most upsetting problems." The scores are computer-generated and converted to standard scores reflecting a mean of 100 and standard deviation of 15, much like typical IQ scores. Hence the term "emotional quotient." It has validation indicators for Inconsistency, Negative Impression, and Positive Impression, as well as a built-in factor that automatically adjusts the scale scores based on these indicators. These adjustments, as well as adjustments for age and gender, were not used for this study because raw scores were deemed most useful for comparison.

The average intercorrelation of the 15 subscales is .50, and the stability coefficient (test-retest reliability) ranged from .66 to .73 (Bar-On, 2000). For discriminant validity, the EQ-i does not correlate with measures of IQ, suggesting its independence from cognitive capacity (Bar-On, 2000). For predictive validity, the EQ-i has shown strong negative relationships with psychological disorders such as anxiety (r = -.71), depression

(r = -.76), borderline features (r = -.77), and schizophrenia (r = -.54) (Bar-On, 1997), and strong positive relationships with psychological well-being (r = .54) and subjective well-being (r = .35) (Brackett & Mayer, 2003). EQ also predicts drug use (r = -.24) and alcohol use (r = -.20) (Brackett & Mayer, 2003).

The Emotional Competency Inventory (ECI)

The ECI is a 110-item "360 degree" (other-rater) instrument, with which people who know the individual rate him or her on 20 emotional competencies (Sala, 2002a). Participants filled out the scale for themselves, and the scores of three other raters were combined for an ECI-Other score. Participants rate themselves (or others rate them) on a five-point scale, from "never" to "consistently," with "I don't know" as a sixth option, on statements such as, "has a sense of humor about oneself," "behaves calmly in stressful situations," and "stays positive despite setbacks." For this study, students were asked to rate themselves, and to find three others who knew them well to rate them. Unfortunately, some students had trouble finding three people they knew well. Many other-rater ECI tests came back with a large portion of "I don't know" answers. Many students did not or could not use the same raters for pretest and for posttest. For these reasons, only the self-rater ECI scores were used in the analysis.

According to the ECI Technical Manual (Sala, 2002a), the reliability and validity of the test are as follows: For total others ratings, alpha coefficients range from .73 (Trustworthiness, now called Transparency) to .92 (Empathy) with an overall average internal consistency coefficient of .85. For self-ratings, the alpha coefficients range from .61 (Accurate Self-Assessment) to .85 (Service Orientation) with an overall average

internal consistency coefficient of .75. Some findings cited as evidence of construct validity include relationships between some ECI competencies and the Intuiting and Feeling scores on the Myers-Briggs Type Indicator (Burckle, 2000, cited in Sala, 2002), Extraversion, Conscientiousness, and Openness on the NEO Personality Inventory-Revised (Murensky, 2000, cited in Sala, 2000), Coaching and Affiliative managerial styles and organizational climate (Sala, 2002b, cited in Sala, 2002). Variables correlated with ECI scores for criterion validity include self-reported salary, position level, career success and personal life satisfaction (Sevinc, 2001, cited in Sala, 2002), and job performance (Cavallo & Brienza, 2003).

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Intervention Procedure

Instruction on self-modification theory and techniques using Watson and Tharp's (2002) *Self-Directed Behavior* began intensely at the start of the semester. Students learned to identify personal goals and values, keep records, and choose a target behavior. Before instruction on EI began, students took the MSCEIT, the ECI, and the EQ-i. They were given feedback on the MSCEIT and the EQ-i. Feedback reports were designed with the help of Dr. David Caruso. These reports included a graphic representation of the student's score level such as the one below:

Ability Scores	Develop	Consider Develop-ing	Comp-etent	Skilled	Expert
Total Emotional Intelligence					

The reports also included a definition of each score, interpretation of the student's results, and recommendations for improvement. Feedback on ECI results was not possible due to calculation problems that delayed processing.

Students were introduced to the concept, definitions, and importance of emotional intelligence using Caruso & Salovey's (2004) book, *The Emotionally Intelligent Manager* (reading assignments and in-class exercises), and materials received by the author at the MSCEIT Certificate training, November 2004, in San Jose (Caruso & Freedman, 2004). The Emotional Competencies model and the Emotional Quotient model were explained as categories of emotional functioning that may depend on the Ability EI skills (see Appendix A).

From their goals, values, self-observations, and EI scores, students chose their target behavior for their self-change plans. For example, students who wanted to work on stress management identified thoughts that increased stress and planned to replace those thoughts with more functional ones. They also identified activities, people, or events that affected their stress level and planned adaptive behaviors for coping with those. Later in the semester, they added plans for practicing stress reduction behaviors such as relaxation and meditation.

Other student targets included increasing self-regard, assertiveness, achievement orientation, empathy and listening skills, and decreasing "road rage," complaints, procrastination, self-degrading thoughts, or maladaptive behaviors. Some students chose to work on time management, smoking cessation, or exercise, which are common self-modification targets. Those students were instructed to focus especially on the emotion management aspects of their projects.

Self-modification training continued throughout the semester. Students learned to use antecedent-behavior-consequence analysis to make plans for change. They were instructed in the use of reinforcers, shaping (incremental approximations toward a goal), self-contracts, and plans for high-risk situations.

Halfway through the semester, McKay and Dinkmeyer's (2002) *How You Feel is Up to You* was added to the curriculum. With this book, they were taught about Rational Emotive Therapy theory, the purposes and uses of emotions, the ways that demanding beliefs and maladaptive thoughts affect emotions, and strategies for changing maladaptive beliefs and emotions. They learned strategies for stress management and social skills. Students then incorporated some of these strategies into their self-change plans.

Students were required to report the status of their plans and brainstorm strategies for overcoming obstacles in many ways.

1. They were required to meet with the instructor one-on-one for half an hour at least once, and up to three times.
2. They were required to turn in worksheets updating their progress (see Appendix H).
3. A major portion of their grade was based on their main paper about their self-change project. They turned in Part I, the description of their plan, in the first half of the semester, and Part II, the results, at the end of the semester (see Appendix C for more details).
4. Each student was part of a "support group," organized by self-change topics. Support groups were given time in class to discuss the day's lesson, report the

progress of their projects, and brainstorm together for students who were facing obstacles. Support groups built a sense of community through in-class competitions (see Appendix I for an example) and outside-of-class extra credit projects.

Grading was based on a point scale (see Appendix C for details). Students were given points for class assignments, individual participation, and group participation. There were three quizzes based on the reading material to make sure students complied with reading assignments. Classroom activities included PowerPoint presentations of material, active learning exercises, worksheets for practice, and group exercises.

At the end of the semester, students took the MSCEIT, ECI, and EQ-i again. Those who requested feedback got MSCEIT and EQ-i reports again. These were emailed in the following summer and fall (there was not time before the semester ended) with an open invitation to email or meet if they had any questions or concerns.

CHAPTER 3

RESULTS

Multivariate Analysis

A multivariate analysis of variance (MANOVA) was conducted to see if there were general changes in EI as a result of the intervention. Change scores (pretest scores subtracted from posttest scores) were used so that comparisons would be independent of pretest differences between the two groups. For dependent variables, the MANOVA included change scores on the main categories of all three EI tests:

1. From the MSCEIT (Ability EI model), change scores for the two main areas, Experiencing Emotions and Reasoning Emotions
2. From the EQ-i, change scores from five categories (Intrapersonal EQ, Interpersonal EQ, Stress Management EQ, Adaptability EQ, and General Mood EQ)
3. From the ECI (self-rated), change scores from the four categories (Self-Awareness Cluster, Self-Management Cluster, Social Awareness Cluster, and Relationship Management Cluster)

Change on other-rater ECI scores were not considered for this analysis because there was a large portion of missing data ("I don't know" answers and students' difficulty finding three other-raters).

Table 1 shows that Wilks' Lambda for the MANOVA was significant, F (1, 152) = 3.236, p = .001. Wilks' lambda is one of four common multivariate tests reported by SPSS software. It performs, with a combination of dependent variables, the same role as the F-test performs in one-way analysis of variance. If a large proportion of the variance

is accounted for by the independent variable, then it suggests, as in this case, that there is an effect for the grouping variable on the combination of dependent variables. For all analyses in this study, level of significance was set at $p < .05$.

Of the 219 students included in the study, 153 (79 in the treatment group and 74 in the control group) completed all six administrations of the instruments (all three EI scales at pretest and all three EI scales at posttest).

Table 1. MANOVA of the effect of treatment on change on three EI scales using Wilks' Lambda

	F	**Sig.**	η^2	**Power**
EI Tests	3.236	.001	.202	.990

n=153

Univariate Analyses

Since the multivariate analysis was significant, univariate analyses of variance (ANOVA) on the EI categories mentioned above were conducted to see which subscales changed. Different subscales on all three EI measures showed a significant improvement for treatment group compared to control group. Table 2 displays the *F* values, significance, effect size, and observed power for the eleven subscales considered. See Appendix J for a table of means and standard deviations for change scores in each variable. A discussion of these categories follows.

Table 2. ANOVA of the effect of treatment on change scores for categories of three EI tests.

EI Test	Category	*F*	Sig.	η^2	Power
MSCEIT	Experiencing Emotions	.10	.748	.001	.062
	Reasoning Emotions*	**6.07**	**.015***	**.039**	**.687**
EQ-i	**Intrapersonal EQ***	**15.02**	**.000***	**.090**	**.971**
	Interpersonal EQ	.56	.454	.004	.116
	Stress Management EQ	.96	.328	.006	.164
	Adaptability EQ*	**14.49**	**.000***	**.088**	**.966**
	General Mood EQ*	**4.72**	**.031***	**.030**	**.579**
ECI (Self)	**Self Awareness Cluster***	**4.97**	**.027***	**.032**	**.601**
	Self Management Cluster*	**6.05**	**.015***	**.039**	**.686**
	Social Awareness Cluster	.73	.393	.005	.136
	Relationship Management Cluster*	**8.04**	**.005***	**.051**	**.805**

n=153

* Significant after controlling for the False Discovery Ratio (Benjamini & Hochberg, 1995) at p<.05

Change in MSCEIT Categories

For the MSCEIT (the Ability EI model), the treatment group increased their scores on Reasoning Emotions more than the control group, $F(1, 152) = 6.07$, $p = .015$, but there was no difference in change for Experiencing Emotions. This means that the treatment group demonstrated improved ability to understand the structure and progression of emotions and use effective strategies for managing them. However, they

did not improve on the ability to recognize emotions in faces and pictures or to judge the usefulness of certain emotions for certain tasks.

Change in EQ-i Categories

For the EQ-i (the EQ, psychological resilience model of EI):

1. The treatment group increased their scores more than the control group on Intrapersonal EQ, $F(1, 152) = 15.02$, $p = .000$, which includes self-regard, emotional self-awareness, assertiveness, independence, and self-actualization. This could mean that treatment group students were more aware of their emotions, more proactive in self-improvement and social situations, and more respectful of themselves than when the semester started.
2. The treatment group also improved their scores more than the control group on Adaptability EQ, $F(1, 152) = 14.49$, $p = .000$, which includes reality testing, flexibility, and problem solving. This means that students in the treatment group felt they could assess their situations more realistically, adjust to changes in their environment, and use problem-solving skills.
3. The treatment group also improved their scores more than the control group on General Mood EQ, $F(1, 152) = 4.72$, $p = .031$, which includes optimism and happiness. This means that treatment group students were happier and more hopeful and proactive when they considered their situation than when the semester started.
4. The treatment group did improve more than the control group on Interpersonal EQ (empathy, social responsibility, and interpersonal relationship) and Stress

Management EQ (stress tolerance and impulse control), however the differences were not significant.

Change in ECI Categories

For the ECI (the EC, business leadership model of EI):

1. The treatment group improved their scores significantly more than the control group, $F(1, 152) = 4.97$, $p = .027$, on the Self-Awareness Cluster, which includes emotional self-awareness, accurate self-assessment, and self-confidence. This may mean that students in the treatment group felt that they were better able to discern their thoughts and feelings and more confident in themselves than when the semester began.
2. The treatment group improved significantly more than the control group, $F(1, 152) = 6.05$, $p = .015$, on the Self-Management Cluster, which includes emotional self-control, transparency, optimism, adaptability, achievement orientation, and initiative. This means that students in the treatment group felt more self-directed, positive, and proactive when considering their situation than they were when the semester began.
3. The treatment group also increased their scores significantly more than control group, $F(1, 152) = 8.04$, $p = .005$, on the Relationship Management Cluster, which includes developing others, inspirational leadership, influence, change catalyst, conflict management, and teamwork & collaboration. This means that the treatment group felt more purposeful and effective in interpersonal situations than they did when the semester began.

4. The treatment group did increase their scores on the Social-Awareness Cluster (empathy, organizational awareness, and service orientation) a little more than the control group. However, the difference was not significant.

Subsequent Analyses

There were also some subsequent analyses run based on secondary questions. Due to the number of comparisons and experiment wise error rate (at $p < .05$), conclusions drawn from these results may not be valid. They may however guide future hypotheses for research.

Gender

Researchers on EI tend to consider gender differences in their analyses, therefore a multivariate analysis of variance for the effect of gender on change scores for categories on the three EI tests was run. The result was not significant, Wilks' Lambda $F(1, 156) = 1.614$, $p > .1$. Therefore, gender was not explored further.

Positive Impression

In order to see if the treatment group improved more than control group simply because they wanted to look good, they were compared on the EQ-i Positive Impression scale. This scale assesses whether respondents were giving exaggerated positive reports of themselves (Bar-On, 1997). There is a chance that the treatment group, having been informed of the purpose of the study, might have been motivated to exaggerate their positive attributes for any of the following reasons: They liked their instructor, they

wanted to be better at EI, they wanted to look successful at their self-change projects, or they wanted to "contribute to science." However, the results of analyses of variance on pretest and posttest positive impression scores showed a significant difference between the groups in the opposite direction. For the pretest, the control group mean (m=103.5) was significantly higher, $F(1, 164) = 5.79$, $p = .017$, than the treatment group mean (m=98.7), indicating that the control group exaggerated their positive attributes more than the treatment group. For the posttest, the control group mean (m=103.7) was again significantly higher, $F(1, 164) = 5.99$, $p = .015$, than the treatment group mean (m=98.8). Since the standard average score for this scale is 100, the treatment group did not appear to exaggerate improvements in EI.

Pretest Differences

To test for preexisting differences, treatment and control group pretest means on subcategories of all three EI tests were compared. The two groups did not differ significantly on the EQ-i or the ECI. They did show a significant difference on the MSCEIT, for both Experiencing Emotions (treatment m=99.16, control m=93.94), $F(1, 192) = 5.23$, $p = .023$, and Reasoning Emotions (treatment m=93.92, control m=83.70), $F(1, 192) = 33.38$, $p = .000$). See Appendix K for pretest and posttest descriptive statistics.

CHAPTER 4

DISCUSSION

Since treatment group improved significantly more than control group on some categories of all three EI scales, we can infer some answers to the main questions of this study: Can EI be taught? Which components of EI can be changed? Can undergraduate students improve EI in a semester-long course? Are behavior-modification techniques (combined with rational emotive therapy techniques and EI knowledge) effective for improving EI? These questions are discussed, along with implications, below. This section concludes with limitations and future directions for research.

Can Emotional Intelligence Be Taught?

Much of the excitement and attention around the concept of emotional intelligence hinges on the hope that it can be improved, more so than traditional intelligence, personality traits, or talent. However, a close look at the common definitions of EI shows that it typically encompasses all of these things. From basic emotional perception, to empathy, to optimism, to self-control, the broad variety of concepts fitting under the EI umbrella make it difficult to operationalize EI, let alone watch it grow. Nevertheless, researchers, teachers, motivational gurus, and businesspeople alike are trying. If EI can be improved, then perhaps with it we can raise a new generation of socially savvy citizens, reduce social ills, strengthen marriages, create business leaders, and help people succeed where they typically would not under traditional intelligence biases.

The results from this study suggest that EI can be taught. Despite the disparity between models of EI, treatment made a difference for change on all three EI measures, considered all together. This in some way supports the above claims. According to these findings, one could conclude that efforts to improve EI (at least in young adults) should continue to be developed and implemented. However, there are limitations to the generalizability of these findings, and more research is needed to adequately test the super-hero claims in EI literature (see limitations and future directions below).

Which Components of EI Can Be Changed?

This question can be explored two different ways: 1) Considering each subscale, which ones can be changed? And 2) Considering different EI models and their measures, which are more sensitive to change? Inherent in the first question is an inquiry into why some subscales improved and some did not. Inherent in the latter question, what does the potential for change suggest for these three major theories of EI?

Change in Ability EI

For the MSCEIT, Reasoning Emotions changed, but Experiencing Emotions did not. This result may be due to the knowledge- and skill-based nature of classroom instruction. It may be easier to learn explanations for emotions than to actually perceive them. It may be easier to learn emotional management strategies than to fine-tune the experience of them. Experiencing Emotions may tap into more intuitive abilities, which are harder to bring into consciousness and change.

The treatment group scored higher on the MSCEIT at pretest. This is possibly due to a difference in academic ability between treatment group (mostly four-year university students) and control group (mostly community college students), because the MSCEIT is correlated with verbal intelligence (Mayer et al., 1999). By posttest, treatment group improved significantly more than control group, increasing the gap between their means. It may be possible that the treatment group improved more in Reasoning Emotions simply because they already had a "head start." Nonetheless, the treatment may still have facilitated the improvement. It will take further research using groups with no significant pretest difference to make strong conclusions about the efficacy of an intervention like this one for changing Reasoning Emotions. However, we can suggest from these results that scores on Reasoning Emotions do improve within a semester's time, whether due to maturation, prior ability, treatment, or a combination of them.

The lack of improvement in Experiencing Emotions in this study does not necessarily mean that it cannot be improved. It may take more targeted, intense training to improve this area. Training on perceiving and using emotions may need to be similar to the repetitive practice needed for fine motor abilities such as playing piano or perfecting a swim stroke. Paul Ekman's work on recognizing facial expressions of emotion (perceiving emotions) has led to several tools for measuring such abilities (Matsumoto et al., 2000). Ekman has also developed the MicroExpression Training Tools (METT) and Subtle Expression Training Tools (SETT), and claims that they can improve trainees' ability to recognize subtle emotional cues on faces (Ekman, 2004). It

would be interesting to see if training programs using the METT or the SETT could improve scores on the Perceiving Emotions branch of the MSCEIT.

Change in Emotional Quotient

For the EQ-i, Intrapersonal EQ, Adaptability EQ, and General Mood EQ improved significantly more for treatment, but Interpersonal EQ and Stress-Management EQ did not. It may be that students perceived a change within themselves in self-regard and assertiveness (part of Intrapersonal EQ), which were popular targets for their self-change projects. However, it may take a longer period of time for such changes to affect their interpersonal relationships. The history and closeness of their relationships are a function of past and current interactions, and therefore it may take longer, stronger, and consistent improvement within the individual before change is perceptible in their relationships.

Adaptability EQ includes reality testing, flexibility, and problem solving, skills that were taught directly in class and reinforced by the self-modification techniques students used for their plans (i.e., recording, situation analysis, problem solving, adjusting plans), which may explain why this category showed a significant difference for improvement between treatment and control.

The improvement in General Mood EQ may be due to the emotion-management strategies taught in class, as long as students actually wanted to be happier and more optimistic. However, it may also be an indirect result of students' improvement in Intrapersonal EQ and Adaptability EQ. For example, as students' regard for themselves and ability to be proactive and adaptive improved, their mood improved.

It is surprising that Stress Management EQ did not improve, since stress management techniques were taught in class, and stress management was a popular target for student projects. The lack of improvement for this category may be related to the fact that students took the posttest at the end of the semester, when papers were due and finals were looming. Students may have been more aware of what to do about stress, but only enough to recognize when they were not doing it. People tend to revert to habitual coping strategies when under pressure (Watson & Tharp, 2006, in press). They may need more practice with new stress-management strategies before they start to actually use them in overwhelming situations.

Change in Emotional Competencies

For the ECI, all of the clusters improved except for the Social Awareness Cluster. Components of the Self-Awareness Cluster (i.e., self-confidence) and Self-Management Cluster (i.e., self-control, optimism) were common targets for student projects, which may explain the improvement on these. Improvement in the Relationship Management cluster may be related to the social skills taught in class, as well as the support group structure that allowed students to practice these skills.

It is not surprising that the Social Awareness cluster did not show significant improvement for treatment over control group. This cluster included the most business-related components (Service Orientation and Organizational Awareness), and only students who worked in jobs that involved customer service, or who aspired to climb the organizational ladder, might have had opportunities to practice and improve in these areas.

Implications for Theory

In terms of comparing the three EI scales, there was some hope that some scales would change and others would not, allowing for discriminative conclusions about them. However, parts of all three scales changed. These results suggest that all three scales would be useful for measuring change in EI, depending on the setting and specific outcomes desired (more basic abilities vs. specific characteristics). Ability EI might have been thought of as more inherent than the other models, and therefore less susceptible to change. It appears from these results that half of the model may be more inherent (Experiencing Emotions), or at least less malleable, while the other half is more plastic (Reasoning Emotions). The finding that Reasoning Emotions changed provides some hope that people can improve emotional functioning at the most basic levels.

Can Undergraduate Students Improve EI in a Semester-Long Course?

Undergraduate students can learn to improve emotional intelligence in a semester-long course. Some subcategories of EI may require more intensive or longer training to improve, but the efficacy of college courses for developing the emotional functioning abilities of their students is promising. The implications of this for student services, college retention programs, and perhaps even remedial programs, are far-reaching. College retention is an important issue for institutions, since only 55% of students who start at an institution stay and finish their bachelor's degree within six years (U.S. Department of Education & National Center for Education Statistics, 2003). Retention programs typically help students navigate the systems and services of their institutions,

teach study strategies or remedial math or reading, and discuss relevant topics such as sex and drinking. Perhaps EI training could make a difference for student retention, especially in their first year. College freshmen have to quickly become more independent, adaptable, socially adept, assertive, self-confident, and self-controlled in order to succeed. Their environment, responsibilities, rights, and challenges change significantly when they enter college, and it takes much more than academic preparedness to succeed under such instability.

Are the Approaches Used in the Treatment Effective for Improving EI?

The significant improvement of the treatment group over the control group on some subscales of EI shows the efficacy of behavior-modification techniques, rational emotive therapy self-help techniques, and emotional intelligence knowledge for improving emotional intelligence. It is not possible to tease these components apart to see which contributed more. However, the overall result suggests that they would be valuable approaches to include in most efforts to improve emotional functioning.

Although students chose specific targets to improve, treatment group improved more than control group on all three EI scales considered together. This may indicate the following possibilities: 1) Perhaps self-modification techniques are generally related to EI since practice of them involves self-awareness, self-control, problem solving, and flexibility (the list could go on), and therefore students improved in more areas of EI than they targeted; 2) Perhaps awareness of what aspects of EI need development facilitates improvement; or 3) Perhaps simple awareness of EI, reinforced with classroom exercises, facilitates improvement. Simple awareness of what EI is may not be enough, since the

control group did get information on what EI is and why it is important when they were asked to participate in the study. The question remains: Does improving EI require concentrated training, or is there an "enlightenment effect," by which simply making individuals aware of EI will make them want to improve?

Limitations of the Study

The results of this study are promising; however, there are some limitations. This study used undergraduate college students in a typical college classroom format. The effectiveness of such a course may not generalize to older adults who have been out of school for a while, or to children who may not be independent enough to implement the self-change projects.

Subjects in the treatment group signed up for a different course (Psychology of Adjustment) than subjects in the control group did (Survey of Psychology). Both courses fulfill a general education requirement, and therefore both drew students from a variety of majors. However, it may be possible that students who sign up for Psychology of Adjustment are seeking help for personal problems more than students who sign up for Survey of Psychology. Furthermore, the classes were unequally distributed across two different schools. Students at a four-year university may be different from two-year community college students in terms of achievement drive and academic skills. Future research should use more-similar groups and, if possible, randomly assign students to treatment and control conditions. Since treatment and control groups in this study differed on MSCEIT pretest scores, more research should be done on the efficacy of treatment on MSCEIT scores using comparison groups at the same pretest level.

The results may also be confounded by teacher effects. The classes had different instructors. The instructors for the treatment group were both single young females. The three instructors for the control group classes were all married, with varying ages, one male and two females. Any of these factors, along with other differences between teachers such as teaching style, personality and appearance, might have affected students' motivation to improve. However, since the treatment group did not appear to exaggerate positive characteristics more than the control group, it seems unlikely that their improvement was simply due to a desire to look good, whether motivated by teacher characteristics or not.

The ECI and EQ-i are self-rated scales, and scores may be influenced by social desirability responding. There is a need for more objective measures of emotional functioning to determine whether subjects actually improved in observable behavior, and were not just feeling like they were "better people." Because the MSCEIT requires accurate performance on a task, MSCEIT scores are not related to social desirability responding (Caruso et al., 2002).

Some students had difficulty finding three people who knew them enough to rate them on the ECI scale. Those who did find enough people often had several "I don't know" answers on items like "monitors client or customer satisfaction" and "is not politically savvy at work." The ECI was designed for business settings, and a more appropriate scale for college students should be used in further research with this population. The Hay Group, publisher of the ECI, is developing an ECI-University version (Hay Group, 2005), but this scale had no reliability or validation data in time for this study.

Although the finding that EI can be changed is promising, it is only the first step. The results for this study do not prove that improving EI will lead to improvements in the factors correlated with EI scores. Future studies should explore the efficacy of EI interventions for improving outcomes such as subjective well-being, relationship satisfaction, career success, and psychological health.

Future Directions

Besides the research directions mentioned above (i.e., replication with more-similar groups and analysis of outcomes), there are many new research questions to answer. It would be interesting to analyze change in specific student-targeted variables (i.e., whether the subjects who target self-regard improve in that category more than subjects who target anger management). It would also be interesting to compare treatment conditions that separate self-modification techniques, rational emotive therapy principles, and EI knowledge to see which component has the strongest effect on EI improvement. Future research should also assess the efficacy of more direct, intensive training for improving the Experiencing Emotions area measured by the MSCEIT.

Future studies might also use techniques such as analysis of videotaped interpersonal interactions to assess actual improvement in daily emotional functioning and compare results to self-reported improvement. Another instrument that might assess improvement more objectively may be the College Student Life Spaces Scale (Brackett, Mayer, & Warner, 2004), which asks participants about more observable behaviors, such as how many hours they study or how often they display affection or get into fights. It would also be interesting to use longitudinal studies to measure the long-term outcomes

of EI training. Do EI scores continue to improve, fall back to pretest, or maintain at the same level? Is EI training strong enough to show differences between treatment and control groups in long-term career, relationship, or academic outcomes?

Finally, research should explore the efficacy of EI training for a variety of populations and social issues. For example, could EI training be added to college freshmen courses to improve freshmen retention? Would EI training in high school also have an effect on college perseverance? Would EI training change or prevent delinquent behavior? It should be noted that EI authors caution that high EI skills could be used for good *and* bad purposes (i.e., manipulation), and EI training should be applied with caution in that respect (Salovey & Grewal, 2005). Perhaps in combination with intervention strategies that facilitate pro-social motivation, EI training may provide the means by which socially delinquent individuals can be aware of and manage their own feelings, while using more functional strategies for adapting to challenges.

Conclusion

By some reports, emotional intelligence is a psychological concept that seems more powerful than a locomotive (e.g., IQ), faster than a speeding bullet (e.g., saves struggling marriages), and able to leap over tall buildings in a single bound (e.g., improves academic achievement)…with a big "EI" written across its broad chest. Such is the apparent promise of popular emotional intelligence fanfare. Some authors' claims extend so far as to make EI the hero for today's emotional decay: EI can address drug abuse, the rising divorce rate, violence in schools, psychological disorders, and so on (Goleman, 1995; Graczyk et al., 2000). Why is EI such a hot topic? Perhaps because

scientists and laypeople alike suspect that there is "something" out there, beyond intelligence, personality, and talent, that contributes to individual differences in social and emotional functioning. EI has a lot of face value. Since Goleman's 1995 bestseller, the popularity of the concept has stretched far beyond the empirical research behind it, and psychologists are faced with the immense but exciting task of supporting or refuting such claims.

While there remains a need to refine the concept itself, this study has taken a first step in assessing the utility of EI for alleviating society's "emotional malaise" (Goleman, 1995). Now there is some evidence that EI can be taught. If EI can be taught, then perhaps it can be a key for improving daily emotional and social functioning, and thus improve academic, career, and relationship outcomes. Interventions in school, from preschool to college, could better prepare the next generation to be effective, emotionally healthy, productive citizens.

APPENDIX A
Conceptualization of Emotional Intelligence Used for this Study

The conceptualization of EI for the purposes of this program focuses on a two-level framework of "Emotional Functioning."

First Level: Emotional Intelligence as Mental Abilities

The first level encompasses the basic abilities necessary for effective processing of emotional information (Mayer, Salovey et al., 2000). These basic abilities include:

Perceiving Emotions— the ability to recognize how you and those around you are feeling.
Using Emotions— the ability to generate an emotion, and then use emotion to improve cognitive functioning
Understanding Emotions—the ability to understand complex emotions and emotional "chains," how emotions transition from one stage to another.
Managing Emotions—the ability to manage emotions in yourself and in others.

Second Level: Emotional Competencies and Characteristics

The second level includes more complex skills for which the first level of abilities is a prerequisite. These are the emotional skills and characteristics that have been identified as vital for success in specific domains (i.e., business and coping with stress). For the purposes of this study, only skills that can be clearly connected to the basic abilities are considered. For the purposes of valid analysis and comparison, skills that are represented on both the ECI and the EQ-i are targeted. Related skills are represented below in adjacent boxes, listed from the most alike first.

Emotional Quotient (Bar-On)	***Emotional Competencies (Goleman/Boyatzis)***
Emotional Self-Awareness—the ability to recognize and understand one's emotions	**Emotional Self-Awareness**—recognizing one's emotions and their effects
Empathy—the ability to be aware of, understand, and appreciate the feelings of others	**Empathy**—sensing others' feelings and perspectives, and taking an active interest in their concerns
Adaptability/Flexibility—the ability to adjust one's feelings, thoughts, and behavior to changing situations and conditions	**Adaptability**—flexibility in handling change
Self-Regard—the ability to be aware of, understand, accept and respect oneself	**Accurate Self-Assessment**—knowing one's strengths and limits **Self-Confidence**—a strong sense of one's self-worth and capabilities

Self-Actualization—the ability to realize one's potential and to do what one wants to do, enjoys doing, and can do	**Achievement Orientation**—striving to improve or meeting a standard of excellence
Impulse Control—the ability to resist or delay an impulse, drive, or temptation to act, and to control one's emotions	**Emotional Self-Control**—keeping disruptive emotions and impulses in check
Stress Tolerance—the ability to withstand adverse events, stressful situations, and strong emotions without "falling apart" by actively and positively coping with stress	**Self-Management** (cluster)—refers to managing one's internal states, impulses, and resources.
Social Responsibility—the ability to demonstrate oneself as a cooperative, contributing, and constructive member of one's social group **Interpersonal Relationship**—the ability to establish and maintain mutually satisfying relationships that are characterized by emotional closeness, intimacy, and by giving and receiving affection	**Teamwork and Collaboration**—working with others toward shared goals; creating group synergy in pursuing collective goals **Service Orientation**—anticipating, recognizing, and meeting customers' needs **Developing Others**—sensing others' development needs and bolstering their abilities
Independence—the ability to be self-directed and self-controlled in one's thinking and actions and to be free of emotional dependency	**Inspirational Leadership**—leading by example, stimulating enthusiasm, and communicating a compelling vision **Change Catalyst**—Personally defining and leading change
Problem Solving—the ability to identify and define personal and social problems as well as to generate and implement potentially effective solutions	**Conflict Management**—negotiating and resolving disagreements

APPENDIX B
Checklist for Intervention Lesson Plans

Each lesson plan should meet a number of these requirements, though not necessarily all of them:

- Does the lesson follow the schedule on the syllabus?
- Can the lesson be delivered in 75 minutes?
- Does the lesson content include key concepts of psychology of adjustment?
- Does the lesson address the students' concerns?
- Does the lesson plan include active learning exercises such as drills, journaling, games, group projects, or modeling?
- Does the lesson plan present a clear concept of emotional intelligence according to the two-level structure?
- Are students given the opportunity to practice one or more of the following basic EI skills?
    - Perceiving/identifying emotions
    - Using emotions
    - Understanding emotions
    - Managing emotions
- Are students encouraged to practice EI skills in different settings?
- Does the lesson encourage students to recruit social support for their change projects both in and out of class?
- Does the lesson increase students' understanding of self-modification theory and/or methods?
- Does the lesson give feasible suggestions for students' change efforts to change?
- Does the lesson content fit with the timeline of students' self-modification plans?
- Are assignment instructions clear?
- Is lesson content appropriate for students' age, context and culture?
- Do the lesson content and examples apply to the variety of fields and backgrounds of students?
- Does the lesson help students consider how EI skills apply in other subjects?
- Does the lesson plan help students explore their own interests and apply what they are learning to their own lives?
- Does the lesson plan increase students' sense of choice and control over their self-modification projects?
- Does lesson content include the value and potential of improving EI?

APPENDIX C
Sample Intervention Course Syllabus

Psychology 170, section 1
Psychology of Adjustment
Spring 2005 Syllabus
Mondays and Wednesdays, 1:30-2:45pm
BusAd D101

Instructor: Kelly Chang
Phone: 956-9231
Email: kellycha@hawaii.edu
Office: Gartley 217A
Office Hours: Monday-Thursday 3:00-4:00pm

Course Goals and Objectives:

1. Understand the basic models, benefits, and applications of emotional intelligence.
2. Practice the basic emotional intelligence abilities (identifying, using, understanding, and managing emotions).
3. Develop and implement a plan for improving one or more emotional or social skills.
4. Become familiar with basic principles of behavior modification.
5. Learn how to assess antecedent and consequence conditions that influence behavior, thoughts, and feelings.
6. Be able to discuss normal and abnormal coping mechanisms and how these effective/ineffective coping behaviors are manifested.
7. Be able to use observation and recording methods to assess targeted behaviors and thoughts.
8. Be able to understand and apply behavior modification techniques (i.e., reinforcement, shaping, modeling) to case studies.
9. Be able to understand and apply behavior modification techniques to change one's own behavior, thoughts, and feelings.
10. Develop skills to evaluate self-directed behavior modification projects and adjust them for better success.

Required Textbooks:

1. Watson, D. L., & Tharp, R.G. (2002). *Self-Directed Behavior: Self-Modification for Personal Adjustment* (8th Ed.). Belmont, CA: Wadsworth. **(W&T)**
2. Caruso, D. R., & Salovey, P. (2004). *The Emotionally Intelligent Manager*. San Francisco, CA: Jossey-Bass. **(C&S)**
3. McKay, G., & Dinkmeyer, D. (2002). *How You Feel is Up to You.* Atascadero, CA: Impact Publishers, Inc. **(M&D)**

Requirements:

1. Class participation and attendance are important. No more than 3 classes can be missed, and attendance will be checked for every class. Participation and attendance will be considered in grading.
2. Group participation is vital. Groups will present on key concepts in class and work together on case studies.
3. All text assignments must be read prior to coming to class. You will need to understand assigned readings for group activities.
4. There will be psychological scales to assist you in determining the best areas to target for your self-directed change project.
5. There will be three short quizzes throughout the semester to assess your understanding of class concepts.
6. The bulk of your grades will depend on your use of concepts and strategies taught in class in your self-directed change project. See description on page 4.
7. There will be no final exam.

Grading:

Quiz 1: 30 points
Quiz 2: 50 points
Quiz 3: 40 points
Class participation: 30
Group activities: 40
Assessments: 60
Instructor meetings: 30
Self-Change Part I: 70
Self-Change Part II: 150
Total Possible: 500

Points	Grade
450-500	A
400-449	B
350-399	C
300-349	D
0-299	F

If you have a disability, please feel free to contact me about possible accommodations. The KOKUA office is the designated office to handle accommodations and services for students with disabilities. It is located on the bottom floor in the Student Services building #013. kokua@hawaii.edu, 956-7511, or 956-7612.

Course schedule:

(This schedule is subject to change at the discretion of the instructor. It is the students' responsibility to be aware of the changes.)

	Class topic	Project timeline	Reading Assignment
1/10 Mon	Introduction to class		
1/12 Wed	Introduction to models and skills of adjustment		W&T Ch 1
1/17 Mon	**Martin Luther King Day**	**Holiday**	
1/19 Wed	Self-examination, Targets and Goals		W&T Ch 2 Bring "Personal Explorations"
1/24 Mon	Recording techniques	Assessments	W&T Ch 3
1/26 Wed	(cont.)	Quiz 1	
1/31 Mon	Introduction to emotional intelligence (EI)		***C&S Ch 1*** *Assessments Due*
2/2 Wed	(cont.)		C&S Ch 2
2/7 Mon	Models and Applications of EI theory		C&S Ch 3-6
2/9 Wed	(cont.)		Handouts
2/14 Mon	Regulation Theory		W&T Ch 4
2/16 Wed	Antecedents		W&T Ch 5
2/21 Mon	**President's Day**	**HOLIDAY**	
2/23 Wed	Assessment Feedback *Instructor meetings...*	***Specify goals for self-change project***	Begin recording behavior
2/28 Mon	Methods of behavioral therapy	Analyze actions, thoughts, and feelings	W&T Ch 6&7
3/2 Wed		***Draft plans***	W&T Ch 8
3/7 Mon	Rational Emotive Behavior Therapy	*Quiz 2 3/7* ***(on W&T 4-8, C&S 1-6)***	M&D Ch 1
3/9 Wed		***Confirm plan and begin intervention***	
3/14, 3/16	Thoughts and emotions	*Part 1 due 3/16*	M&D Ch 2 &3
	3/21-3/25 Spring Recess		
3/28, 3/30	Stress Management	Continue intervention	M&D Ch 7
4/4, 4/6	Social Skills	Continue intervention	M&D Ch 11&12
4/11, 4/13	Relapse prevention	Confirm relapse prevention strategy	W&T Ch 9&10 Assessments
4/18, 4/20	Community resources	*Quiz 3*	*Assessments Due*
4/25, 4/27	Self-exploration and value clarification	Analyze effectiveness of intervention	**Instructor Meetings end**
5/2, **5/4 Last Day**	Finishing touches	**Submit Final Paper (Parts 1 and 2)**	

Self-Directed Change Project

Your self-change project will focus on some aspect of emotional intelligence, as discussed in class. Choose a topic within emotional intelligence that is relevant to you. Please choose a topic that you feel comfortable talking about with classmates so that you can take advantage of their support and feedback. Please respect your classmates and do not talk outside of class about any personal information shared in class. Your self-change project will be graded on effort and sophistication (i.e. using a number of strategies, etc.), not the success of your project (although I'm sure you will want to succeed).

The self-directed change project is to be written in two parts. Due dates for each part are specified in the syllabus. Use of the Self-Directed Behavior book in designing and implementing this project is strongly advised. Each part should be typed and completed according to the following format:

Part I. (4-5 pages, 70 points)

Due March 16

1. **Target**. Detailed description of the behavior or skill you have decided to change.

2. **Baseline**. Conduct a self-assessment of your behavior through observation and recording. Suggestions for recording and presenting your data:
    a. Maintain a diary with an antecedent-behavior-consequence format.
    b. Conduct a frequency or duration count.
    c. Develop a baseline of at least 7 days.
    d. Graph your baseline.

3. **Intervention Plan**. Briefly describe your plan. Specify the behavioral techniques you plan to use (i.e., reinforcement, shaping, etc.) Discuss your plan for antecedent control.

4. **Problem solving**. Indicate possible obstacles to your goal of changing the identified behavior and ways of overcoming these obstacles.

5. **Conclusion**. Discuss the overall analysis of your definition, assessment, and intervention goals. Include alternatives you will try if things don't work out the way you planned.

6. **Contract**. Write a short contract stating your goals and intentions. Sign your contract.

7. Use Chapters 2 and 3 in Self-Directed Behavior to help write Part I.

Part II. (10-15 pages, 150 points)

Due May 4

1. **Part I**. Revise Part I using feedback provided by your instructor. Be sure to include Part I in your write-up.

2. **Process**. Discuss your intervention plan.
   a. How did you deal with antecedent control?
   b. Describe specifics of your reinforcement and consequences plan.
   c. Discuss any changes in your original intervention.
   d. (See chapters 5, 6, & 7 in Self-Directed Behavior for this section.)

3. **Results**. Discuss the results and outcomes
   a. Include graphs and/or charts
   b. List specific results.
   c. Did you accomplish your goals?
   d. (See chapter 8 in Self-Directed Behavior)

4. **Conclusion**. Provide a critical analysis of your project.
   a. Why you thought it worked or didn't work.
   b. How you would do it differently next time.
   c. How you plan to maintain and generalize your results (relapse prevention).
   d. How you could apply the skills you've learned to other behaviors.
   e. Describe your feelings about the results of your project
   f. (See chapters 9 and 10 in Self-Directed Behavior)

Instructor Meetings. (30 points)

You will be required to meet with me three times to discuss the progress of your project and troubleshoot problems. Each meeting will include filling out a worksheet and will be worth 10 points. (You are welcome to schedule more meetings if you feel you need them. However, extra meetings are not extra credit and will not earn more points.) If you feel you do not need to meet, you may email the completed worksheet to me, including an explanation about the progress of your project and how you have solved problems on your own. However, if I still think it is necessary (i.e., the worksheet is unclear or incomplete), I may still ask you to schedule an appointment.

APPENDIX D

Informed Consent Form (Control Group)

Project Title: Emotional Intelligence and Self-modification

Purpose: The purpose of this research is to develop a better understanding of emotional intelligence and whether it can be improved. Emotional intelligence is the extent to which a person has the ability to identify emotions, use them effectively, understand emotional patterns, and manage emotions.

Procedure: This research is a pretest-posttest study, which means that the same survey will be filled out twice, with some time in between. To participate in this study, you will be asked to fill out some questionnaires (i.e., the Scale of Educational Attitudes, which may correlate with emotional intelligence) and to take some surveys once in the beginning of the semester and once at the end. Each time, these should take you about 2 hours total to complete. Two surveys will be online and one will involve asking people whom know you to fill out the survey. More specific directions are included in your survey packet. Your participation is voluntary. Refusal to participate will involve no penalty or loss of benefits for you. The results of the research will not affect your grade.

Benefits: Your participation in this research will help us develop emotional intelligence training and help future students learn. Furthermore, emotional intelligence may be a key to success in work, school, and social life. Your participation in this research may help to clarify this concept and inform future efforts to help people succeed in life.

Risk: Although unlikely, the possibility exists that you may experience mild discomfort from thinking about these issues.

Please sign here to indicate that you understand this form.

Name (please print)	Signature	Date

For questions about this study, please contact:
Kelly Chang
(808) 956-9231
kellycha@hawaii.edu

If you cannot obtain satisfactory answers or have comments or complaints about your treatment in this study, you may contact: Committee on Human Studies, University of Hawaii, Maile Way, Honolulu, Hawaii, 96822. Phone: 956-5007

APPENDIX E

Verbal Information about Experimental Course

One of the first things you should know about this class is that it is an experimental course. Some of the things you will learn have never been taught in this way before. Everything is based on psychological research. Your main text teaches strategies for self-improvement that have been tested and proven for decades. That is why it is in its eighth edition.

This course is only being offered this semester because it is part of my colleague's dissertation research. Kelly Chang is interested in the topic of emotional intelligence, and whether or not it improves over time. She also wants to know if people can improve their own emotional intelligence by using the strategies we teach in this class. For that reason, this course is designed to focus on the topic of emotional intelligence, which we will talk more about later.

Your participation on this research is entirely voluntary. Later in the semester, you will be given the opportunity to allow Ms. Chang to use the information you provide for this course on questionnaires and assessments. Whether you allow this or not will not affect your grade. The results of your questionnaires and assessments will not affect your grade. And the results of the research will not affect your grade in this course. Your grade is based on your participation in class, your understanding of the concepts taught in this course, and the way you apply course topics.

However, you should be aware that the connection of this course to Ms. Chang's research will affect your experience in the following ways:

1. The focus of instruction will be on emotional intelligence, and you will be asked to choose a self-improvement topic that falls under that category.
3. Ms. Chang will be paying for you to take emotional intelligence assessments in the beginning of the semester and again at the end of the semester. All three of these assessments are very popular in the business sector, and managers and executives pay a lot of money to take these tests. If you were to individually take these assessments, they could cost you about $200 or more. These assessments are required for this course, because they will help you decide what topics to target in your self-improvement plans. And therefore you get to take them whether you participate in the research or not. You will have the choice as to whether or not Ms. Chang can use this information for her research, and except for points for completing them, the results of your assessments will not affect your grade.

We believe this course and this research will be mostly beneficial to you, but for ethical reasons, we need to make sure you understand if there are any risks for participating. It is highly unlikely that you will experience any problems. However, it is possible that you may experience some discomfort talking about your personal life and change goals with the instructor or your classmates. However, we believe social support is a key component for any effective self-change effort, as well as for learning, so we will encourage you to choose a topic that you are not embarrassed to talk about.

If for any reason you do not think you want to participate in this experimental course, please come talk to me after class or during my office hours.

APPENDIX F

Informed Consent Form (Treatment Group)

Project Title: Emotional Intelligence and Self-modification

Purpose: The purpose of this research is to develop a better understanding of emotional intelligence and whether it can be improved. Emotional intelligence is the extent to which a person has the ability to identify emotions, use them effectively, understand emotional patterns, and manage emotions.

Procedure: You are participating in a course which is designed to help you improve your emotional intelligence. As part of your coursework, you have filled out questionnaires (i.e., the Scale of Educational Attitudes, which may correlate with emotional intelligence), and taken emotional intelligence assessments in the beginning of the semester, and again toward the end (pretest-posttest). In order to evaluate the effectiveness of this course, we are asking for your consent to use the information you have provided in this class for research purposes. This information will be kept confidential and will never be used or described in a way that would identify you. No further effort or time will be required of you beyond what you have already done in this class.

Your participation is voluntary. Refusal to participate will involve no penalty or loss of benefits for you. The results of the research will not affect your grade. Your grade will not be affected by whether or not you sign this consent form. However, for your assurance, your instructor will not see this form (whether or not it is signed) until after grades have been turned in.

Benefits: We hope that by participating in the course, you have learned valuable skills for self-direction and improving emotional intelligence, and more information about the new popular topic of emotional intelligence than you would typically learn in traditional courses. Your participation in this research will help us develop more effective skills training and help future students when they learn these skills. Furthermore, emotional intelligence may be a key to success in work, school, and social life. Your participation in this research may help to clarify this concept and inform future efforts to help people succeed in life.

Risk: Although unlikely, the possibility exists that you may experience mild discomfort from thinking about these issues. There is some risk that you may experience distress if your emotional intelligence scores show no improvement or worsen.

Please sign here to indicate that you understand this form and that you give consent to participate in the research project.

Name (please print) Signature Date

For questions about this study, please contact:
Kelly Chang, (808) 956-9231, kellycha@hawaii.edu

If you cannot obtain satisfactory answers or have comments or complaints about your treatment in this study, you may contact: Committee on Human Studies, University of Hawaii, Maile Way, Honolulu, Hawaii, 96822. Phone: 956-5007

APPENDIX G
Self-Improvement Tendency Questionnaire

Along with the EI assessments, students were given the following questions to assess whether treatment group subjects had a higher tendency toward self-improvement than control group students.

INSTRUCTIONS: Please check the box that best describes how often each statement is true for you. Choose only one answer for each statement.

	Never	Not very much	Fairly often	Usually	Always
a. I try to improve myself in many ways.	❑	❑	❑	❑	❑
b. I sign up for classes that I think will help me become a better person.	❑	❑	❑	❑	❑
c. When I have relationship problems, I am willing to change	❑	❑	❑	❑	❑
d. I like the way I am and don't need to change much.	❑	❑	❑	❑	❑
e. I don't like to talk about my feelings.	❑	❑	❑	❑	❑
f. I prefer to solve my own problems without help.	❑	❑	❑	❑	❑

A self-improvement score was calculated by assigning values to responses, where 1= "Never," 2= "Not very much," 3= "Fairly often," 4= "Usually," and 5= "Always." Questions d, e, and f were reversed in value (1=5, 2=4, 3=3, 4=2, 5=1), and all six responses were added up for the self-improvement score.

Results. The number of subjects who answered these questions at pretest time was n=202. A simple t-test between treatment group means (treatment m=20.49; control m=20.64) for self-improvement showed no significant difference, $F(1, 202) = .121$, $p = .728$.

APPENDIX H
Progress Worksheets

Name:_____

Instructor Meetings
Worksheet #1

1. What did you think of your assessment feedback?

2. What questions do you have about your assessment feedback?

3. Which competency (or more) are you considering for your self-change project?

4. What is your target behavior? (These can be thoughts and feelings, as well as behaviors, but they must be specific enough that you could observe and record it)

5. What situations influence your target behavior?

6. How will you record your target behavior?

7. What else should you pay attention to?

8. How will you make your recording easy to remember?

Name:_____

Instructor Meetings
Worksheet #2

1. Have you encountered any problems with record keeping? How has it been going?

2. What have you learned from your records? (Have you identified any patterns? Are certain situations more problematic than others? How are your thoughts and feelings affecting your situation?)

3. What level (frequency, intensity, quality) are you currently at as far as your target behavior?

4. How would you like to change?

5. What do you plan to do about antecedents?

6. What do you plan to do about the target (behavior, thoughts, feelings)?

7. What do you plan to do about consequences?

8. What will your self-contract say?

APPENDIX I
Group Activity Example

Group Name:
Member names:

Strategy Shopping

"How you feel is up to you"
(McKay & Dinkmeyer, 2002)
Chapter 3

INSTRUCTIONS: As you go through these strategies together, think about which ones you would like to use for your own self-change project and why.
THIS IS A COMPETITION: The group that completes all these activities FIRST will get 1 extra credit point. The group that completes them BEST will get 2 extra credit points each. It will take some teamwork and some brave souls, but you can do it! Whether you win or not, completing this worksheet is worth 5 Group Participation points to each of you.

Physical Exercise

INSTRUCTIONS: First of all, you probably all got in your groups and plopped down into a semi-sleeping position. Too Bad!
Your first activity:

1. Answer this question: How does exercise help with emotions? (Answer in Chapter 3)

2. Group exercise: All together as a group (I'll be watching!), choose an exercise below and do ten (COUNT OUT LOUD):
    a. Jumping jacks
    b. Squats
    c. Lunges
    d. Picking Pineapples (do you know this one?)
    e. Touching toes, then stretching to sky (ten sets)
    f. NOTE: Girls—if your clothing is inappropriate for this, stand up with your team members and count out loud with them
3. Brave soul: Send one group member to me to do either ten push-ups or ten sit-ups.

If I saw your group exercise and this, I'll sign here_____

Recalling Past Successes

INSTRUCTIONS: Have every person in the group pull out a piece of paper (write your names on top!) and make two lists:

1. Past successes (seven)

2. Situations when looking at this list would be helpful (three)

Brave soul: Send one group member with the papers to get my signature_____

Modeling

INSTRUCTIONS: Think of models for the competencies listed below. They can be from a group member's life, or a popular figure. Write the name of the group member who volunteered the information.

Competency	**Model**	**Why?**	**Group member**
Stress Tolerance			
Impulse Control			
Managing Emotions			
Empathy			
Interpersonal Relationship			

What should you pay attention to when you are observing a model for the behavior or competency you want to improve in? (Hint: See page 44)

1.

2.

3.

4.

5.

Interviewing

INSTRUCTIONS: Have four group members list who they would like to interview and what they would hope to learn

Who?	**What would you hope to learn?**	**Group member**

Self-Coaching

INSTRUCTIONS: Have everyone in the group write on their paper a situation when they could use self-coaching (pg. 44), and what they would say to themselves (three phrases). Brave soul: Have a group member bring the papers to me for my signature_____

Catching Yourself

INSTRUCTIONS: As a group, come up with a story of someone who uses this strategy (pg. 45) in his or her self-change project.
Character's Name:
Character's Target Behavior:
Situation:

After-Catch: What will character say to him/herself?

During-Catch: What will character say to him/herself?

Before-Catch: What will character say to him/herself?

What is the result?

Brave Soul: Have a group member come tell me this story for my signature_____

Using Reminders and Signals

INSTRUCTIONS: For each target behavior listed below, come up with a way that reminders or signals (pg. 46) can be used:

1. Acting more confident when talking to people

2. Keeping calm while driving

3. Paying attention while studying

Distracting Yourself

INSTRUCTIONS: For each situation listed below, come up with a way to use distraction (pg. 46)

1. Feeling lonely
2. Getting angry at coworkers
3. Fear of flying

Acting "As If"

INSTRUCTIONS: List three situations when it would be helpful to act "as if" (pg.46)

1.

2.

3.

Staying with the What, not the How

INSTRUCTIONS: List three situations when someone would need to concentrate on the "what" rather than the "how" (pg. 47)

1.

2.

3.

Shopping List Time!

INSTRUCTIONS: Write the name of each group member and the two strategies s/he wants to use for his/her self-change:

Ballot Time!

On secret ballots (anonymous pieces of paper), have team members vote on which person in the group did the most work for the team. This person will get an extra-credit point.

Name:

APPENDIX J
Descriptive Statistics for Change Scores

Table 3. Descriptive statistics for treatment and control group change scores on three EI measures

	Treatment	Mean	SD	N
MSCEIT				
Experiencing Emotions	Treatment	.92	14.28	79
	Control	1.60	11.68	74
	Total	1.25	13.05	153
Reasoning Emotions	Treatment	4.89	12.75	79
	Control	-.08	12.15	74
	Total	2.49	12.67	153
EQ-i				
Intrapersonal EQ	Treatment	6.05	10.23	79
	Control	.12	8.55	74
	Total	3.18	9.88	153
Interpersonal EQ	Treatment	2.05	10.74	79
	Control	.68	11.93	74
	Total	1.39	11.31	153
Stress Management EQ	Treatment	2.60	9.14	79
	Control	1.14	9.42	74
	Total	1.90	9.28	153
Adaptability EQ	Treatment	6.54	11.37	79
	Control	-.12	10.21	74
	Total	3.32	11.29	153
General Mood EQ	Treatment	3.49	11.54	79
	Control	-.35	10.25	74
	Total	1.63	11.05	153
ECI (Self)				
Self-Awareness Cluster	Treatment	.17	.44	79
	Control	.02	.39	74
	Total	.10	.42	153
Self-Management Cluster	Treatment	.19	.36	79
	Control	.06	.28	74
	Total	.12	.33	153
Social Awareness Cluster	Treatment	.15	.42	79
	Control	.09	.39	74
	Total	.12	.40	153
Relationship Management Cluster	Treatment	.23	.35	79
	Control	.07	.33	74
	Total	.15	.35	153

Note: MSCEIT and EQ-i scores use a standardized scale (M=100), while ECI scores range from 1 to 5.

APPENDIX K
Descriptive Statistics for Pretest and Posttest Scores

Table 4. Pretest descriptive statistics for subcategories of three EI scales by treatment group.

	Treatment	Mean	SD
MSCEIT			
Experiencing Emotions*	Treatment	99.16	15.33
	Control	93.94	16.42
Reasoning Emotions**	Treatment	93.92	13.11
	Control	83.70	11.40
EQ-i			
Intrapersonal EQ	Treatment	87.97	15.58
	Control	90.25	14.86
Interpersonal EQ	Treatment	95.02	15.11
	Control	94.91	15.90
Stress Management EQ	Treatment	92.22	13.66
	Control	92.82	12.12
Adaptability EQ	Treatment	86.64	13.89
	Control	87.92	12.18
General Mood EQ	Treatment	91.86	13.84
	Control	92.93	13.74
ECI			
Self-Awareness	Treatment	3.74	.46
	Control	3.85	.45
Self-Management	Treatment	3.50	.41
	Control	3.60	.37
Social Awareness	Treatment	3.73	.44
	Control	3.68	.47
Relationship Management	Treatment	3.38	.47
	Control	3.39	.40

n= 193 (treatment=97, control=96)
* Significant difference at p<,05 level
** Significant difference at p<.001 level
Note: MSCEIT and EQ-i scores use a standardized scale (*M*=100), while ECI scores range from 1 to 5.

Table 5. Posttest descriptive statistics for subcategories of three EI scales by treatment group.

		Treatment	Mean	SD
MSCEIT				
	Experiencing Emotions	Treatment	99.84	13.35
		Control	95.68	15.56
	Reasoning Emotions**	Treatment	98.53	15.58
		Control	85.05	14.54
EQ-i				
	Intrapersonal EQ	Treatment	93.38	15.95
		Control	91.99	13.97
	Interpersonal EQ	Treatment	96.64	15.08
		Control	95.65	18.19
	Stress Management EQ	Treatment	94.65	13.43
		Control	94.49	12.53
	Adaptability EQ	Treatment	92.58	14.59
		Control	88.68	14.32
	General Mood EQ	Treatment	94.94	13.87
		Control	93.85	14.80
ECI				
	Self-Awareness	Treatment	3.86	.44
		Control	3.87	.44
	Self-Management	Treatment	3.67	.45
		Control	3.66	.38
	Social Awareness	Treatment	3.84	.44
		Control	3.77	.38
	Relationship Management	Treatment	3.57	.49
		Control	3.45	.43

n=171 (treatment=86, control=85)
** Significant difference at p<.001 level
Note: MSCEIT and EQ-i scores use a standardized scale (*M*=100), while ECI scores range from 1 to 5.

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