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UNIVERSITY OF CALIFORNIA,
IRVINE

The Protective Roles of Social and Emotional Skills
on the Beliefs and Behaviors of Diverse College Students

DISSERTATION

submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Education

by

Jenny J. Woo

Dissertation Committee:
Professor Liane Brouillette, Chair
Professor Susanne Jaeggi
Distinguished Professor Jacquelynne Eccles
Professor Sandra Simpkins

2022

DEDICATION

To

my village = mom, dad, Kevin, Tyler, Kalon, and Khloe

in recognition of their love, patience, and support

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ACKNOWLEDGEMENTS

I would like to express my most profound appreciation to my committee chair, Professor Liane Brouillette. Liane, I still remember the day when you've encouraged me to consider expanding my *52 Essential Conversations* card game to address the unique needs of our racially-diverse college student population. My intervention would not have gotten a chance to come into fruition if it weren't for your whole-hearted support, from sponsoring the program as a course to your ongoing advisement. Thank you for championing my work and advocating for my success! I love our brainstorming conversations, and you have taught me so much about the intersection of art and human development.

I would like to express my gratitude to Dr. Susanne Jaeggi. Susanne, you are one of the most giving and patient professors I know. Thank you for taking me on as a graduate researcher in your lab. I will never forget the weekly EngAge reading discussions you've so thoughtfully curated. You have shown me how to design robust experiments, and modern statistical approaches to evaluating interventions. You are the MacGyver of research for us PhD students. Thank you for your mentorship and recommendations of useful articles, tools, and events.

What a special treat to be advised by one of the most iconic female researchers I know—Dr. Jacquelynne Eccles! Jacque, I would not be where I am in my dissertation without your feedback and "keep it simple" approach. Each time we meet, I am in awe of your genuine humility, curiosity, and self-awareness. Thank you again for taking me on and supporting me through this milestone!

I want to thank Dr. Sandra Simpkins for making my PhD course experience so memorable. Sandi, I have learned so much from your Positive Youth Development and Adolescent Development classes. The readings and discussions from your class have forever imprinted in me the importance of context, development, and strength.

I would like to remember Dr. Carol Connor. Dearest Carol, you were my window into the research world. You took me on as a research assistant in your lab even before I had strongly considered applying to the PhD program. I will forever remember you for your kindness, openness, and big picture thinking.

I also want to acknowledge the mentorship provided by Dr. Jessica Borelli and Dr. Susan Turk Charles. Thank you for championing my work and adopting me as an honorary psychological science student.

I am grateful to be on this journey with my cohort and, along the way, getting to share the struggles and celebrate the triumphs with my fellow PhD mama friends—Undraa and Yenda. A special thank you to Diane Hsieh for making yourself available whenever I have statistics questions. I am also appreciative of Geneva for supporting me through my PhD dilemmas.

I want to thank my research assistants, Zhiwen Jin, Khari Landix, and Christy Tran. It's such a rewarding process to witness your growth each quarter. I also want to acknowledge all the

CURRICULUM VITAE

Jenny J. Woo

EDUCATION

Ph.D. Education: Human Development in Context   **June 2022**
University of California, Irvine
Dissertation: The Protective Role of Emotional Intelligence on the Skills, Beliefs, and Behaviors of Racially-Diverse College Students
Committee Members: Liane Brouillettee, Susanne Jaeggi, Jacquelynne Eccles, Sandra Simpkins

M.Ed. Education: Mind, Brain, and Education   **June 2018**
Harvard Graduate School of Education

MBA University of California at Berkeley   **June 2009**

B.S. Business Administration, Information Systems   **June 2003**
University of Southern California

RESEARCH INTERESTS

Social and emotional learning, emotional intelligence, emotion regulation, coping, resilience

AWARDS AND HONORS

2021   Winner, Tillywig BRAIN CHILD Toy Award
2021   Winner, National Parenting Product Awards (NAPPA)
2021   Brilliant UCI Women
2020   Carol McDonald Connor Memorial Research Fund
2020   Grant Recipient, The President's Research Catalyst Award
2020   Finalist, UCI Grad Slam Competition
2019   Grant Recipient, UC Consortium on the Developmental Science of Adolescence
2019   Grant Recipient, Student Startup Fund, UC Irvine Applied Innovation
2019   Nominee, Orange County Business Journal Women in Business Awards
2019   Finalist, UCI Grad Slam Competition
2018   Winner, Parents' Choice Awards
2018   Finalist, Wayfinder Incubator, UC Irvine Applied Innovation
2018   Finalist, Venture Incubation Program (VIP), Harvard Innovation Labs
2018   Finalist, Dean's Challenge, Making Caring Common at Harvard University
2008   Top 10% "Outstanding Graduate Student Instructor" Award at UC Berkeley
2007   Semifinalist, Apple Case Competition at UC Berkeley
2006   Semifinalist, Stanford Business Case Competition
2003   University Rep, International Case Competition at Copenhagen Business School
2002   University Rep, Global Business Summit at New York University

RESEARCH EXPERIENCE

Graduate Student Researcher   2018 – 2019
EngAge Project, PI: Dr. Susanne Jaeggi
Working Memory & Plasticity Lab, University of California, Irvine
Conduct multifactorial memory and growth mindset intervention studies on ADHD children and 65+ older adults. Provide resources related to building executive functioning to teachers, educators, and parents in the community. Deliver workshops on growth mindset, healthy aging, and neuroplasticity.

IDEAS Impact Framework Research Intern   2018
Frontiers of Innovation, Center on the Developing child, Harvard University
Analyze stakeholder evaluations (researchers, practitioners, funders) of the IDEAS Impact Framework workshops. Provide recommendations on future workshop strategies, content, format, and logistics.

Research Assistant   2017 – 2018
Teaching and Learning Lab, Harvard Graduate School of Education
Designed aspirational metrics of Learner Profile used to personalize a new required course for incoming Ed.M. students. Created deployment pilots and deliver on-campus user workshop with current Ed.M. students.

Research Assistant   2016 – 2017
Assessment to Instruction Project; OLOS Project, PI: Dr. Carol Connor
Individualizing Student Instruction Lab, University of California, Irvine
Code Woodcock-Johnson III test of Cognitive Abilities in FileMaker. Analyze Comprehension Monitoring tests to determine effectiveness of the E-Book intervention for $3^{rd} – 5^{th}$ graders. Code classroom videos using OLOS technology to assess teacher-child interactions, instruction and environment.

TEACHING EXPERIENCE

Graduate Program Certificate Instructor   2021
Graduate Division, University of California at Irvine
• Developed and lectured "Emotional Intelligent in Management" elective course.
• Design and teach the Core and Practicum courses for the graduate-level Management Certificate Program.
• Teach the Emotional Intelligence Graduate Certificate Program to masters and PhD students.

Instructor and Facilitator   2021
UCI Center for Educational Partnership
• Collaborated with the Director of EAOP (Early Academic Outreach Program) to embed Emotional Intelligence research and college readiness support into the "Destination UC" program for incoming Freshmen from CFEP partner schools.

- Delivered weekly "Emotional Intelligence for School & Career Success" learning sessions to students and staff in the EAOP during summer 2021.
- Follow participants of the program to assess retention and postsecondary impact.
- Partner with the Assistant Vice Chancellor to integrate the summer pilot program to help students from partner schools, academic preparation, and summer residential programs transition to UCI successfully.

Workshop Instructor   2019
University of California at Irvine, School of Education
- Facilitated a 7-week course on "Game Design for Education" for Juniors and Seniors.
- Designed interactive self- and peer-discovery activities and field research curriculum.

Teaching Fellow   2018
Teaching and Learning Lab, Harvard Graduate School of Education
- Online facilitator for How People Learn, a foundational graduate-level course on principles of learning and development as shaped by maturation, experience, and ecological factors.
- Led two cohorts of Ed.M. students in discussions; grade student deliverables and provided case feedback individually.

Training Facilitator   2012
Northern Trust, Los Angeles, CA
- Delivered multi-day training and workshops for cohort of high-potential managers. Received high marks on evaluations.
- Sample Modules: Conflict Resolution, Problem Solving, Assertiveness, Influence & Persuasion, Consultative Selling.

Lead Career Coach   2009
University of California, Berkeley, MBA Career Services Office
- Proposed and launched the Student Career Coach program: recruited a team of 2nd year MBA students by job industry, to provide advisement service to fellow students who are switching careers, or need help in crafting job applications.
- Hosted career workshops and online training, conducted one-on-one and group-based mock interviews.

Graduate Student Instructor, MBA Leadership Communication (Core Class)   2008
University of California, Berkeley, Haas School of Business
- Led weekly 3-hour interactive workshop on persuasive speaking and leadership authenticity.
- Provided constructive feedback to students and conducted one-on-one coaching sessions.
- Delivered persuasive speeches in front of 120 MBA students.

Graduate Student Instructor, Undergraduate Principles of Business (Gateway Class) 2008
University of California, Berkeley, Haas School of Business
- Lectured and facilitated discussions for two class sections of ~30 students, graded essays and hosted office hours.

- Modules include: Marketing, Operations, Accounting/Finance, Global Entrepreneurship, and Organizational Behavior.
- Awarded UC Berkeley campus-wide "Outstanding GSI" for top 10% ranked teachers.

Teacher's Assistant, Database Management classes 2003
University of Southern California
Provided project and assignment support in computer lab sections for Undergraduate and Graduate courses.

PROFESSIONAL EXPERIENCE

Founder/CEO, Game Developer 2018 – Present
Mind Brain Parenting
- Develop, test, and marketed *52 Essential Conversations*, *52 Essential Relationships*, 52 Essential Coping Skills, and *52 Essential Critical Thinking Skills.*
- As seen featured by The Harvard Gazette and the homepage of Harvard Graduate Schools in Education.
- Record podcast, 52 Essential Conversations to Inspire Children for Life.
- Used by parents, teachers, psychologists, and pediatricians in 50 states and 50+ countries.
- Conduct focus groups, market research, product development, and go-to-market strategies.

Academic Programs Consultant 2015 – 2016
LePort Schools
- Launched all-inclusive 2-week "U.S. Culture Immersion Camp" sessions, generating over 30% in profit, provided summer income for teachers, and hosted 50+ participants from China, and established partner schools.
- Led camp curriculum design and delivery methods, and managed staff schedules and morale.
- Managed financials: built pro-forma, determined payroll, procured inventory, tracked revenue and expenses.
- Implemented Teacher Exchange Program: interviewed and selected teachers to teach abroad in summer 2015.
- Secured $1.5+ million in direct funding.

Administrative Director 2014 – 2015
Mandarin Immersion Montessori School
- Assisted in the grand opening and daily operations of the first Mandarin immersion Montessori Preschool in Irvine.
- Conducted field research with schools that ran Spanish and/or Mandarin immersion programs (infant through 3rd grade), and created the Language Immersion Montessori toolkit that documented language acquisition best practices and FAQs.
- Spoke at private school fair, symposium panel, open house and outreach events, on behalf of LePort Schools. Conducted admissions interviews and determined placement offers.
- Managed admin staff and assisted in the recruitment of Montessori teachers.
- Managed school systems: CRM, attendance, billing and reporting.

Founder, Lead Designer   2011 - 2015
PropMama
- Partnered with organizations and foundations in executing community charity events (ex: Hunger Network of Greater Cleveland, Michael J. Fox Foundation, Red Cross, Michelle Obama's Let's Move Campaign).
- Guided clients in pinpointing their event vision, and recommended solutions that fit within budget and timeline.
- Conducted market research, negotiated vendor and client contracts, and managed designers and suppliers.
- Created branding and marketing strategies, with work featured in magazines and blogs internationally.

Manager, Talent Strategy & Planning   2009 – 2011
Center for Collaborative Leadership, Cisco Systems
- Conducted qualitative 360 Assessment for global Sr. Directors and VPs.
- Administered quantitative online 360 assessment system for Directors and below.
- Built analytics and metrics to summarize macro-level talent findings and implications.
- Participated in the writing of high-quality assessment summary reports for C-level audience.
- Led annual leadership review cycle for ~500 VPs and SVPs. Liaison to Talent Officers in all departments.
- Managed the business requirement, implementation and training of Learning System.
- Developed quantitative and qualitative scorecards for executive nominations and succession planning.

Manager, Employee Engagement   2008
Cisco Systems
- Analyzed the 45,000+ employee responses from the Annual Cisco Pulse Survey. Summarized employee engagement trends, and identified areas that warranted follow up clarifications.
- Assisted in determining the company's global policy on Flexible Work Practices (on/off ramp, remote work, flex time).

Training Program Manager   2007
Chevron
- Created enterprise-wide training strategy and developed curriculum for seven user groups.
- Collaborated with the leads of Technology/Process/Finance/Data teams that ensured aligned timeline and approach.
- Coordinated with Corporate, Downstream and Upstream organizations to deploy training across the globe. Delivered sessions of "train-the-trainer" and 8-hour classroom training,
- On-boarded and managed a Technical Writer, 3 coordinators and 11 trainers in 3 locations.

Human Capital Consultant   2003 – 2007
Deloitte Consulting LLP
- Specialized in health Care, life sciences, and technology industries.
- Gathered requirements and conducted interviews to assess gaps against business needs.

- Designed storyboard and process flow diagrams for training curriculums for business and system implementations.
- Conducted User Acceptance Testing, developed and delivered one-on-one, classroom and Web-based training (domestically and internationally).
- Monitored team morale and diagnosed stakeholders' resistance to change (experience in Union workplace).
- Managed in-house, client and outsourced development teams in India, and served as liaison across deployment units.
- Managed project workplans, team communications, financials, change logs, and led weekly status meetings.

INVITED PRESENTATIONS

Woo, J.C. (2022, April). *How to Support Children's Emotional and Social Development.* Workshop speaker for 2022 Online Children's Mental Health Symposium. Institute of Child Psychology.

Woo, J.C. (2022, February). *Essential Conversations to Inspire.* Speaker for Mountain Youth at Colorado Mountain College and Gypsum Creek Middle School. Vail, Colorado.

Gillman, S., Poynor, L. & Woo, J.C. (2022, January). *Community Conversation: Social-Emotional Learning & Positive School Climate.* Speaker for JFCS Center for Children and Youth and San Mateo County Office of Education.

McGuire, M., Poynor, L. & Woo, J.C. (2022, January). *Community Conversation: Social-Emotional Learning & Positive School Climate.* Speaker for JFCS Center for Children and Youth and Marin County Office of Education.

Woo, J.C. (2021, October). *The Why and How of Social Emotional Learning.* Selected speaker of the Mindful Parenting and Mental Wellness Conference.

Woo, J.C. (2021, October). *Four Essential Parent-Child Conversations.* Invited webinar speaker of Raising Compassionate Leaders.

Benson, T., Nayani, F., Wheeler, A. & Woo, J.C. (2021, September). *Anti-Racism 101 for Parents.* Panelist for the Harvard Club of Southern California.

Woo, J.C. (2021, September). *Emotional Intelligence for School & Career Success.* Select CEU speaker for the 5th Annual Student Mental Wellness Conference.

Woo, J.C. (2021, May). *Earning Trust, Building Partnerships.* Speaker for 60-min webinar. Federation for Children with Special Needs – MA Statewide Family Engagement Center.

Woo, J.C. (2021, May). *How to Harness Your Emotions for Purpose and Resilience.* Keynote speaker for ASUCI (Associated Students of UCI)'s Reclaim Mental Health Conference.

Woo, J.C. (2021, April). *Supporting College Students' Resilience during COVID-19: an intervention study.* AGS (Associated Graduate Students).

Woo, J.C. (2021, March). *Supporting Students' Sense of Belonging through Social-Emotional Learning.* Selected speaker for 50-min general session at the 2021 NASPA Conference.

Woo, J.C. (2021, March). *Supporting Students' Sense of Belonging through Social-Emotional Learning.* Selected speaker for 60-min general session at the 2021 ACPA Annual Convention.

Woo, J.C. (2020, December). *Supporting Students' Social-Emotional Development.* Speaker for Wish Charter Community Education Night.

Woo, J.C. (2020, September). *Supporting Students' Social-Emotional Learning.* Selected speaker for 60-min general session at the 2021 California Student Mental Wellness Conference.

Woo, J.C. (2020, August). *Seed Grant Presentation.* UC Adolescence Consortium Summer Training Institute.

Woo, J.C. (2020, May). *Supporting Students' Social-Emotional Development.* Speaker for 60-min session in the Extraordinary Kids Summit.

Heitkamp, G., Nguyen, K. & Woo, J.C. (2020, March). *A Conversation on Entrepreneurship.* Panelist. MBA Women in Business. UCI Paul Merage School of Business.

Woo, J.C. (2019, December). *How To Be Self-ish Without Feeling Selfish.* Selected speaker for TEDxCitrusParkWomen. Anaheim, CA.

Woo, J.C. (2019, October). *Supporting Children's Social and Emotional Development.* Invited workshop speaker and facilitator at Culverdale Elementary (IUSD). Irvine, CA.

Woo, J.C. (2019, September). *Essential Conversations*. Invited facilitator and trainer for UC Irvine Campuswide Honors Program Orientation.

Woo, J.C. (2019, August). *Neuroscience Meets SEL.* Invited podcast guest speaker.

Woo, J.C. (2019, August). *Making Social Emotional Learning Adaptive and Accessible*. Poster presentation at UC Adolescence Consortium at UCLA. Los Angeles, CA.

Woo, J.C. (2019, June). *A Game on Life: Making Social and Emotional Learning "Anytime and Anywhere".* Presentation at Games for Engaging Learning Network at Carnegie Mellon University. Pittsburg, PA.

Woo, J.C. (2019, May). *Social Emotional Learning and My Journey.* Guest speaker for UCI Master of Arts in Teaching. Irvine, CA.

Woo, J.C. (2019, May). *Making Social Emotional Learning Adaptive, Affordable, and Accessible.* Poster presentation at Building Partnerships to Improve Education Symposium at UCI. Irvine, CA.

Woo, J.C. (2019, April). *52 Essential Conversations to Inspire People for Life.* Speaker at 2019 Berkeley Haas Alumni Conference. Berkeley, CA.

Woo, J.C. (2019, March). *Successful Parent-Child Relationships.* Workshop for Boys and Girls Club of Laguna Beach. Laguna Beach, CA.

Woo, J.C. (2019, March). *Supporting Children's Social and Emotional Development in Homes and Schools.* Delivered webinar for UCI Department of Continuing Education. Irvine, CA.

Woo, J.C. (2019, February). *52 Essential Relationships*. Session speaker for ANNAPISI (Asian American, Native American, Pacific Islander Serving Institution) Conference at UCI.
Woo, J.C. (2018, December). *Vision, Mission, and Cross-Team Communications*. Facilitator of 1.5-hour All Staff Workshop for UCI Center for Educational Partnership.

Woo, J.C. (2018, December). *52 Essential Relationships.* Invited speaker for 1 Million Cups nonprofit community organization. Irvine, CA. December 2018.

Woo, J.C. (2018, December). *52 Essential Conversations.* Invited speaker for UCI Networked Improvement Community Kickoff. Corona Del Mar, CA.

Woo, J.C. (2018, December). *52 Essential Conversations.* Invited speaker for Mesa Court Bahia Residential Hall. Irvine, CA.

Woo, J.C. (2018, November). *Innovation Incubators for Social Impact*. Presented at Children's Hospital of Orange County's internal Medical Intelligence & Innovation Institute. Orange, CA.

Woo, J.C. (2018, October). *Creating Success in Children's Lives*. Delivered family night workshop for South Pointe Middle School. Walnut, CA.

Woo, J.C. (2018, October). *Social-Emotional Learning: 52 Essential Conversations*. Presented to the Swedish Educator Delegation. Irvine, CA.

Woo, J.C. (2018, August). *Problem Solvers vs. Problem Finders*. Guest on Outside the Education Bubble podcast on iTunes. Toronto, Canada.

Woo, J.C. (2018, June). *52 Essential Conversations to Prepare Children for Life.* Delivered workshop to staff at Center on the Developing Child at Harvard University. Cambridge, CA.

Woo, J.C. (2018, May). *52 Essential Conversations to Get to Know Your Peers.* Facilitated 6th grade advisory at Boston Arts Conservatory Lab. Boston, MA.

Woo, J.C. (2018, April). *52 Essential Conversations*. MIT Media Lab. Cambridge, MA.

Woo, J.C. (2018, March). *How People Learn*. Delivered workshop for master's students at Harvard Graduate School of Education. Cambridge, MA.

Woo, J.C. (2016, January). *Language Immersion Symposium*. Panelist at Orange County Private School Association's Annual Conference. Irvine, CA.

Woo, J.C. (2010, June). *Millennial in Our Midst*. Panelist at FountainBlue's When She Speaks. Milpitas, CA.

Woo, J.C. (2009, November). *What to Expect in Your First Job*. Panelist at San Jose State University. San Jose, CA.

Woo, J.C. Woo, J.C. (2009, November). *Building Your Brand.* Keynote address at Foothill College's Annual Career Management Conference. Los Altos Hills, CA.

Woo, J.C. (2009, October). *Authentic Leadership*. Guest lecturer at San Jose State University Business Honors class. San Jose, CA.

ABSTRACT OF THE DISSERTATION

The Protective Roles of Social and Emotional Skills on the Beliefs and Behaviors of Diverse

College Students

by

Jenny Jianchong Woo

Doctor of Philosophy in Education

University of California, Irvine, 2022

Professor Liane Brouillette, Chair

In today's diverse college student populations, mental health problems are increasingly

prevalent, complex, and unmet. Further exacerbating the matter, the enduring COVID-19

pandemic has uprooted the quintessential college experience with massive psychological and

physical disruptions. Undergraduate students of color are disproportionately impacted by the

influx of pandemic and sociopolitical stressors. This mental health disparity calls for accessible

and culturally adaptive interventions to help students develop greater emotional competence and

resilience. Building on emotional intelligence theory, I designed and delivered an equitable

social and emotional learning program that equips students with the skills, knowledge, and

attitude to adaptively manage their emotions. I used a quasi-experimental design and replicated

the program, *Emotional Intelligence for School and Job Success*, six times across the winter,

spring, and fall quarters in 2020. This enabled me to carry out three studies. In study 1, program

participants showed significantly greater improvement in emotional awareness and acceptance

than students in the control group. Students in the intervention group also reported an increase in

positive emotions experienced in college, despite maintaining similar levels of negative emotions. In study 2, I examined the adaptive roles emotion and emotional competence before and during the COVID-19 pandemic. I demonstrated that positive emotion fully mediated the relationship between emotional intelligence and negative emotion and partially mediated the relationship between self-compassion and negative emotions. I found that, during the pandemic, female students and students with upper-class-standing reported significantly lower college well-being than male students and students with lower-class-standing. In study 3, I assessed the effectiveness of my intervention during the pandemic and found that students in the intervention group demonstrated significant improvements in emotional intelligence and adaptive coping behaviors. These findings suggest that *Emotional Intelligence for School and Job Success* can accessibly and equitably help students build adaptive social and emotional skills, beliefs, and behaviors.

CHAPTER 1

Introduction

Opportunity to support equitable mental health in higher education

Half of all lifetime mental health disorders start by age 14; three-fourths begin by age 24 (Kessler et al., 2005). Since early detection, treatment, and prevention predict better life outcomes, adolescence is a salient period for providing mental health interventions. However, recent studies found that, between 2008 and 2017, suicide increased by as much as 56% among 18-to-25-year-olds (Healy, 2019; Hedegaard et al., 2018). Attempted suicides rose by 87% among 20- and 21-year-olds and 108% among 22- and 23-year-olds. Today's college students reported the highest stress and anxiety levels compared to any prior generation (Twenge et al., 2019; American Psychological Association, 2015). This deteriorating trend demands more mental health services beyond late teens. Postsecondary education has become increasingly accessible and ubiquitous; close to 70% of U.S. high school graduates enrolled in college in 2018 (Hussar et al., 2020). From a public health standpoint, colleges provide a unique opportunity for supporting pre-matriculation onsets, relapses, and prevention measures during this critical time (Auerbach et al., 2016).

Compared to white peers, students of color are disproportionately impacted by depression, anxiety, and stress; many are first-generation college students who must navigate their way through an unfamiliar campus culture (Chirikov et al., 2020). A mounting number of studies point to factors such as adverse childhood events, acculturation, discrimination, and a lack of academic and emotional readiness (Alexander et al., 2021; Chan et al., 2019; Satcher, 2001). Prone to associating mental illness with stigma and not perceiving a need for mental wellness support, most underrepresented students responded to their psychosocial challenges

with emotional avoidance, or, at best, seeking informal support through friends or family (Lipson et al., 2018). A lack of intrapersonal and interpersonal skills can also keep students from gaining an accurate assessment and awareness of their mental health and well-being needs. The Center for Collegiate Mental Health has reported alarmingly low campus mental health service utilization by student populations of color (CCMH, 2019). These statistics illustrate a harsh reality in higher education: the students who need the most support receive the least support. This mental health disparity calls for culturally responsive and accessible interventions to educate, equip and empower *all* students for mental health and well-being.

Social and emotional development in emerging adulthood

Emerging adulthood is a distinct period that lasts from late teens through the 20s and marks the transition from adolescence to adulthood (Arnett, 2014). When newly-minted emerging adults embark on their journey as college students, they are met with abrupt disruptions in their everyday support structures. They must also establish a sense of self and social support within a broader network of academic, social, and institutional systems (Hoffman et al., 2002). During this period of increased independence, emerging adults grapple with their narratives about and expectations of the "normal" that has been shaped by their sociocultural upbringing (Chan et al., 2019).

The escalating pressures of new responsibilities do not stop after the freshman year. As they move beyond general education classes, freshman support, and parent monitoring, students are expected to cope with uncertainties and make responsible decisions on their own, while preparing for the impending transition into the workforce (Conley, 2015). The state of their mental health and well-being is frequently tested with new setbacks—as when a major does not work out, living arrangements change, financial obligations grow, and relationship woes arise.

Students who are not prepared to cope adaptively with these stressors are at a greater risk of dropping out of college.

Advances in brain development suggest a second critical period of dynamic cortical pruning of white and gray matter that occurs from age 13 to 25—an age much later than once believed (Chung & Hudziak, 2017). From a neurobiological perspective, emerging adulthood is still a period of profound development for key regions of the brain: the nucleus accumbens, amygdala, and prefrontal cortices. The last to functionally mature is the prefrontal cortex, which plays a crucial role in executive functioning that is involved in emotional regulation, judgment, and cognitive flexibility. Thus, seen through a developmental lens, college mental health services must provide "anticipatory guidance" in the forms of supportive relationships and skills-building programming (Chan et al., 2019).

Higher education and retention studies highlight the importance of equipping students with social-emotional skills and attitudes for college and life success (Savitz-Romer et al., 2015; Schutte & Malouff, 2002). Moreover, emerging research has found that college students today, on average, show a significant decline in their ability to perceive, express, and regulate emotions (Khan et al., 2021). Recent and abundant empirical findings in grade school students show a positive association between social-emotional skills-based interventions and improved academic, social, and psychological health (Taylor et al., 2017; Durlak et al., 2011). However, there is little research on the utility of such interventions on college students' psychological well-being.

Impacts of the COVID-19 pandemic

On March 11, 2020, the World Health Organization declared COVID-19 a global pandemic. Shortly after, higher education institutions across the country abruptly suspended in-person classes and either evacuated or reduced residential housing for the rest of the academic

year. The combined emotional tolls from the outbreak and the loss of control due to lockdown measures have dramatically increased college students' mental health disorders. During June 2020, 18- to 24-year-olds reported the highest levels of elevated adverse mental health conditions, substance use, and suicidal ideation among U.S. adults (Czeisler et al., 2020). Notably, the intersection of the pandemic and events related to racial injustice and discrimination greatly impacted the same student minority groups that have traditionally experienced greater levels of mental health stigma.

A survey conducted jointly at 14 college campuses from late March through May 2020 reported that students experienced a higher rate of depression (40.9%) than in Fall 2019 (35.7%; Healthy Minds Network, 2020). Another survey administered from May to July at nine large, public research universities yielded responses from 30,725 undergraduates and found that 35% of the students screened positive for major depressive disorder and 39% for generalized anxiety disorder (Chirikov et al., 2020). First-generation students, students of color, and female undergraduates were disproportionately impacted by mental health issues. The American Council on Education reported that 53% of nearly 300 college presidents listed student mental health as the most pressing issue among their COVID-19-related concerns for the 2020-21 academic year (Turk et al., 2020). The most pressing issue for presidents of public and private four-year institutions was "mental health of students" (61%, 51%, respectively).

Moving beyond the traditional model of care

University Counseling Centers (UCC) serve as the designated source of mental health support for college students (Coleman et al., 2019). The recommended ratio for counseling center staff to enrolled students is one full-time staff member for every 1000 to 1500 students, adjusted from 1:1750 in 1980 (Center for Collegiate Mental Health, 2019). The recommended

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ratio assumes a constant level of utilization across institutions and in 2018, this was equivalent to serving, on average, 11.8% of an institution's student body. However, postsecondary institutions are confronted with two glaring problems: 1) the reality vs. the "aspiration" counselor-to-student ratio, due to budget constraints, and 2) the utilization rates for mental health services at college counseling centers have been on a steeper rise. For example, in 2018, there were approximately 2500 students for every counselor in the California State University system, and 7000 per counselor in the California Community Colleges (California Faculty Association, 2018).

Nationwide, between fall 2009 and spring 2015, UCC utilization increased by an average of 30-40% even though university enrollment only increased by 5% (Center for Collegiate Mental Health, 2019). In 2019, just six months before the COVID-19 outbreak, nearly 90% of UCC Directors at 562 college counseling centers reported a continual increase in demand for counseling services in the 2018-2019 academic year (LeViness et al., 2019). At capacity, 562 UCCs served on average 13.3% of the study body at their institutions in 2019.

The actual demand reported by the general student population suggests an even higher proportion of unmet mental health needs. Both internationally (in eight countries) and within the United States, college student surveys confirm a trend of roughly 1 out of 3 students screening positive for a mental health disorder (Eisenberg & Lipson, 2019; Auerbach et al., 2018). UCC systems strain to meet student and university needs due to personnel issues. Although gaining on average 0.5 staff positions per center per year, 43.5% of centers experienced staff turnover in 2019, citing low salaries and center work conditions as primary reasons (LeViness et al., 2019). To manage the increase in demand, 45% of UCCs reported triaging clients based on urgency; 38.1% of UCCs reported referring more clients off-campus for services, and 30.8% reported reducing outreach offerings.

The counseling center approach is increasingly labeled as a siloed and rigid approach to providing mental health care for college students (Holmes et al., 2018). Even in the most optimal scenario—readily available tele-counseling during the COVID-19 pandemic—a university in the Midwest U.S. found that 93% of the students who had experienced an increase in stress and anxiety opted not to use the counseling services. The survey found that students perceived the symptoms as not being severe enough to seek services, lacked trust in counseling services, or experienced discomfort in discussing mental health issues (Son et al., 2020).

The COVID-19 pandemic has compounded the urgency for colleges to think creatively about scaling up accessible mental health support for students. Public health experts urge institutions to approach student well-being as "everyone's responsibility" by establishing integrated and comprehensive support that promotes a culture of health, wellness, and prevention. On the same note, the Student Experience in the Research University (SERU) Consortium urged colleges and universities to consider improving students' psychological well-being with "academic program-based interventions and services" (Chirikov et al., 2020, p. 9).

A cognitive-affective-behavioral model of care

The Transactional Model of Stress and Coping posits the "confluence and organic unity" of person and environment (Lazarus & Folkman, 1987, p. 143). The same is echoed in Bandura's Social Cognitive Theory on cultural context, which "adopts an agentic perspective to human development, adaption, and change" (Bandura, 2002, p. 269). Extending these theoretical processes in the coping and development literature, I propose a cognitive-affective-behavioral model of care for supporting the well-being of the college student population today. Mental health programming and support must be integrated into academic and social contexts to support college students' diverse and dispersed needs in an accessible manner.

The bidirectional relationship between emotion and cognition enables us to appraise how we feel in the context of our belief systems about goals and stakes (Moors et al., 2013; Lazarus, 1991). These cognitive and affective processes then influence our behavioral responses related to how we cope (Pachankis, 2007; Smollan, 2006). From a developmental science perspective, emotional development precedes cognitive abilities such as executive functioning in children and young people (Greenberg, 2006). It is the dynamic integration and maturation of affect, cognitive, and behaviors that give rise to personal effectiveness and social mastery. This interrelated and iterative process of learning and adaptation shapes the outcomes of our subjective well-being and social functioning (Lazarus & Folkman, 1987). Smollan (2006) proposes that these cognitive, affective, and behavioral responses are moderated by person-oriented factors such as emotional intelligence and environment-oriented factors such as culture and context. Based on this line of thought, I propose that higher education must consider helping students develop the essential social and emotional skills to adaptively perceive, manage, and utilize emotions in response to the demands of their environment.

Goals of the Dissertation

The primary goal of this dissertation is to advance the research on and the application of equitable mental health education interventions for racially-diverse college students. I investigate whether social and emotional learning can help students build adaptive beliefs and behaviors that lead to better mental health and college well-being. I also aim to advance the conceptual understanding of the roles of positive emotion during distress. I employ experimental and observational designs replicated and scaled across three academic terms before and during COVID-19 to provide a robust assessment of an accessible and culturally adaptive intervention.

Overview of the Chapters

Chapter 2. The development of *Emotional Intelligence for School and Job Success*

      This chapter describes the iterative process of designing, piloting and refining my six-week emotional intelligence program, *Emotional Intelligence for School and Job Success*. I explain the rationale for my program goals and structure, emphasizing my aim to cultivate a safe and brave learning space for students. Specifically, I outline the culturally sensitive elements of my psychosocial intervention as guided by Bernal's (1995)'s Ecological Validity framework. I also provide examples of my pedagogical approach inspired by Duckworth (1986). Moreover, I elaborate on the social and emotional learning framework that informed the topics of my curriculum sessions. Finally, I share my research, explaining why peer support buddies, reflective assignments, and game-play activities are integral components of the program.

Chapter 3. From Avoidance to Awareness: The impact of a social and emotional learning program on undergraduate students of color

      Asian/Pacific Islander and Latinx students are disproportionately impacted by mental health problems. Prone to the stigma of mental illness and a lack of perceived need for mental wellness, these student populations were more likely to employ emotional avoidance than help-seeking behaviors. In this chapter, I investigate the effects of the *Emotional Intelligence for School and Job Success* program on emotional intelligence, beliefs about the acceptability of negative emotional experiences and expressions, and college well-being of racially-diverse students (N = 267, over 80% non-white). I replicate a quasi-experimental design six times across three quarters and conduct intervention evaluation using repeated-measures analysis of variance. Students in the experimental group showed significant improvements in their emotional competencies and a substantial reduction in their maladaptive beliefs about negative emotions than students in the control group. Moreover, I reveal a pattern of independent variability—or a

lack of bipolarity—of positive and negative emotions in the intervention group at post-test. Students reported an increase in positive emotions experienced in college, despite maintaining similar levels of negative emotions.

Chapter 4. An examination of emotional intelligence and self-compassion as protective factors of undergraduates' well-being before and during COVID-19

The undergraduate college experience has been severely disrupted by both the COVID-19 pandemic and the abrupt wholesale measures that institutions have taken to slow the transmission of the virus. A flood of studies has documented an array of negative emotions experienced by college students; whereas, studies that investigate the cultivation of positive emotions during prolonged stress, as well as its adaptive value in resilience, are sparse. The observational study in this chapter extends my previous study by examining the role of positive emotion in explaining the mechanisms that underlie the protective utility of emotional intelligence and self-compassion. In addition, I assess between-group and between-cohort differences in these variables of interest before and during COVID-19. Female students and students with upper-class-standing reported significantly lower college well-being than male and lower-class-standing students. Positive emotion fully mediated the relationship between emotional intelligence and negative emotion, but less during the pandemic. Both positive and negative emotions partially explain the mechanism underlying self-compassion. I discuss how emotional intelligence and self-compassion are associated with college students' emotionality and how the relationship differed before and during the pandemic.

Chapter 5. Coping behaviors during COVID-19: The impact of an online emotional intelligence intervention on college students

In this study, I expand on the findings discussed in the previous two chapters. I evaluate

whether the intervention participants' improvements in adaptive beliefs about emotions found in chapter 3 paralleled with improved socioemotional skills, coping behaviors, and psychological distress during COVID-19. Participation in the SEL program was associated with significant improvements in students' emotional intelligence and adaptive coping behaviors. Specifically, students in the intervention group improved substantially in problem-focused and socially-supported behaviors; avoidance-based and self-blame behaviors were noticeably reduced. However, the intervention and control groups did not show noticeable differences in their changes in emotion-focused coping and psychological distress during COVID-19. The present study demonstrates the timely utility of a skills-building online intervention that was delivered accessibly to help students develop healthy emotion regulation and coping skills that are beneficial in dealing with enduring and profound stressful circumstances such as the COVID-19 pandemic. Longitudinal studies are warranted to assess whether the EI intervention could contribute to students' long-term outcomes related to resilience and posttraumatic growth.

Chapter 6. Final Reflections and Future Directions

The final chapter summarizes the findings from my intervention and observational studies. In particular, I highlight their implications for theory and application. Specifically, my studies demonstrate the promising utility of a developmentally-focused emotional intelligence intervention as an accessible and equitable mental health prevention program for higher education. I conclude with suggestions for future direction.

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CHAPTER 2

The development of *Emotional Intelligence for School and Job Success*

From pilot to program

Emotional Intelligence for College and Job Success is a six-week experiential workshop-style program designed for undergraduates of any class standing and major. The program was delivered as a 2-unit elective course in the winter, spring, and fall academic quarters of 2020. A total of 129 students spanning across all class standings and almost all academic schools at the University of California-Irvine participated in the program. The 2020 program was based on the pilot curriculum that I had designed and delivered in the spring and fall of 2019.

The pilot consisted of seven weekly 60-minute sessions delivered to a focus group of seven undergraduates in spring 2019 and to fourteen undergraduates in fall 2019. The first pilot group experienced the course content and exercises, and provided feedback in terms of the structure, content, and delivery format of the program. Two key feedbacks were around 1) allocating more time toward practicing the skills learned in the curriculum each week, and 2) integrating more game-based activities to cultivate peer-based learning. The second pilot then focused on expanding and testing culturally adaptive game-based activities that resonated with undergraduates' needs and challenges. As a result, the final program, *Emotional Intelligence for College and Job Success*, became 80-minute-long sessions delivered over six consecutive weeks. Each session included a cooperative game-oriented activity that enabled students to readily apply the knowledge and skills discussed in the lecture. I served as the main instructor of the program. Two undergraduate students from the second pilot program stayed on and served as my peer assistants (PAs) for the finalized program for all three quarters in 2020.

Program goals and norms

The learning goals of *Emotional Intelligence for College and Job Success* were:

1) To gain an understanding of what Emotional Intelligence is and why it's important.

2) To describe the role of emotion as revealed by neuroscience and psychology.

3) To build self-awareness and responsible decision-making skills.

4) To learn how to develop authentic relationships with yourself and with others.

5) To practice productive ways to cope with stress and burnout.

6) To understand how to stand out in college and in the workplace.

At the beginning of the first session, I prioritized the cultivation of a safe and brave learning space by emphasizing open and respectful exchanges as classroom norms. Throughout the program, my PAs and I also role modeled vulnerability by sharing personal experiences and stories related to the topic of discussion. This self-disclosure technique was instrumental in establishing a supportive tone for the class and encouraged students to see us as approachable and trustworthy facilitators.

Although I shared the scientific findings related to emotion (program goals #1 and 2), I was careful to not take on a binary "right/wrong" stance on how students should think and what they should do when situating emotional intelligence in their personal needs (program goals #3 – 5). Instead of teaching and telling students what to do, I focused my efforts in learning about how students perceived emotions and the process in which their attitudes about the utility of emotions unfold (Duckworth, 1986). In turn, my goal was to make my learning process visible to help students learn about themselves and their peers through open inquiries, discussions, and nonjudgmental personal sharing.

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The design and delivery of the program were guided by Bernal (1995)'s Ecological

Validity framework for achieving cultural sensitivity in psychosocial treatment. The framework

includes eight major dimensions to consider in a treatment intervention. Although the overall

framework was proposed for clinical research interventions with a Hispanic population, its

guiding principles provided the basis of an equitable learning experience for my intervention.

Table 2.1 outlines the culturally sensitive elements that I incorporated to ensure that my program

is culturally responsive.

Table 2.1
Ecological validity framework for cultural sensitivity

Intervention	Culturally sensitive elements
1. Language	Ensure that academic and colloquial terms can be understood by English as second language speakers. Language and terms need to be culturally appropriate, generationally-relevant and relatable
2. Persons	Be mindful of the role of ethnic/racial similarities and differences between the facilitator and students in shaping teaching and learning dynamics. Be alert in terms of the differences in students' needs and comfort levels in sharing. Establish an equitable sharing community and culture
3. Metaphors	Ensure culturally relevant examples, symbols, and activities in content, discussions, and reflective assignments
4. Content	Respect the uniqueness of student's upbringing and lens (cultural, social, economic, historical, political). Address and broaden perspectives without dictating what is "mainstream"
5. Concepts	Ensure that treatment concepts take into account culture and context, such as collectivism and independence
6. Goals	Develop adaptive assignments that support and encourage students' unique needs, values, and goals. Do not assume that all will progress similarly
7. Methods	Focus on continuous improvement in delivery and facilitation. Ask for student feedback after each session using closed and open-ended survey questions. At the beginning of each session, summarize and address feedback from the previous session
8. Context	Incorporate and draw parallels to a variety of contexts that tie the topics to students' academic, social, and cultural contexts. Use context to activate students' prior knowledge and encourage students to leverage their cultural capital

Curriculum

The program was conceptualized and organized systematically within the Social Emotional Learning (SEL) model as defined by Collaborative for Academic, Social, and Emotional Learning (CASEL). The SEL model is theoretically grounded in the theory of Emotional Intelligence. The SEL model consists of five core competencies: *self-awareness, self-management, social awareness, relationship skills,* and *responsible decision-making* (see supplementary Figure 1 in Appendix A). The list highlights the SEL skills that support college students' success (Conley, 2015):

- *Self-awareness*: Accurately recognizing one's thoughts and emotions, and their influence on behaviors; accurately assessing one's strengths and limitations; possessing a well-grounded sense of self-esteem, self-efficacy, self-confidence, perceived control, and optimism.

- *Self-management*: Effectively regulating one's thoughts, emotions, and behaviors; managing stress; savoring emotional well-being; successfully engaging in skills such as coping, problem-solving, mindfulness, relaxation, and positive and productive thinking.

- *Social awareness*: Identifying appropriate social resources and supports; displaying accurate perspective taking, respect for others, and empathy.

- *Relationship skills*: Establishing and maintaining healthy relationships; seeking and providing help when needed; communicating effectively; negotiating conflict constructively; solving interpersonal problems.

- *Responsible decision making*: Making constructive, responsible, and ethical choices that promote self and other well-being; effectively managing goals, time, and tasks.

In practice, these intrapersonal and interpersonal skills work together in students' everyday functioning. Adopting the SEL model, I developed the program to 1) expose students to evidence-based social-emotional competencies; 2) help students identify and prioritize the SEL skills important for their well-being; and 3) encourage students to practice and apply those skills in the context of their academic, social, and job activities.

Program Structure
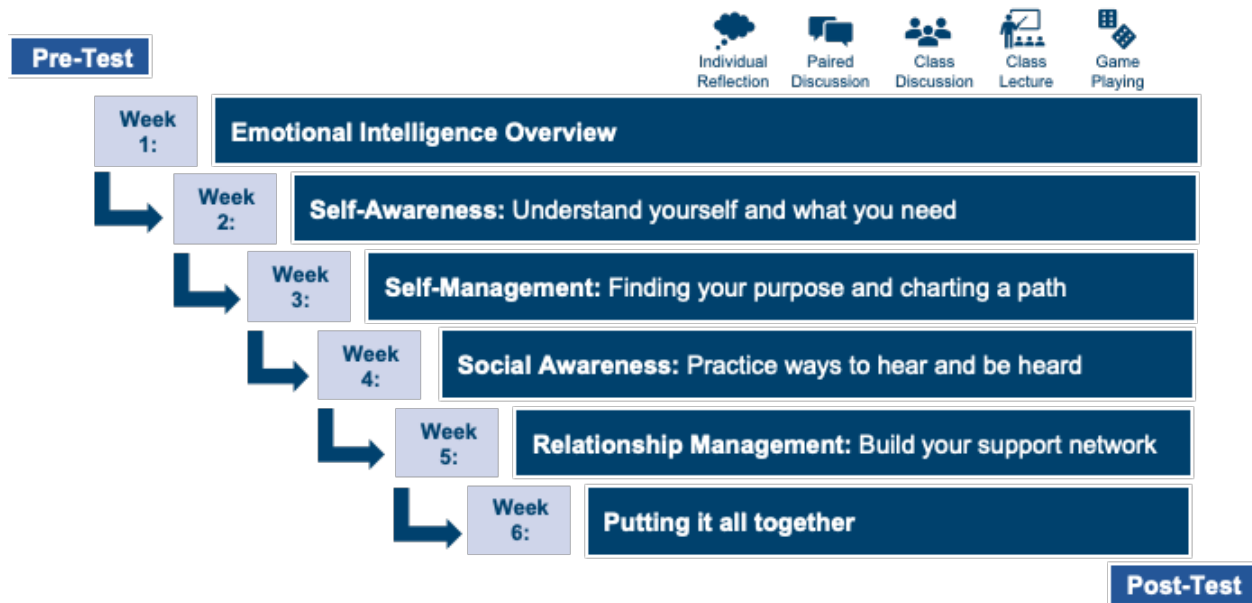
Figure 2.1. Program structure: Emotional Intelligence for School and Job success.

The first week of the class provided an overview of emotional intelligence and the science behind emotions. Then, subsequent weeks focused on specific competencies in the SEL model. The last week of class culminated into a real-world examination of all of the SEL competencies through guest speakers. During this class, one to two guest speakers shared the role of SEL in their personal and professional journey and responded to student questions. Guest speakers varied for each *Emotional Intelligence for College and Job Success* offering because they were based on the desired industry and/or career path of the students in a particular class. Examples of speakers include a Chief Commercial Officer of an Artificial Intelligence company,

an Academic Director at an independent school, a UX Content Strategist at Google, and an Elementary Counselor of a T itle I public school.

Peer support buddies

During the first week, students learned about each other through self-introductory posts on the discussion board. Students were asked to share their major, class standing, hobbies, and a picture of something meaningful to them. In addition, students provided their professional aspirations and personal interests in the online pre-test questionnaire prior to the start of the first class. Referring to this information, I assigned each student to a *support buddy team*, which consisted of a total of four students. The goal of the *support buddy team* was to 1) expose students to peers with different majors and backgrounds, and 2) connect students with peers who shared their ideal job industry/role and/or personal interests. Students met with their support buddies at the end of the first class and participated in activities and discussions as a team in the weeks following.

Social support facilitates a person's adjustment and psychological well-being (Dunkely, Blankstein, Halsall, Williams, & Winkworth, 2000). Peer support, in particular, has been widely recognized as a hallmark of adolescent development (Brown & Larson, 2009). Furthermore, empirical evidence demonstrates that social disclosure, especially of positive emotional content, plays a contributing role in well-being (Pennebaker & Francis, 1996). Humans' propensity to contribute to other individuals and groups is also particularly prominent when young people become more capable and resourceful in providing support (Fuligni, 2019). Contributing to others generally predicted a sense of purpose stronger than other known activities (Ryan, Huta, & Deci, 2013). In turn, this quality of peer relationships could serve as a strong influence in the development and validation of self-efficacy—an intrapersonal competency that relates to one's

perceived ability to accomplish a goal or succeed in specific situations (Bandura, 1997). Notable research has found positive connections between self-efficacy beliefs, academic outcome, and college persistence (Multon, Brown, & Lent, 1991; Wigfield et al., 2015).

Reflective assignments

The program did not have midterms or finals. Instead of assigning readings as homework, the program required students to engage in weekly self-reflective writing and multimedia assignments, as well as interpersonal practice exercises during the latter part of the program. Weekly assignments focused on helping students to 1) reflect upon the SEL competency discussed that week in their personal contexts of the past, present, and future; 2) apply the skills related to the SEL competency in their present setting(s) of choice, often with family, friends, and coworkers. Reflective questions were developed using a strength-based approach that emphasized the student's agency (Lopez & Louis, 2009). Some assignments included evidence-based exercises rooted in positive psychology and other assignments included self-discovery assessments such as the Big Five personality. These assignments can take between 1 to 3 hours to complete, depending on how deeply students were willing to reflect and practice a particular SEL competency. Several students commented on being surprised about how much "work" the assignments demanded, despite no requirements for reading or studying for tests. They were not accustomed to assignments where *they* were the subject in question and that there were no "right" or "wrong" answers.

Game-Play Activities

Peer-based games play a central role in the *Emotional Intelligence for College and Job Success* program. I designed the game activities as non-threatening yet intensive exercises where students can practice and observe their own and their peers' skills and perspectives related to the

SEL competencies. The activities utilized artistic, dialogic, and kinesiologic techniques to help students express and witness SEL in action. For example, students practiced recognizing and labeling their emotions using visual arts during the session on *self-awareness*. Students were asked to identify an emotion that they would like to improve and to describe this emotion as if it were a landscape, a type of weather, a piece of music, and an object. In the following class, students engaged in a "gallery walk", where they tried guessing their peers' emotions through these visual and auditory representations. In the session on *social awareness*, students worked in teams to sell strange fictional products (i.e. hotdog lipstick, eatable shampoo) to their peers, who represented different buyer personalities (ex: analytical thinker, big picture thinker).

52 Essential Card Series

During the latter part of each session, students engaged in both self-reflective and social interactions using *52 Essential Card Series*, which consists of a set of three SEL card games (*52 Essential Conversations, 52 Essential Relationships, 52 Essential Coping Skills*) that includes prompts and exercises aligned with the theoretically-grounded SEL model. *52 Essential Series* cards were utilized to 1) set a fun and nonthreatening tone through the spirit of play, 2) maintain an element of spontaneity and surprise, 3) encourage students to share on different levels.

52 Essential Conversations is a CASEL-aligned and -approved SEL card game designed for ages 5 to adult (CASEL, 2019). It consists of fifty-two cards with socioemotional topics that are categorized according to the five competencies in the SEL framework. Each card includes an SEL topic and conversational prompts—kernels of practice—to help students practice skills related to that topic (Embry & Biglan, 2008; Jones, Bailey, Brush & Kahn, 2017). The prompts encourage students to engage with each other through gamified role-playing, personal storytelling, and perspective-taking. *The 52 Essential Coping Skills* cards were used during the

session on *self-management* to practice adaptive coping strategies. Students used *52 Essential Relationship Skills* cards with their peers, friends, and family during class and as an assignment for the week on *relationship skills*.

Underlying principles for learning about emotion

Metacognition is defined categorically as a set of higher-order thinking skills where one reflects on, monitors, or regulates one's own thinking (Kuhn, 2000). Kuhn (2000) proposes that metacognition—"knowing about knowing"—can be divided into *meta-strategic knowing*, which refers to procedural knowing, and *metacognitive knowing*, which refers to declarative knowing. On the other hand, Schraw (1998) specified two types of metacognition: *knowledge of cognition* and *regulation of cognition*. Although the field of metacognition includes several frameworks with different categoric terminologies, the distinction of this multidimensional (or multi-level) construct largely mirrors the types and ways in which meta-knowledge is stored and applied.

Knowledge of cognition refers to what people know about their own cognition, which includes declarative, procedural, and conditional knowledge. Declarative knowledge is similar to Kuhn (2000)'s *metacognitive knowing*, which refers to knowledge about oneself as a learner and one's strength or limitations. Procedural knowledge refers to knowing how to do something by tapping into a personal repertoire of strategies, and conditional knowledge refers to knowing why and when to deploy declarative and procedural knowledge based on situation demands. This suggests that Kuhn (2000)'s *metacognitive knowing* refers to procedural and conditional knowing. However, Schraw also made an explicit distinction of "knowing about knowing and knowing" using *regulation of cognition*, which refers to the continuous improvement of activities that support the way in which the learner learns and applies their *knowledge of cognition.*

Borrowing from the theory of metacognition, metaemotion is described as the reflexivity of emotions (Mendonça, 2013). A domain much less researched, metaemotion is generally described as "the emotion that we have about an emotion." The higher-order emotion that we experience in reflection of the first-order emotion can be the same or different. For example, we could feel happy about feeling happy or feel ashamed for feeling hurt. Similar to metacognition, the deliberate act of reflection marks the presence of metaemotion, which could be as simple as: "I like this feeling." The general classification of metaemotions parallels with metacognition. *Metaemotional knowledge* (*knowledge of emotions)* is similar to *metacognitive knowledge* (or *knowledge of cognition)*, which entails what people know about their emotions (Norman & Furnes, 2014). *Metaemotional strategy* is similar to Schraw (1998)'s concept of *Regulation of Cognition*, which entails emotional self-regulation as an attempt to change the emotion itself.

In the context of this program, the *self-awareness* module aims to equip students with foundational skills in *knowledge of emotions*, or *metacognitive knowing* of one's emotions. The key focus of the program centers on building *metaemotional strategies* by helping students to reflect, monitor, and plan for how they interpret and respond to emotional stimuli in their everyday contexts. The *social awareness* and *relationship skills* modules help students to apply their *metacognitive knowing* skills in their personal relationships and situations. The *self-management* module empowers students to reflect, evaluate, and broaden their repertoire of *metaemotional strategies* in responding to the demands and stressors of their lives. This is similar to the *regulation of cognition*. The aim of my program is to employ a community- and inquiry-based learning approach that gives students the front row seats to witness their own and their peers' process of understanding in action.

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CHAPTER 3

From Avoidance to Awareness:

The impact of a social and emotional learning program on undergraduate students of color

College students today reported higher levels of stress and anxiety than any prior generation (Twenge et al., 2019; American Psychological Association, 2015). Along with the growth of an increasingly diverse student population, mental health needs in higher education are also becoming exponentially more nuanced and unmet. Nearly 50% of the 19 million undergraduates enrolled nationwide are students of color (National Center for Education Statistics, 2021; RTI International, 2019). The two fastest-growing populations in the United States, Asian and Latinx students—many of whom are also striving to be the first in their families to attain a bachelor's degree—contributed to much of this growth between 2011 and 2020 (National Center for Education Statistics, 2021; Budiman & Ruiz, 2021). Nationwide, students of color and first-generation students are screened for more mental health disorders than white and continuing-generation students (Chirikov et al., 2020; Soria et al., 2020).

Empirical findings in K-12 schools suggest that schoolwide social and emotional learning programs can improve young people's mental health, social relationships, and academic performance (Durlak et al., 2011, Tayer et al., 2017, p. 1156). However, little has been done to investigate whether a developmentally-focused emotional intelligence intervention can help racially diverse undergraduates to overcome mental health barriers and improve well-being. In this study, I investigated the effects of a culturally adaptive skills-building intervention on undergraduates' emotional intelligence, beliefs about emotion, and college well-being. By replicating the intervention across three academic terms and encompassing students across

various class standings and majors, I examined the utility of the intervention as a scalable and accessible mental health prevention program.

Barriers to Mental Health Support

Despite the greater prevalence of mental health problems, students of color and first-generation students sought help from campus counseling services substantially less often than white and continuing-generation peers (Center for Collegiate Mental Health, 2019). Although representing 56% of undergraduates nationwide, first-generation students accounted for only 22.6% of the actual appointment-based mental health services on campus (RTI International, 2019). Asian, Black, and Latinx students each accounted for less than 10% of the total utilization of counseling centers across 163 colleges and universities. Consequently, the Healthy Mind Study found that roughly 80%, 75%, and 70% of mental health cases remain untreated in Asian, Black, and Latinx student populations, respectively (Lipson et al., 2018).

Maladaptive attitudes toward mental health and low emotional competence were found to be significant predictors of help-seeking and avoidance behaviors in college students (Lipson et al., 2018; Ciarrochi et al., 2003). People are socialized with a set of sociocultural-infused judgments about the acceptability of emotions, which in turn shape their beliefs and dispositions toward their emotional experiences (Saarni, 1999; Rimes & Chalder, 2010). In one of the most comprehensive nationwide sampling surveys, 54% of college students on average believed that "most people would think less of someone who has received mental health treatment" (Lipson et al., 2018). This already-dominant belief was even more pervasive among students of color populations (63% Black, 61% Latinx, 59% Asian). In the same Healthy Minds Study, students of color revealed that instead of utilizing appointment-based services, they preferred to deal with

issues on their own, which often meant doing nothing, or at best, though nonclinical social support.

Personal stigma refers to a person's own beliefs about mental illness (Corrigan, 2004). Notably, personal stigma is significantly associated with a lower likelihood of receiving professional help *and* nonclinical support, such as seeking help from peers, friends, and family. The Healthy Mind Study found that Asian students espoused the highest mean level of personal stigma *and* affirmed that they were least likely to seek help from friends and family (Lipson et al., 2018). Latinx students had the second-highest mean level of personal stigma—about twice as high as black students. However, among students of color populations, Latinx were most likely to seek treatment through friends and family. Male students in Asian and Latinx college populations showed more reluctance in seeking help from professional and informal sources than female students; this gender difference was less differentiated in black students.

Low emotional competence—the ability to identify, describe, and manage emotions— was associated with lower intentions to seek help (Ciarrochi et al., 2003). Controlling for gender, hopelessness, and the amount or quality of social support available, adolescents who scored low on emotional competence exhibited the highest intention to seek help from no one. Evidence suggested that Asian American college students' perceived interpersonal skills, specifically in their ability to manage others' emotions, predicted how much they sought interpersonal help (Lei & Pellitteri, 2017). Poor intrapersonal competence can also deter the accurate assessment and awareness of one's mental health needs. Thus, it is not surprising that students' perceived need for mental services was found to reliably predict help-seeking behaviors (Lipson et al., 2018). In addition to exhibiting the highest level of personal stigma, Asian students also have the lowest level of perceived need—further jeopardizing their likelihood for treatment and prevention.

Emerging research found that undergraduates' tendency to avoid and suppress negative emotions moderated the relationship between stigma and help-seeking intentions (Brenner et al., 2020). Notably, the direct relationship between stigma and help-seeking intentions was nonsignificant and weaker in students who approached their unpleasant emotions with a stance of awareness and acceptance. This important finding suggests "the possibility of increasing intentions to seek help *despite* the stigma" through interventions that increase students' openness to negative emotions (Brenner et al., 2020, p. 136). Thus, to break free of the cycle of maladaptive attitude toward emotions, low emotional awareness, and high emotional avoidance, efforts in stigma reduction must incorporate education on emotional awareness, emotional acceptance, and emotion regulation. Leading mental health researchers propose "the development of culturally relevant intervention and prevention programs" as promising future directions for research (Hingwe, 2021; Yang et al., 2020; Lipson et al., 2018, p. 353; Downs et al., 2018; Conley et al., 2015). To date, this multicultural approach to universal mental health support remains understudied in the college population of students of color.

Emotional intelligence and mental health

Emotional intelligence (EI) refers to "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and use this information to guide one's thinking and actions" (Salovey & Mayer, 1990, p. 189). EI enables an individual to accurately recognize, appraise, express, and manage emotions and adaptively use this information to solve problems, make decisions, and regulate behaviors. Furthermore, recent findings suggest the promising role of EI as a protective buffer against the stigmatization of oneself or others. A study on parents who cared for their children with mental health disorders found that, on average, caregivers with higher EI levels experienced lower personal stigma and burnout (Trigueros et al.,

2020). Another study observed that the emergency medical staff's EI level was negatively associated with their likelihood to stigmatize patients (Armstrong, 2015).

The ability to accurately perceive and manage emotional states and express feelings to others for social support are intimately linked to physical and psychological health benefits. Growing empirical research supports the positive relationships between EI and students' mental and physical health (Martins et al. 2010), subjective well-being (Di Fabio & Kenny, 2016), belonging (Moeller et al., 2020), social relationships (Ciarrochi et al., 2001), adaptive coping (Resurrección et al., 2014), sleep (Brown & Schutte, 2006), and academic achievement (MacCann et al., 2020). However, observational studies do not imply causation. Experimental studies are needed to investigate the efficacy of interventions aimed to improve students' social and emotional competence to gain clarity on the direct and indirect relationships between EI and mental health.

The development of emotional intelligence

Social and emotional learning (SEL) refers to the process through which people develop and apply the knowledge, skills, and attitudes related to emotional intelligence (CASEL, 2013). As a result of its developmental focus on preparing all students for equitable readiness to succeed, social and emotional learning (SEL) has gained extensive research and application momentum in K-12 education. The SEL framework includes five competencies derived from EI: self-awareness, self-management, social awareness, relationship skills, and responsible decision making.

SEL programs—either as an instructional curriculum or as a series of activities embedded into school routines—aim to educate and equip students with the skills in social and emotional competencies. A meta-analysis of 213 school-wide universal SEL programs involving 270,034

students in kindergarten through high school found an 11 percentile-point gain in academic achievement and positive effects on mental health for students in intervention groups compared to those in control groups **(**Durlak et al., 2011**)**. A follow-up study of the outcomes collected on the initial meta-analysis reported durable benefits (6 months to 18 years post-intervention): "participants fared significantly better than controls in social-emotional skills, attitudes, and indicators of well-being" (Taylor et al., 2017, p. 1156). Notably, students' social-emotional skills post-intervention predicted well-being at follow-up. Results did not significantly differ between white and students of color or between lower/working and middle/upper socioeconomic status.

Opportunity to adopt SEL for universal mental health support in college

Although SEL programs are being used extensively in elementary and secondary schools, there has been little to none in the postsecondary space. This is partly due to a "lack of systematic organization in the research promoting social and emotional competencies in higher education" (Conley, 2015, p. 197). Another reason is that K-12 schools operate on a reasonably consistent curriculum pathway, which allows for the integration of SEL curriculum for all students. Most critically, "mental health is not caught by osmosis" (Weare, 2010, p. 12). Most K-12 schools have shifted to a universal approach by explicitly teaching adaptive social and emotional skills to *all* students, but colleges have remained largely reactive. For many postsecondary institutions, supporting mental health meant treating psychological disorders. Consequently, approaching mental health promotion and prevention as afterthoughts can have profound long-term implications. For example, exacerbated by long waitlists due to the increase in mental health issues, resource limitation, and budget constraints, college counseling, and health centers relied on triaging students with severe clinical disorders (Downs et al., 2018). As a result, students' mental health needs remain unmet, and those who fail to receive care remain

unknown.

There is a strong consensus in the clinical science community on expanding education and prevention into naturalistic learning environments and leveraging community-based support to "reduce the risk for mental health problems and limit the number of individuals who enter this level of need" (Escoto & Green, 2021; Atkins & Frazier, 2011, p. 485). The sparse number of EI interventions for undergraduates are primarily aimed at helping first-year students transition into college (Wang et al., 2012; Potter, 2005; Schutte & Malouff, 2002). The interventions consisted of embedding a small SEL skills component into an existing Freshman seminar—an offering that is not available to the growing transfer student population. Researchers found that freshmen who took the course with the SEL component reported a significant improvement in social and emotional competencies, better academic performance, and higher retention.

One major drawback of the freshman seminar approach is that it inevitably misses the growing percentages of transfer students, many of whom are minority students (Jenkins & Fink, 2015). Pool & Qualter (2012) evaluated an EI elective course for second- and third-year university students in the U.K. and found improvement in students' emotional self-efficacy and ability to understand and manage emotions. Although these studies provide promising evidence on the utility of EI teaching intervention to improve socioemotional skills, they also suggest a pressing need for interventions that equitably support *all* college students.

Overview of the Present Study

In this study, I investigated the impact of a six-week SEL program on the emotional intelligence, beliefs about emotion, and college well-being of college students at a racially diverse public university. The SEL program consists of a curriculum that educated students on skills related to self-awareness (identify and articulate emotions), self-management (cope and

regulate emotions), social awareness (understand others' emotions), relationship skills (develop healthy support systems), and responsible decision-making. The program also includes cooperative SEL games where teams of four students engaged in experiential exercises rooted in the socioemotional competency they were learning for the week. In place of weekly readings, the program assigned culturally relevant exercises and self-reflections to help students apply EI skills in their everyday contexts. Altogether, the program exposed students to SEL core competencies and supported students in advocating and navigating their psychological well-being to achieve their goals.

Using a controlled quasi-experimental design, I delivered the program across three academic terms (winter, spring, and fall). The program was open to undergraduates of all majors and class standings at the University of California, Irvine. The study examined the following research questions:

1. Was participation in the SEL program associated with an improvement in students' emotional intelligence, as revealed by the *Assessing Emotions Scale*?

2. Was participation in the SEL program associated with a decrease in students' negative beliefs about emotion, as revealed by the *Beliefs about the Emotion Scale*?

3. Was participation in the SEL program associated with an improvement in students' perceived college well-being?

4. Were there differences in the intervention's effectiveness for Asian/Pacific Islander and Latinx students?

The first research question addresses the lack of research on whether EI can be learned and improved in racially diverse undergraduate populations using an SEL framework adapted from K-12 education. I hypothesized that exposure to the SEL program is associated with an

improvement in students' emotional intelligence. The second research question provides new theoretical and methodological insights by uncovering the association between EI and students' beliefs about the acceptability of experiencing and expressing negative emotions. Intervention results could help to expand Brenner et al.'s (2020) conceptual framework on the link between students' emotional awareness, emotional acceptance, and help-seeking intentions. I hypothesized that participation in the SEL program was associated with an improvement in the students' perceptions of the acceptability of experiencing and expressing negative emotional experiences with others.

The third research question provides a broader understanding of the connection between the SEL program and students' perceived college well-being, a composite of perceived positive and negative emotions. By replicating the program across three different academic terms and among six heterogeneous student cohorts, the present study provides a reliable real-world assessment of the SEL program as a mental health intervention. I hypothesized that participants of the program would report an increase in their college well-being. However, given the diversity of uncontrollable and contextually-specific factors in college students' lived experiences, I predicted that the difference in improvement between the control and intervention groups would not be significant.

The fourth question spearheads the empirical evidence on the effectiveness of an SEL program as a mental health intervention for Asian/Pacific Islander and Latinx students. I investigate how Asian and Latinx students—two populations identified as most prone to personal stigma—might respond similarly or differently to the intervention. Insights related to group patterns would help move the field toward designing and implementing targeted interventions that address the disparity in mental health needs for college students of color.

Method

Participants

Undergraduates in the study were drawn from the University of California-Irvine (UCI), a large public university in the southwestern United States. UCI enrolls close to 30,000 undergraduates with a gender distribution of 47% male and 53% female. The U.S. Department of Education designates UCI as a Hispanic-serving institution, which means that one-quarter of undergraduates identify as Latinx, and half of all students receive financial aid. UCI is also designated as an Asian American and Native American Pacific Islander-serving institution. First-generation university students make up approximately 60% of the undergraduate student body.

The intervention group consisted of 129 undergraduates (69% female). The majority of the participants were Asian/Pacific Islander (52%) and Latinx (29%), and 50% reported first-generation status. Participants consisted of more juniors and seniors (81%) than freshmen and sophomores (19%). The control group consisted of 138 undergraduates (79% female). Comparably, a majority of students were Asian/Pacific Islander (63%) and Latinx (23%), 47% reported first-generation status (18 students did not respond to first-generation status). Students were primarily upper-class standing (75%).

Since Asian and Latinx were the student populations of interest in this study, a categorical race variable was created for Asian/Pacific Islander, Latinx, and all others. Fifty-three out of 154 Asian/Pacific Islander students reported first-generation status (13 did not respond); 60 out of 70 Latinx students reported first-generation status (3 did not respond). Chi-squared tests indicated group comparability on race, gender, first-generation status, class standing, and transfer status. Table 3.1 provides descriptive statistics of demographic variables for intervention and control groups.

Table 3.1

Descriptive statistics of demographic variables by program

	Intervention (N = 129)		Control (N = 138)	
	n	*%*	*n*	*%*
Gender				
Female	89	69	109	79
Male	40	31	29	21
Race/Ethnicity				
Asian/Pacific Islander	67	52	87	63
Latinx	38	29	32	23
All Other	24	19	19	14
First-Generation	64	50	65	47
Transfer Status	26	20	22	16
Class Standing				
Lower Class Standing	25	19	35	25
Upper Class Standing	104	81	103	75
Major				
Arts and Humanities	6	5	6	4
Business	12	9	3	2
Health Sciences	20	16	15	11
Social and Behavioral Sciences	54	42	87	63
STEM	37	29	27	20

Note: 18 students in the control group did not respond to first-generation status.

Procedure

Undergraduates were recruited into the SEL program for the winter, spring, and fall academic quarters of 2020 through word of mouth and department email lists. The intervention was advertised as *Emotional Intelligence for School & Job Success*, a 6-week experiential workshop-style course that offered two units of credit. Interested students filled out an online form indicating their availability (students who had schedule conflicts were encouraged to fill out the form for a future offering) and their school-related information. Referring to the interest list, I conducted purposeful sampling and invited students to register for the elective course.

Then, I emailed the remaining students who had expressed interest to fill out an online waitlist questionnaire (pre-test) for the following quarter. The control group consisted of students who completed the waitlist questionnaire and subsequently took the course the following quarter, and students who had filled out the waitlist questionnaire but did not take the course in the subsequent academic term.

In the following quarters, I enrolled students in the waitlist control first, before inviting additional students to enroll using the same recruitment procedure. Because a waitlist control group could not be achieved for the last quarter of the intervention, I recruited students who shared an Arts in Education class. Due to limited participation, I supplemented this control group with students who shared classes at the School of Education. My goal was to have an active control group where students shared the same class or major, which simulated the shared learning experience of the intervention group. Students who filled out the questionnaire (pre-test) received a $5 Amazon gift card and later received the same amount for a post-test. In the winter quarter, the intervention and the control group completed the post-test questionnaire within five weeks upon program completion. The intervention and control groups in the spring and fall quarters completed the post-test questionnaire within two weeks upon program completion.

Students who did not complete the post-test questionnaire were excluded from the study. Five students dropped out of the intervention group either prior to starting (3 students), during as a result of dropping out of college (1 student), and the loss of contact (1 student). One hundred and thirty-four students out of the original 272 students in the control group did not complete the post-test questionnaire. The students who were omitted were comparable to those in the study in terms of demographics. The University of California-Irvine's Institutional Review Board (IRB) approved this research study.

Setting

In winter 2020, I delivered the program as two in-person courses (January 10 to February 14; January 16 to February 20). Students participated in 80-minute sessions held in a School of Education classroom for six consecutive weeks. During the spring and fall 2020 quarters, complying with the university's remote instruction policy, the intervention was offered as an online course, with two sessions each quarter (April 13 to May 20; April 14 to May 20; and two sessions from October 15 to November 19). Each week, a new SEL module that consisted of pre-recorded (asynchronous) MOOC-style lecture lessons and guided exercises were made available to students. The pre-recorded content covered the same materials as the lecture portion of the winter quarter. Students also participated in a 30-minute live (synchronous) Zoom discussion session. The live sessions used the same exercises and games as the winter quarter. Comparable to the cooperative activities in the classroom, students spent most of their Zoom sessions in breakout rooms with their designated team of "peer support buddies." Each team consisted of a maximum of 4 students who were preassigned based on their interests, major, and professional aspirations.

Measures

Emotional Intelligence. Students' social and emotional competence was measured using the *Assessing Emotions Scale (AES)*, also referred to as the *Emotional Intelligence Scale*. The self-report scale was developed based on Salovey and Mayer's (1990) EI model to provide an overall measure of the "adaptive emotional functioning involving inter-related competencies relating to perception, understanding, utilizing and managing emotions in the self and others" (Schutte et al., 2013, p. 56). *AES* consists of 33 items measured on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree" with a higher score indicating high levels of EI

(Schutte et al., 2009; Schutte et al., 1998). Factor analytic studies on *AES* identified four subscales: perception of emotions, managing own emotions, managing others' emotions (social skills), and utilizing emotions (Pau & Croucher, 2003; Ciarrochi et al., 2001; Petrides & Furnham, 2000). An example of the perception of emotions is "I am aware of my emotions as I experience them." An example of managing own emotions is "when I experience a positive emotion, I know how to make it last." An example of managing others' emotions is "I know when to speak about my personal problems to others." An example of utilizing emotions is "when my mood changes, I see new possibilities." Ciarrochi et al. (2002) validated these four factors in university populations. The scale has been used extensively in observational and intervention-based EI and well-being studies with over 200 publications in the PsycINFO (Schutte et al., 2009). The alpha coefficients related to internal consistency were reported to range from .76 to .95 in studies with university students from different countries (Siegling et al., 2015). Schutte et al. (1998) reported a two-week test-retest reliability of .78. The Cronbach's alpha for this study is $\alpha = 0.90$ for pre-test (.90 for control, .89 for intervention) and $\alpha = 0.91$ for post-test (.88 for control, .93 for intervention).

Beliefs about Emotion. *Beliefs about the Emotion Scale (BES)* was used to assess students' beliefs about the unacceptability of experiencing and expressing negative emotions (Rimes & Chalder, 2010). It consists of 12 items measured on a 5-point Likert scale ranging from "disagree very much" to "totally agree." Scores range from 0 to 72 with statements such: *"If I have difficulties I should not admit them to others."* and *"To be acceptable to others, I must keep any difficulties or negative feelings to myself."* The statements are grounded in the clinical reports and cognitive models of Chronic Fatigue Syndrome (Surawy et al., 1995) and mental health disorders. Syndenham (2017) found that lower scores were significantly associated with

more emotional avoidance and less help-seeking behaviors. The validation of the scale demonstrated a high internal consistency (0.91). This scale was administered to students in the spring and fall quarters (not winter). Cronbach's $\alpha = 0.88$ for the pre-test (.88 for control, .88 for intervention) and $\alpha = 0.87$ for post-test (.85 for control, .89 for intervention).

College Well-Being. Using a slider bar ranging from 0 (not at all) to 100 (very much), students rated their positive and negative emotions during college by responding to two statements. One statement assessed positive well-being: "I tend to feel a lot of positive emotions in college," and another statement assessed negative well-being: "I tend to feel a lot of negative emotions in college." Research with adolescents suggests that students' emotional well-being at school is the difference between positive and negative emotional experiences (Romero et al., 2014). A higher score means more positive emotional well-being in college.

Sociodemographic variables. Students provided their gender, race/ethnicity, major, class standing (i.e., freshman, senior), and first-generation status.

Analysis Plan

Repeated-measures ANOVA and ANOVA on the gain scores are statistical methods appropriate for nonrandomized control group pretest-posttest designs (Dimitrov & Rumrill, 2003; Weinfurt, 2000). I first conducted a series of checks to validate that the assumptions for running ANOVAs were fulfilled. I confirmed that my dependent variables were continuous, independent variables were categorical, observations were independent, the test variables were normally distributed, and sphericity was not violated. If normality assumption was violated, I used nonparametric analysis using Wilcoxon rank-sum test, also known as the Mann-Whitney two-sample statistics (Wilcoxon 1945; Mann & Whitney 1947). When conducting test-retest

reliability on pre-test and post-test within a group, I used Pearson Correlation if the samples were normal or Spearman rank-order correlation if normality was violated.

For research questions 1, 2, and 3, I performed a series of factorial repeated-measures ANOVAs on the combined results across the three quarters to examine whether students showed significant improvement on emotional intelligence, beliefs about emotions, and college well-being, and to compare whether the students in the intervention group showed a differential growth rate than those in the control group. Two-way repeated-measures ANOVAs were used with program (control, intervention) as the between-subject factor and time (pre-test, post-test) as the within-subject factor. For research question 4, I used three-way repeated-measures ANOVAs to investigate the differences in outcome measures related to race (Asian/Pacific Islander, Latinx students), time (pre-test, post-test), and program (control, intervention). To investigate the differential treatment effects between Asian/Pacific Islander and Latinx students, I calculated univariate ANOVAs using gain scores (difference between post-test and pre-test) as the dependent variable.

Significant interactions and main effects were followed up with post-hoc pairwise comparisons using Tukey, and Bonferroni's adjustment for multiple comparisons. Planned contrasts were used when investigating a specific comparison that was guided by my hypothesis and the literature. To follow up on significant p values, I used partial eta-squared from the r family to measure effect size, which is the proportion of the variance explained. $\eta^2_p = 0.01$ is generally considered a small effect, $\eta^2_p = .06$ as medium effect, and $\eta^2_p \geq 0.14$ as large effect (Lakens, 2013). Cohen's d was used for calculating the effect sizes of simple main effects. The alpha was set to 0.05 for all statistical tests. STATA 17.0 and JASP 0.16 were used to conduct the analyses.

Results

Descriptive and Baseline Analyses

Table 3.2 summarizes the means and SDs for pre-test and post-test by program. Two-sample *t*-tests on the pre-test measurement scores revealed no significant baseline differences between the control and intervention groups. This suggests that the students in both groups started with similar levels of emotional intelligence (perception of emotions, managing their own emotions, managing others' emotions, utilizing emotions), beliefs about emotions, and college well-being.

Table 3.2

Pre-test and post-test comparison between intervention and control

	Intervention (*N* = 129)				Control (*N* = 138)				Intervention vs. Control	
	Pre-Test		Post-Test		Pre-Test		Post-Test		Pre-Test	Post-Test
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*p*	*p*
Emotional Intelligence										
AES Composite Score	117.99	14.91	129.46	14.81	118.38	14.75	119.59	13.78	0.832	***
Perception of emotions	34.46	6.57	38.58	5.03	34.54	6.77	35.33	5.90	0.916	***
Managing own emotions	31.29	5.31	35.01	5.09	31.59	4.89	32.03	4.69	0.64	***
Managing others' emotions	29.19	4.26	31.39	4.41	29.25	3.85	29.22	4.19	0.903	***
Utilizing emotions	23.05	2.94	24.48	3.24	23.00	2.82	23.01	3.04	0.878	***
Beliefs about Emotion										
Beliefs about Emotion Scale	36.40	8.88	31.05	7.62	34.31	8.74	34.22	7.85	0.096	**
College Well-Being										
Composite Score	1.17	44.19	7.78	38.65	1.14	43.86	3.79	46.11	0.995	0.444
Positive Emotion	53.67	24.16	61.98	21.69	52.04	24.19	55.5	3.99	0.582	*
Negative Emotion	52.50	25.31	54.21	24.51	50.91	25.65	51.71	25.78	0.609	0.418

Note: AES = Assessing Emotions Scale. **p<.05; **p<.01; ***p<.001 (2-tailed).*

RQ 1: Was participation in the SEL program associated with an improvement in students' emotional intelligence, as revealed by the *Assessing Emotions Scale*?

Five repeated-measures ANOVAs were conducted on the composite *AES* score and each of the four subscales, with program (control, intervention) as the between-subject factor and time (pre-test, post-test) as the within-subject factor. Results on the composite *AES* score indicated significant interaction of program x time, and main effects of program and of time. See Table 3.3 for repeated-measures ANOVA results. Post hoc comparisons revealed a significant improvement in the intervention participants' scores from pre-test to post-test (M*Diff* = 11.47, *p* < .000, *d* = .75). No significant difference was found within the control group between pre-test and post-test (M*Diff* = 1.22, *p* < .369, *d* = .09).

Repeated-measures ANOVAs on each of the four EI competencies also reported significant interactions of program x time. The intervention group showed significant difference between pre-test and post-test in each of the four competencies (ordered by effect size): managing own emotions (M*Diff* = 3.71, *p* < .000, *d* = .71); perceiving emotions (M*Diff* = 4.12, *p* < .000, *d* = .67); managing others' emotions (M*Diff* = 2.20, *p* < .000, *d* = .55); and utilizing emotions (M*Diff* = 1.43, *p* < .000, *d* = .46). The control group did not have significant changes in any of the four subscales. See Appendix B for pre-test and post-test comparison within program (Table 1) and a comparison of effect sizes on outcome measures (Figure 1).

RQ 2: Was participation in the SEL program associated with a decrease in students' negative beliefs about emotion, as revealed by the *Beliefs about the Emotion Scale*?

The repeated-measures ANOVA result showed a significant interaction of program x time on the *BES* score and a main effect of time (see Table 3.3). A decrease in pre-test to post-test scores denotes an improvement in students' belief about the acceptability of experiencing

Table 3.3

2 x 2 Repeated Measures ANOVA results with Program (control, intervention) as between-subject factor, and Time (pre-test, post-test) as within-subject factor on outcome measures

			F	df	MS	η²ₚ	p
Emotional Intelligence							
Assessing Emotions Scale: Composite	Between subjects	Program (P)	9.22	1/265	2995.13	0.03	***
	Within subjects	Time (T)	54.17	1/265	5362.14	0.17	***
		P x T	**35.37**	**1/265**	**3500.92**	**0.12**	***
Perception of emotions	Between subjects	Program (P)	5.59	1/265	333.30	0.02	*
	Within subjects	Time (T)	53.03	1/265	804.97	0.17	***
		P x T	**24.42**	**1/265**	**370.60**	**0.08**	***
Managing own emotions	Between subjects	Program (P)	6.20	1/265	240.58	0.02	*
	Within subjects	Time (T)	51.95	1/265	575.59	0.16	***
		P x T	**32.19**	**1/265**	**356.72**	**0.11**	***
Managing others' emotions	Between subjects	Program (P)	5.42	1/265	148.40	0.02	*
	Within subjects	Time (T)	20.88	1/265	157.35	0.07	***
		P x T	**22.01**	**1/265**	**165.86**	**0.08**	***
Utilizing emotions	Between subjects	Program (P)	5.95	1/265	77.06	0.02	*
	Within subjects	Time (T)	13.39	1/265	69.21	0.05	***
		P x T	**12.86**	**1/265**	**66.45**	**0.05**	***
Beliefs about Emotions							
Beliefs about Emotion Scale	Between subjects	Program (P)	0.25	1/196	28.90	0.00	0.619
	Within subjects	Time (T)	24.95	1/196	730.12	0.11	***
		P x T	**23.47**	**1/196**	**686.88**	**0.11**	***
College Well-Being							
Composite Score	Between subjects	Program (P)	0.19	1/265	538.26	0.00	0.664
	Within subjects	Time (T)	3.13	1/265	2856.61	0.01	0.078
		P x T	0.57	1/265	520.79	0.00	0.451
Positive Emotion	Between subjects	Program (P)	2.72	1/265	2195.59	0.01	0.100
	Within subjects	Time (T)	15.30	1/265	4615.61	0.05	***
		P x T	2.60	1/265	785.32	0.01	0.108
Negative Emotion	Between subjects	Program (P)	0.58	1/265	559.64	0.00	0.445
	Within subjects	Time (T)	0.65	1/265	209.99	0.00	0.423
		P x T	0.08	1/265	27.07	0.00	0.773

Note: *p<.05; **p<.01; ***p<.001 (2-tailed).

and expressing negative emotions (reverse coded). The intervention participants' scores decreased significantly from pre-test to post-test (M*Diff* = -5.35, *p* < .000, *d* = .63). No significant differences were found within the control group between pre-test and post-test (M*Diff* = -.08, *p* < .903, *d* = .01). See supplementary materials in Appendix B.

RQ 3: Was participation in the SEL program associated with an improvement in students' perceived college well-being?

A two-way repeated-measures ANOVA did not report a significant main effect nor interaction of program x time on students' reported college well-being composite. Two 2x2 repeated-measures ANOVAs were conducted to assess the discrete changes in students' reported positive and negative emotions. ANOVA on the negative emotion did not show a significant main effect or interaction (see Table 3.3). Although not significant, it's interesting to note that students in the intervention group reported a *higher* increase in negative emotion at post-test (M*diff* = 1.71, *p* < .450, *d* = .07) compared to students in the control group (M*diff* = .80, *p* < .711, *d* = .03).

ANOVA on the positive emotion showed a significance on time. Post hoc pairwise comparisons revealed that the intervention group indicated a significant increase in positive emotions at post-test (M*diff* = 8.31, *p* < .001, *d* = .31), and the change in the control group was not significant (M*diff* = 3.46, *p* < .072, *d* = .16). Interestingly, this suggests that the intervention group experienced a significant improvement in positive emotions experienced in college *and* a (nonsignificant) increase in negative emotions. Hence, the emotional dissociation between positive and negative emotions explains why there was no significant change in the well-being measure—the composite score found by subtracting negative emotions from positive emotions.

I conducted an exploratory analysis to investigate the "elasticity" or "malleability" of

positive and negative emotions post-intervention. A scatterplot with the fitted lines of positive emotions (y-axis) by negative emotions (x-axis) showed that students in the intervention group reported higher levels of positive emotions at post-test than at pre-test across the same levels of negative emotions (see Figure 3.1). The control group showed a greater contrast between the degree of positive and negative emotions experienced at post-test ($r = -.70$, $p < .001$) than pre-test ($r = -.55$, $p < .001$). The intervention group showed less contrast at post-test ($r = -.41$, $p < .001$) than pre-test ($r_{intervention} = -.57$, $p < .001$). The differences between the control and the intervention groups were most apparent at the high-negative threshold: concurrently with experiencing a high degree of negative emotions, students in the intervention group were also experiencing a higher level of positive emotions (almost twice as high) compared to students in the control group. In my follow-up exploratory analysis, this pattern was also pronounced in Asian/Pacific Islander and Latinx students and female students (see Figures 3.2 and 3.3).
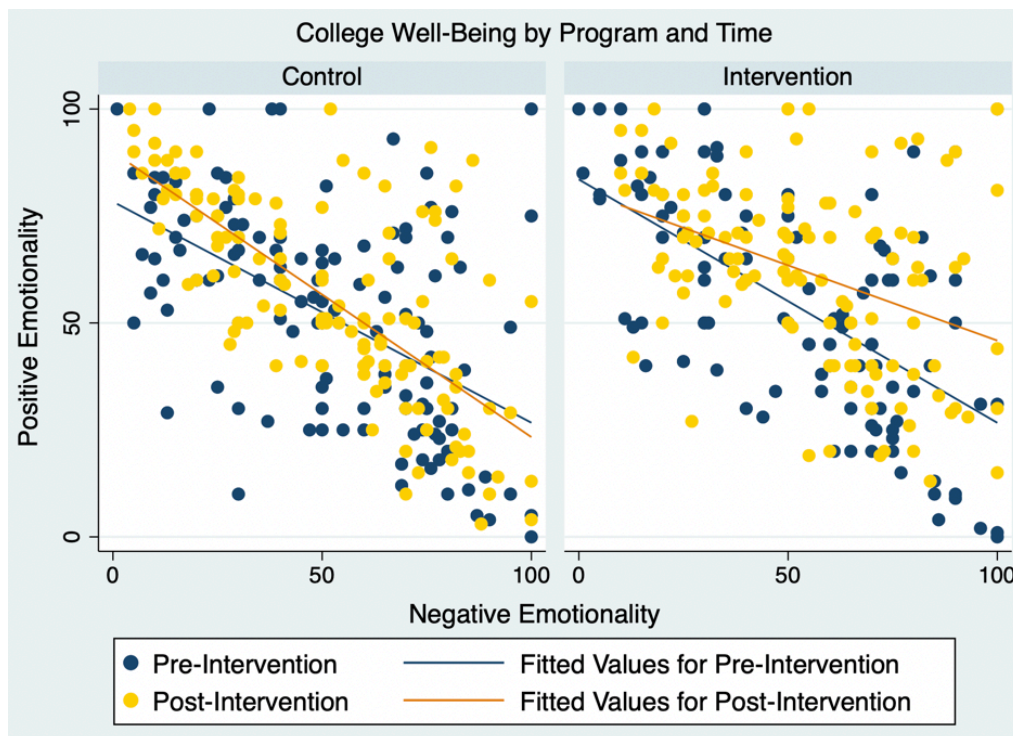
Figure 3.1. Fitted values for college well-being by program.
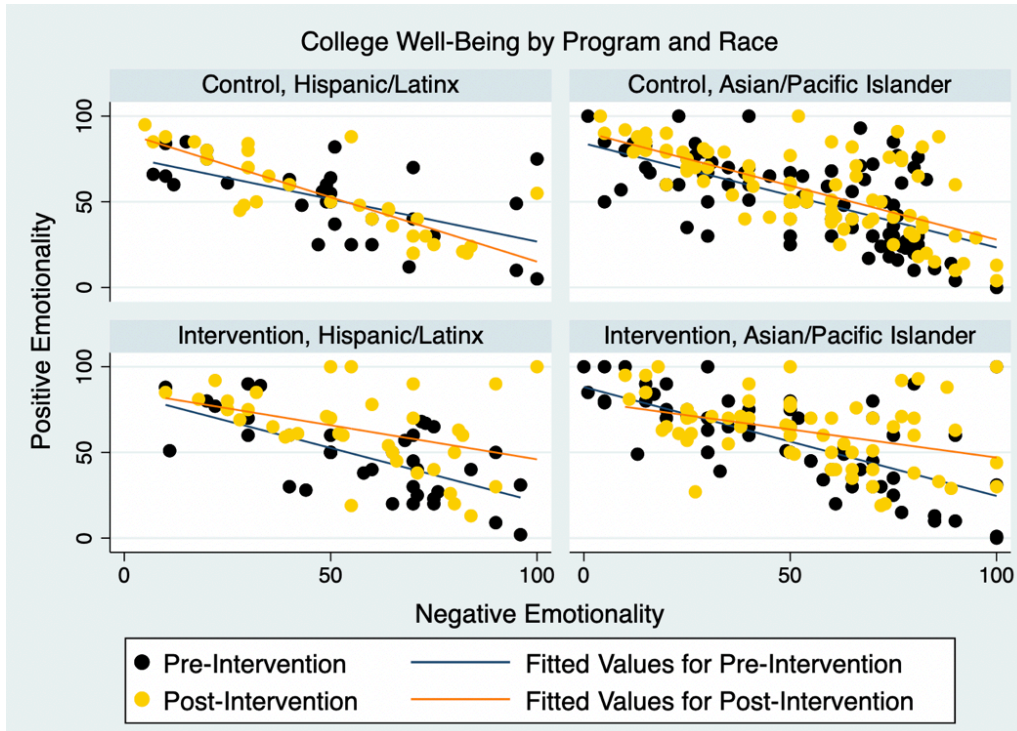
Figure 3.2. Fitted values for college well-being by program and race (Asian/Pacific Islander and Latinx).
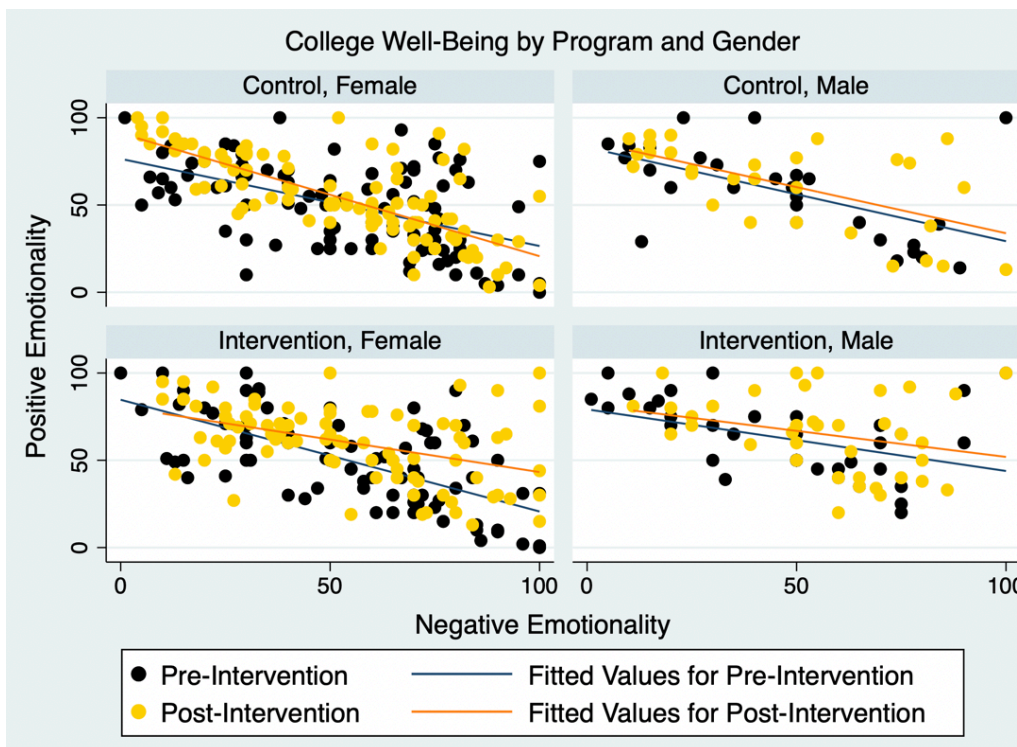
Figure 3.3. Fitted values for college well-being by program and gender.

RQ4: Were there differences in the intervention's effectiveness for Asian/Pacific Islander and Latinx students?

Combining the control and intervention groups, there were no significant baseline differences between Asian/Pacific Islander students and Latinx students (see supplementary Table 2 in Appendix B). This suggests that the two race groups reported similar levels of emotional intelligence, beliefs about emotions, and college well-being at pre-test regardless of program. Two-sample t-tests on the pre-test scores by program within each race revealed one significant baseline difference: Asian/Pacific Islander students in the intervention group reported significantly higher ($p = .048$) negative beliefs about emotions ($M = 37.95$) than those in the control group ($M = 34.65$). Given that this p-value is quite close to an alpha level of 5% and that it surfaced after a series of tests (familywise error inflation), I will not control for the negative emotion at pre-test in subsequent three-way ANOVAs. Bonferroni's adjustment will be used for multiple comparisons to help correct for this difference in negative pre-test scores. Table 3.4 summarizes the means and SDs for pre-test by program and race.

Three-way repeated-measures ANOVA indicated a significant interaction on time x program x race for the managing own emotion competency (see Table 3.5). Post hoc comparisons revealed that both Asian/Pacific Islander and Latinx students in the intervention group improved significantly in the managing own emotions competency ($p < .000$), but the effect size for Latinx students ($d = 1.23$) outperformed that of Asian/Pacific Islander students ($d = .51$).

Latinx and Asian/Pacific Islander students in the intervention group showed significant improvements in all four subscales of the emotional intelligence measure. A comparison of the effect sizes showed that Latinx students benefited more than Asian/Pacific Islander students.

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Table 3.4

Pre-test comparison by program and race

	Intervention			Control			Intervention vs. Control	
	Asian/PI (n = 67)	Latinx (n = 38)	Asian/PI vs. Latinx	Asian/PI (n = 87)	Latinx (n = 32)	Asian/PI vs. Latinx	Asian/PI	Latinx
	M (SD)	*M (SD)*	*p*	*M (SD)*	*M (SD)*	*p*	*p*	*p*
Emotional Intelligence								
AES Composite Score	118.48 (16.05)	118 (13.82)	0.878	117.99 (16.20)	119.94 (12.60)	0.540	0.852	0.545
Perception of emotions	34.21 (7.21)	35.21 (5.26)	0.455	34.58 (7.49)	34.72 (5.61)	0.910	0.761	0.707
Managing own emotions	31.58 (5.37)	30.61 (5.55)	0.378	31.44 (5.20)	32.13 (4.12)	0.455	0.866	0.194
Managing others' emotions	29.72 (4.54)	29.29 (3.87)	0.612	29.12 (4.30)	29.56 (3.40)	0.597	0.402	0.754
Utilizing emotions	22.97 (4.54)	29.29 (3.87)	0.904	22.86 (2.85)	23.53 (2.58)	0.246	0.820	0.373
Beliefs about Emotion Scale								
Beliefs about Emotion Scale	37.95 (8.88)	34.43 (8.99)	0.092	34.65 (9.07)	32.83 (8.38)	0.399	**0.048**	0.514
College Well-Being								
Composite Score	7.72 (47.05)	-10.26 (41.24)	0.055	.034 (44.40)	2.219 (43.12)	0.811	0.306	0.221
Positive Emotion	56.90 (25.63)	47.63 (22.27)	0.065	52.32 (24.21)	51.78 (21.92)	0.912	0.259	0.437
Negative Emotion	49.18 (26.89)	57.90 (23.09)	0.097	52.29 (25.01)	49.56 (26.31)	0.614	0.460	0.163

Note: AES = Assessing Emotions Scale. Beliefs about Emotions Scale was not collected in one quarter: intervention has 56 Asian/PI and 28 Latinx; control has 62 Asian/Pi and 24 Latinx. For independent t-tests, Welch's Test was performed when normality assumption was violated. For Paired t-tests, Wilcoxon Signed-rank was performed when normality assumption was violated.

Table 3.5

2 x 2 x 2 Repeated Measures ANOVAs results with Race (Asian/Pacific Islander, Latinx) and Program (control, intervention) as between-subject factors, and Time (pre-test, post-test) as within-subject factor on outcome measures.

			F	df	MS	η^2_p	p
Emotional Intelligence							
Assessing Emotions Scale: Composite	Between subjects	Race (R)	1.66	1/220	574.46	0.01	0.200
	Between subjects	Program (P)	6.22	1/220	2158.97	0.03	*
		R x P	0.06	1/220	18.98	0	0.815
	Within subjects	Time (T)	46.41	1/220	4567.55	0.04	***
		T x R	4.92	1/220	533.97	0.05	*
		T x P	29.12	1/220	2865.76	0.12	***
		T x R x P	2.66	1/220	262.40	0.01	0.104
Perception of emotions	Between subjects	Race (R)	0.91	1/220	56.73	0.00	0.340
	Between subjects	Program (P)	5.46	1/220	339.49	0.02	*
		R x P	1.18	1/220	73.26	0.01	0.279
	Within subjects	Time (T)	37.82	1/220	571.36	0.15	***
		T x R	0.25	1/220	3.77	0	0.618
		T x P	21.00	1/220	317.20	0.09	***
		T x R x P	1.27	1/220	19.13	0.01	0.262
Managing own emotions	Between subjects	Race (R)	0.87	1/220	35.48	0.00	0.353
	Between subjects	Program (P)	3.02	1/220	123.43	0.01	0.084
		R x P	0.02	1/220	0.81	0.00	0.888
	Within subjects	Time (T)	48.35	1/220	508.80	0.18	***
		T x R	5.16	1/220	54.24	0.02	*
		T x P	30.17	1/220	317.44	0.12	***
		T x R x P	**4.96**	**1/220**	**52.20**	**0.02**	*****
Managing others' emotions	Between subjects	Race (R)	0.90	1/220	26.02	0.00	0.344
	Between subjects	Program (P)	4.66	1/220	135.02	0.02	*
		R x P	0.02	1/220	0.50	0.00	0.896
	Within subjects	Time (T)	19.67	1/220	149.81	0.08	***
		T x R	3.28	1/220	25.01	0.02	0.070
		T x P	13.18	1/220	100.34	0.06	***
		T x R x P	1.67	1/220	12.70	0.01	0.198
Utilizing emotions	Between subjects	Race (R)	2.22	1/220	28.93	0.01	0.138
	Between subjects	Program (P)	2.16	1/220	28.20	0.01	0.143
		R x P	0.52	1/220	6.75	0.00	0.473
	Within subjects	Time (T)	15.00	1/220	78.93	0.06	***
		T x R	1.17	1/220	6.15	0.01	0.281
		T x P	11.82	1/220	62.23	0.05	***
		T x R x P	0.20	1/220	1.07	0.00	0.652
Beliefs about Emotions							
Beliefs about Emotion Scale	Between subjects	Race (R)	4.52	1/166	527.64	0.03	0.035
	Between subjects	Program (P)	0.51	1/166	59.44	0.00	0.477
		R x P	1.87	1/166	218.78	0.01	0.173
	Within subjects	Time (T)	25.93	1/166	737.72	0.14	***
		T x R	0.01	1/166	0.15	0.00	0.943
		T x P	28.47	1/166	809.95	0.15	***
		T x R x P	2.01	1/166	57.17	0.01	0.158
College Well-Being							
Composite Score	Between subjects	Race (R)	0.43	1/220	1234.83	0.00	0.515
	Between subjects	Program (P)	0.06	1/220	180.96	0.00	0.803
		R x P	0.93	1/220	2697.52	0.00	0.336
	Within subjects	Time (T)	5.13	1/220	4781.82	0.02	*
		T x R	1.89	1/220	1758.81	0.01	0.171
		T x P	1.46	1/220	1359.81	0.01	0.228
		T x R x P	2.32	1/220	2158.57	0.01	0.129
Positive Emotion	Between subjects	Race (R)	1.03	1/220	821.33	0.01	0.311
	Between subjects	Program (P)	1.93	1/220	1536.14	0.01	0.166
		R x P	0.10	1/220	76.29	0.00	0.757
	Within subjects	Time (T)	16.30	1/220	4953.02	0.07	***
		T x R	1.21	1/220	368.13	0.01	0.272
		T x P	4.54	1/220	1378.22	0.02	*
		T x R x P	3.77	1/220	1144.82	0.02	0.054
Negative Emotion	Between subjects	Race (R)	0.69	1/220	662.63	0.00	0.406
	Between subjects	Program (P)	0.04	1/220	42.01	0.00	0.834
		R x P	1.95	1/220	1866.54	0.01	0.164
	Within subjects	Time (T)	0.01	1/220	1.51	0.00	0.946
		T x R	1.59	1/220	517.71	0.01	0.209
		T x P	0.00	1/220	0.06	0.00	0.989
		T x R x P	0.49	1/220	159.40	0.00	0.486

Note: *p<.05; **p<.01; ***p<.001 (2-tailed).

Latinx participants reported the greatest improvements at post-intervention compared to pre-intervention in managing own emotions, perception of emotions, managing others' emotions, and utilizing emotions. Asian/Pacific Islander participants reported the greatest improvement at post-intervention compared to pre-intervention in the perception of emotions, utilizing emotions, managing own emotions, and managing others' emotions at post-intervention compared to pre-intervention. See Table 3 in Appendix B for pre-test and post-test comparison within program by race and Figure 6 for effect sizes by race.

A three-way repeated-measures ANOVA on *BES* mean scores indicated a significant interaction of time x program, and main effects of race and time (see Table 3.5). Post hoc comparisons revealed that both Asian/Pacific Islander and Latinx students in the intervention group reported a significant reduction of negative beliefs about emotion ($p < .000$), and the effect size of the reduction was higher for Latinx students ($d = .93$) than Asian/Pacific Islander students ($d = .65$). Notably, Asian/Pacific Islander students in both the control and intervention groups reported a higher baseline pre-test mean ($M = 36.7$) compared to Latinx students ($M = 33.7$), which suggested that Asian/Pacific Islander students, on average, espoused a higher degree of maladaptive beliefs about negative emotions.

A three-way repeated-measures ANOVA on well-being (positive emotions minus negative emotions) did not report a significant interaction on race x program x time. Latinx students in the intervention group reported a significant improvement in their college well-being ($p < .05$, $d = .40$), but this change did not significantly differ from the (nonsignificant) improvement reported by Asian/Pacific Islander students in the intervention group. The repeated-measures ANOVA on positive emotions found a notable difference on time x program x race: $F(1, 220) = 3.77$, $p < .054$. Post hoc comparisons revealed that Latinx students in the intervention

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group reported a significant improvement in positive emotions ($Mdiff = 16.45, p < .002, d = .55$), whereas Asian/Pacific Islander students in the intervention group reported a non-significant improvement ($Mdiff = 5.58, p < .073, d = .22$).

Latinx students on average, reported a (nonsignificant) decrease in negative emotions experienced in college, and Asian/Pacific Islander students reported a (nonsignificant) *increase* in negative emotions experienced in college. Interestingly, Asian/Pacific Islander students in the intervention group reported a higher increase in negative emotions ($Mdiff = 3.78$) than their counterparts in the control group ($Mdiff = 1.14$). This meant that Latinx students experienced higher positive and lower negative emotions post-intervention, and Asian/Pacific Islander students experienced higher positive *and* higher negative emotions post-intervention.

Discussion

To my knowledge, this is the first study on emotional intelligence using a developmentally-focused SEL framework for an academic course to improve the mental health of underrepresented undergraduates across class standings and majors. The results of this study supported my central hypothesis that exposure to a social and emotional learning program grounded in the theory of EI could contribute to the development of emotional competence and the reduction of emotional avoidance in racially-diverse college students. The present study demonstrates the scalability and accessibility of a skills-building EI intervention—that can be delivered flexibility in-person or online—as a novel model of care for providing equitable and accessible mental health support in higher education.

From emotional avoidance to emotional awareness

As predicted, participation in the SEL program was associated with an improvement in students' emotional intelligence. This is consistent with Kotsou et al. (2019)'s and Hodzic et al.

(2018)'s meta-analyses of EI interventions, which found that training increased emotional intelligence at post-test and follow-up. More specifically, the present study found that program participants, on average, reported greater improvements in their intrapersonal skills compared to interpersonal skills. The program participants also reported greater improvements in their abilities to perceive emotions than utilize emotions. These patterns align with the developmental lens of the SEL framework: young people must learn to recognize, express, and regulate their own emotions before they can be expected to interact effectively with others (Jones et. al., 2017).

Although students in the control group did not show a significant increase in their emotional intelligence scores at post-test, they did report a slight increase in the intrapersonal competencies of perception of emotions and managing their own emotions. This suggests that undergraduates can improve intrapersonal skills over time, which is likely a function of maturation and exposure to formal and informal socioemotional learning opportunities through college. However, this pattern was not observed in managing others' emotion and utilizing emotions. Students in the control group reported either worse or similar scores in these two interpersonal-oriented subscales at post-test. This is a critical finding because prior studies have reported a significant positive association between managing others' emotions and college students of color who have reported seeking help from medical professionals or family members (Lei & Pellitteri, 2017). Given that the intervention group reported medium to large effect sizes on each of the emotional intelligence subscales, it's safe to say that the SEL program can help accelerate students' intrapersonal skills development and jumpstart improvements in their interpersonal skills.

From emotional suppression to emotional acceptance

Consistent with my hypothesis, participants in the SEL program reported a positive shift

in their beliefs about the unacceptability of negative emotional experiences and expressions. The control group's beliefs did not change with time, suggesting the persistence of these maladaptive belief systems. On the other hand, the significant reduction reported by the intervention participants demonstrates that these beliefs might be malleable under the right circumstances. The present intervention aimed to cultivate a spirit of openness in students through learning and *un*learning. At the end of their first class, students were asked to identify emotions that they would like to learn to get better at handling, and identify the emotions that they have learned in the past to be unacceptable to experience or express. In the subsequent sessions, students engaged in peer-based discussions on the sociocultural influences of emotions, reflected on their emotional regulatory goals and values as informed by Gyurak et al. (2011)'s dual-process framework, and journaled their negative self-talk patterns.

Moving toward emotional flexibility: a sign of coping and resilience?

An interesting finding from the study was the increased disassociation of positive emotions and negative emotions by the intervention group. At post-test, the intervention group reported a significant increase of positive emotions *and* a non-significant increase of negative emotions. This pattern was most pronounced at the extreme range of high negative emotions. Compared to the control group, students in the intervention group reported experiencing almost twice as high levels of positive emotion despite also experiencing extremely high negative emotions. In fact, the relationship between positive and negative emotions became more bipolar for the control group and less bipolar for the intervention at post-test. This distinct pattern was especially apparent in female and Latinx student samples.

The coactivation of positive and negative emotions reported by the intervention group suggests that students are becoming more aware and accepting of *all* emotions. This explanation

is congruent with my aforementioned finding on the intervention group's reported increase in emotional intelligence, as well as the reported deduction in their maladaptive beliefs around the unacceptability of their negative emotional experiences and expressions. Altogether, a more nuanced explanation could be that students became more perceptive of their emotions and became more willing to admit to their negative emotions, while perhaps a subgroup of these students also applied learned EI skills to cope adaptively with these negative emotions.

The pattern of high-positive and high-negative coactivation found in this EI intervention study is especially intriguing. Navigating college expectations can be a stressful experience, especially for minority students and those with pre-existing mental health issues. The high-high pattern could be an indicator that students are employing positive reappraisal techniques learned from the EI training to buffer the negative experiences in their lives. The constant presence of high negative emotions could mean that students are finding ways to increase their positive emotional experiences in the midst of stressful circumstances that cannot be controlled. This interpretation draws from the coping literature, which suggests that positive affect can co-occur during chronic stress—a time of high negative affect—and serve as a sign of adaptation and resilience (Folkman & Moskowitz, 2000).

Who benefitted more from EI training?

Latinx students benefited more from EI training than Asian/Pacific Islander students in emotional intelligence, negative beliefs about unpleasant emotions, and college well-being. Overall, high effect sizes were found on Latinx students' emotional intelligence scores at post-test, whereas medium effect sizes were found on Asian/Pacific Islanders' reported scores. Notably, Latinx students outperformed Asian/Pacific Islander students in managing their own emotions.

Compared to Asian/Pacific Islander students, Latinx students reported more reduction of maladaptive beliefs about negative emotional experience and expression. It is also important to note that Asian/Pacific Islander students exhibited a higher stigma at baseline. This aligns with the survey results from the Healthy Minds Study, which reported that Asian students had the highest mean level of personal stigma, the lowest level of perceived need, and were least likely to seek help from others (Lipson et al., 2018). It's also interesting to note that the Asian/Pacific Islander and Latinx students in the intervention group reported higher levels of negative beliefs about emotions than those in the control group. Hence, it is likely that the course attracted students who struggled with more negative beliefs about unpleasant emotions.

Brenner et al.'s (2020) study proposed that "interventions designed to decrease experiential avoidance by increasing openness to unpleasant emotions may offer a novel avenue to attenuate the impact of self-stigma on help-seeking intentions without requiring the difficult task of reducing stigma altogether" (p. 132). Asian/Pacific Islander students in the intervention group reported a higher increase in negative emotions than the control group and the Latinx students in the intervention group, suggesting their increased willingness to acknowledge and confront the existence of unpleasant emotions rather than relying on suppression and avoidance. Perhaps this increased awareness of their psychosocial state would alert and motivate them to seek help. Incorporating measures related to help-seeking and cultural-oriented beliefs in future studies would help to validate this speculation.

This study suggests that students of color might be more open to dealing with their emotions through academic learning opportunities. Hence, an academic course on emotional intelligence could be used as a euphemism for the education, promotion, and prevention of mental health by attracting reluctant students who would have otherwise been left unknown and

unserved. This delivery approach is especially salient for Asian American college student populations, who reported more likelihood to be socialized to suppress emotions and view emotions as less important (Kim et al., 2021). Expanding on prior observational findings, results from the present experimental study suggest that EI training will help Asian/Pacific Islander and Latinx students reduce stigma and improve the social and emotional competencies required for mental wellness and help-seeking behaviors. However, Asian/Pacific Islander students may require more support, possibly in terms of intervention length and cadence compared to Latinx students.

Limitations

Because the present study focused on students of color, it used convenience sampling instead of randomly assigning students to different groups. Students voluntarily opted into the course and may be more willing to change than the general population. A randomized controlled experimental design would be more externally valid. The present study had a larger representation of Asian/Pacific Islander students than Latinx students, and Asian and Pacific Islander were combined as one option on the survey questionnaire. Follow-up studies should consider having a larger sample size and one that is more precise and balanced by sociodemographic factors.

The outcome measures in this study relied on self-reports and retrospective reporting, which are prone to biases in social desirability and selective memory (Lam & Bengo, 2003). Although it was emphasized to students that the survey questionnaires were not graded, it is still likely that some students in the intervention group might have purposely responded favorably to demonstrate progress. It could also be likely that students' standard of measurement at post-test differed from pre-test due to what they've learned during the intervention. For example, perhaps

students who were hard on themselves rated themselves more critically on emotional intelligence at pre-test than at post-test. Future research using both self-reports and performance-based measures would ensure greater reliability in results. More detailed well-being and mental health diagnostic measures, such as the CESD-R would be helpful to triangulate findings.

The dissociating correlation between positive and negative emotions found post-intervention warrants additional research. Future studies should collect a broader and recurring set of positive and negative emotions using the experience sampling methodology. A more comprehensive measure such as the Positive and Negative Affect Schedule (PANAS) would help to broaden our understanding of the activation, granularity, and valence of positive and negative emotions and their potential changes in correlation as a result of an emotional intelligence intervention. In addition, capturing the context in which a student is experiencing these emotions would also provide insights into their perception, management, and utilization of emotions in naturalistic contexts.

Longitudinal studies that follow students of color throughout their college trajectory would be valuable in understanding the malleability and durability of EI and how adaptive beliefs translate into responsive behaviors. In particular, insights might be generated by investigating the relationship between the development of intrapersonal and interpersonal skills in college students. Replication of the SEL program at another college with different instructors would validate the generalizability of the findings.

Conclusion and Next Steps

College students of color are disproportionately impacted by mental health problems compared to white students. Prone to the stigma of mental illness and a lack of perceived need for mental wellness, underrepresented student populations were more likely to employ emotional

avoidance than help-seeking behaviors. In this study, I developed a culturally adaptive EI intervention to assess whether educating and equipping undergraduates with adaptive social and emotional skills could improve their emotional competence, adaptive beliefs about emotion, and college well-being. Compared to students in the control group, the intervention group reported significant improvements in emotional intelligence and adaptive beliefs about emotions. Students on average reported an increase in positive emotions experienced in college, despite concurrently experiencing similar or increased levels of negative emotions—suggesting growth in emotional awareness and openness toward unpleasant emotions. These results demonstrate the promising utility of a developmentally-focused EI intervention as an accessible mental health prevention program for students in higher education.

The present study reported a pattern of independent variability—or a lack of bipolarity—of positive and negative emotions in the intervention group at post-test. This increase in positive emotions despite the presence of high negative emotions demonstrates promising efficacy in the intervention. However, more research is needed to validate: 1) the adaptive role of EI during real-world crisis, 2) the mechanisms in cultivating positive emotion, and 3) the role of positive emotion during distress. In the following study, I aim to answer the aforementioned questions by examining EI and self-compassion as protective factors of college well-being for before COVID-19 and during COVID-19. The EI intervention in this study was replicated across three quarters in 2020. Coincidentally, the pre-test questionnaire collected during the first quarter took place before the COVID-19 pandemic. This unintended timing offered a unique opportunity to compare the association of EI and students' well-being before and during a real-world shared crisis, and *without* the effects of an intervention. By using only pre-test data and encompassing a

larger set of students who did not complete the post-test, my observational study minimizes the

likelihood of social desirability bias found in intervention studies.

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CHAPTER 4

An examination of emotional intelligence and self-compassion as protective factors of undergraduates' well-being before and during COVID-19

The undergraduate college experience has been drastically impacted by both the COVID-19 epidemic and the abrupt wholesale measures that postsecondary institutions have taken to slow the transmission of the virus. Students have not only felt the seismic shock of the virus outbreak, but have also been enduring the ever-changing expectations of learning, living, and engaging both on and off of campus. A steady stream of COVID-19 studies consistently highlighted the elevated levels of mental health disorders in college students (Chirikov et al., 2020; Xiong et al., 2020; Liu et al., 2020; Kar et al., 2020). Many of these studies relied on a snapshot of students' psychological responses to COVID-19 at a single time point during a developing pandemic. The most commonly used measures were related to depression, anxiety, and stress, resulting in an exclusive focus on negative emotions.

At the two-year mark, living with the COVID-19 pandemic has shifted from "the novel" to "the new normal." In response to ongoing mutations of SARS-CoV-2, the World Health Organization began to proactively characterize emerging variants as Variants of Concern (COV), Variants of Interest (VOI), and Variants Under Monitor (VUM; WHO, 2022). Ironically, in an analogous manner, mental health and social science researchers must also expand their focus from merely documenting psychopathologies to proactively determining the positive models of adaptation as humankind learns to evolve—from surviving to thriving—in the pandemic long-haul. In this study, I investigated the roles of emotional intelligence and self-compassion as protective factors of college well-being in a racially-diverse student sample. I examined the between-group and between-cohort differences across multiple time points that took place before

and during COVID-19. I also investigated whether the buffering role of EI and self-compassion on negative emotion was mediated by the co-activation of positive emotion, and whether such relationships were different before and during a shared crisis.

COVID-19: A developing story

The World Health Organization declared COVID-19 a global pandemic on March 11, 2020. Shortly after, higher education institutions across the country abruptly suspended in-person classes and either evacuated or reduced residential housing for the rest of the academic year. The combined emotional tolls from the outbreak and the loss of control due to lockdown measures have dramatically increased college students' mental health disorders (Chirikov et al., 2020). A survey administered from May to July at nine large, public research universities that yielded responses from 30,725 undergraduates, finding that 35% of the students screened positive for major depressive disorders and 39% for generalized anxiety disorder. First-generation students, students of color, and female undergraduates were disproportionately impacted by mental health issues. Major depressive disorders were found in 40% of first-generation college students (compared to 33% of continuing-generation students), in 38% to 41% of students of color (compared to 33% white students), and in 37% of female students (compared to 30% male students) (Soria et al., 2020). Similar trends in distress levels were also reported (Sundarasen et al., 2020). Interestingly, Kecojevic et al.'s (2020) study of undergraduate students in New Jersey found higher anxiety levels in non-freshman students, potentially due to the added worries related to post-graduation plans and job prospects.

A growing body of studies reported new stressors such as loneliness (Arslan, 2020), financial constraints (Chirikov et al., 2020; Sundarasen et al., 2020), an increase in coronavirus-related news (Huckins et al., 2020), fear of contagion (Cao et al., 2020), and adapting to remote

instruction (Chirikov et al., 2020), and weight gain (Park et al., 2021) contributing to the elevated levels of depression, anxiety, and distress in students (Kecojevic et al., 2020). What is not known is how students might adapt under the continual exposure to these stressors over time. News stories about the SARS-CoV-2 have varied from initial descriptions of a novel flu strain that would dissipate by the summer to a "long haul" that may continue across multiple years (Lovelace Jr. & Higgins-Dunn, 2020; Scudellari, 2020). How do changes in crisis expectations and length of exposure impact crisis adaptation? How might students respond to the pandemic differentially, particularly first-generation, students of color, and female student populations who have been identified as most susceptible to mental health disorders?

Investigating well-being to mitigate ill-being

Historically in the mental health literature and even more so in recent COVID-19 studies, college students have been labeled as an at-risk population in terms of psychopathology. As a result, empirical research on college students' emotional responses to challenging circumstances focused narrowly on psychiatric disorders and negative mental states (Folkman et al., 1997). Compelling statistics such as "three-fourth of lifetime mental health disorders begin by age 24" and "today's generation of college students are the most depressed and suicidal" are commonly echoed by researchers and practitioners alike (Twenge et al., 2019; Kessler et al., 2005). In higher education, the mental health model of care continues to be preoccupied with getting rid of risk factors and negative emotions in students. However, the prolonged stressful, uncontrollable nature of the COVID-19 pandemic challenges us to shift our focus toward the roles of protective factors in adaptation and resilience.

Recognizing the need to shift from a deficit-based "medical model" to a strength-based model, researchers in resilience science, positive youth development, and positive psychology

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emphasized studies that account for "positive influences without discounting risks and vulnerabilities" (Masten, 2011, p. 495). Similarly, the literature on emerging adulthood encourages researchers to reframe the negative narrative, shifting to one characterized by identity explorations, self-focus, possibilities/optimism, instability, and feeling in between (Arnett, 2014). Advocates argue that this intense time of endless possibilities and limited responsibilities makes emerging adulthood arguably the most adaptive and optimistic stage of the life span (Arnett, 2014; Tanner, 2006; Arnett, 2000).

Preliminary data from the Healthy Minds Study found that, while students reported higher levels of depression (40.9%) compared to Fall 2019 (35.7%), they've also reported higher levels of resilience (39%) compared to Fall 2019 (36.5%; Healthy Minds Network, 2020). As digital natives, this generation of college students is likely to exhibit relatively high readiness and confidence to adapt to learning and engaging online. Therefore, relying on a snapshot of generalized psychopathology diagnoses at a singular time point might miss the opportunity to investigate the potential dynamic differences in how this unique population adjusts to "the new normal" during different stages of COVID-19. Insights into how college students adapted during COVID-19 and into sociodemographic group differences would help to inform the design and delivery of targeted support.

The role of positive emotion during a crisis

The literature in social psychology underlines the co-occurring yet discrete roles of positive and negative emotions in motivating people's attitudes and responses to stressful situations (Lazarus, 2001; Folkman & Moscowitz, 2000; Izard, 1993; Bradburn, 1969). Accumulating evidence suggests the need to investigate the adaptational significance of positive emotions on *improving* people's health and well-being during chronic stress, and independent of

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the well-confirmed role of negative emotions in *declining* psychopathology. Taking steps further, Fredrickson and Levenson (1998) propose that positive emotions can help to regulate negative emotions, and in 2003, Fredrickson et al. elevated positive emotions as the "active ingredients in superior coping and thriving despite adversity" (p. 366). The crisis and resilience literature observed that different disaster phases could elicit different levels of negative *and* positive affect (Shing et al., 2016). Hence, might the presence and range of positive emotions during the COVID-19 pandemic help to explain the variation in people's long-term outcomes related to posttraumatic stress versus posttraumatic growth?

In a conference-invited article, Folkman (2008) laid the groundwork for "the restorative function of positive emotions with respect to physiological, psychological, and social coping resources" (p. 3). Highly relevant to COVID-19, studies have found that positive emotions mediated the effects of coping with an increase in salivary immunoglobulin A, a vital immune system protein that protects against respiratory illnesses (Stone et al., 1987; Dillon et al., 1985-1986). Positive emotional states—experienced by those who are optimistic and hopeful—were linked to fewer incidents of heart disease, as well as reduced inflammatory responses and mortality (Folkman & Moskowitz, 2007; Carver & Scheier, 2002). Another study found that grieving caregivers who used a greater proportion of positive emotional than negative emotional spoken words showed higher positive morale and less depressive mood (Stein et al., 1997). Similarly, the positive emotional content in the written autobiographies of nuns in their early adulthood predicted their longevity six decades later (Danner et al., 2001). This longitudinal finding is important because a majority of the relevant studies used momentary sampling methods to examine the co-occurrence of positive and negative affects during a relatively short period of time, either in a generalized context or associated with a specific event.

The broaden-and-build theory

In their seminal paper, Lazarus, Kanner, and Folkman (1980) speculate that positive emotions might help to provide momentary respite from distress that allows individuals to replenish resources to sustain coping during challenging times. Expanding on this two decades later with the broaden-and-build theory, Fredrickson (2001) proposes that positive emotions serve to buffer the negative emotions and the problems associated with ill health by broadening one's perceived availability of resources (e.g., social, intellectual, physical) and options in response to difficult circumstances. In contrast, negative emotions narrow one's focus to reactive behaviors such as escape and attack. Studies show that positive emotions expand the scope of one's attention (and willingness) to incorporate more flexible thinking and adaptive coping behaviors. A convergence of literature on coping, resilience science, and positive psychology supports the premise of broaden-and-build: those who report a high level of psychological well-being are characterized by high positive emotionality despite the presence of stressors **(**Fredrickson & Joiner, 2002; Keyes, 2002**;** Block & Kremen, 1996).

Shing et al.'s (2016) literature review of the role of contextual positive coping on the general population's resilience after disasters proposes that "positivity, or experiencing high levels of positive emotions, and not necessarily the absence of negative emotions, influences how well individuals cope with trauma and other life stressors" (p. 1288). A study on U.S. college students' response following the September 11 terrorist attack found that those who experienced more positive emotions—such as feeling grateful to be alive and closer with their loved ones—were less likely to develop depressive symptoms (Fredrickson et al., 2003). A crisis communication study on the 2009 H1N1 influenza outbreak at a large U.S. college campus found that positive emotions were associated with an increase in students' relational trust in the college

health center as a provider of aid (Kim & Niederdeppe, 2013).

Mechanisms for cultivating positive emotions

The underlying mechanism for generating positive emotions during crises is an understudied area. In the revised stress and coping model, Folkman (2008) proposed meaning-making coping—the act of drawing upon beliefs, values, and existential goals to make meaning during distress is associated with the cultivation of positive emotions. Referring to this model, a qualitative study of undergraduate psychology students' responses to COVID-19 found that students who were able to derive positive meaning and benefits from the pandemic expressed less fear, anxiety, or stress (August & Dapkewicz, 2021). These students identified self-related benefits such as learning to be grateful, unexpected personal growth, and more clarity about the future, and societal-related benefits such as people acting more selflessly, focusing on what matters, and improvements in the natural environment.

The adaptive roles of emotional intelligence (EI) and self-compassion (SC) as buffers of psychopathology are widely recognized (MacBeth & Gumley, 2012; Martins et al. 2010). However, it is less clear whether these protective factors regulate positive emotion and negative emotion equally and concurrently. Given the historical focus on psychopathy and the conceptual role of coping, it is likely to assume that EI and self-compassion reduce distress and suffering or, in other words, they reduce the presence of negative emotions. But what is the role of positive emotions in relation to EI and self-compassion? Does positive emotion play a supportive role in the reduction of negative emotions?

Emotional Intelligence

Emotional intelligence (EI) describes the effectiveness with which an individual utilizes thoughts and behaviors to regulate emotions in response to the demands of their environment.

Specifically, EI refers to one's intrapersonal abilities to accurately perceive, manage, and regulate emotional states and one's interpersonal abilities to express feelings to others for social support and empathize with others (Mayer & Salovey, 1997). Individuals with a high level of EI are generally more effective in perceiving their emotional states, appraising environmental stressors, and utilizing coping resources to regulate their emotions. Extensive research demonstrates the connection between EI and well-being (Sánchez-Álvarez, 2016), physical and mental health (Schutte et al. 2007), belonging (Moeller et al., 2020), interpersonal relationships (Ciarrochi et al., 2001), and adaptive coping (Resurrección et al., 2014). More information on EI can be found in Chapter 3.

The process by which EI might generate positive emotion can be explained by Folkman's revised stress and coping model (Folkman, 2008; Folkman, 1997). EI initiates positive reappraisal by tapping into one's deeply held values and beliefs (self-awareness) to revise goals, expectations, and behaviors in the context of a situation (self-management), and derive a greater sense of purpose and control rooted in a spiritual and existential stance (social awareness, relationship skills). This renewed sense of meaning and coping resources—in the form of positive emotion—then buffers the negative psychological state of the individual. However, the notion that EI "subtracts" negative emotions by "adding" positive emotions warrants more validation.

Self-compassion

Theoretically, self-compassion (SC) can be viewed as an emotion regulation strategy in which people emotionally respond to their suffering with self-kindness, cognitively understand their suffering as part of the shared human experience, and pay attention to their suffering with mindfulness (Neff, 2016). SC is related to EI in the perception of one's emotions and utilizing

the knowledge from these emotions to adapt despite hardship. SC is especially essential during extended distress as it focuses on cultivating positive meaning within one's internal and external worlds while holding negative feelings at bay. This positive form of relating self-to-self and self-to-others relating activates a soothing-affiliation system and, in turn, deactivates the threat-defense system brought on by stressors (Gilbert & Procter, 2006).

A meta-analysis of the relationship between SC and psychological distress revealed a large effect size ($r = -0.54$), suggesting self-compassion's explanatory role in adaptation and resilience (MacBeth & Gumley, 2012). Zessin et al.'s (2015) meta-analysis of the relationship between SC and well-being also found a large effect size ($r = 0.47$). In studies related to adolescence and emerging adulthood, SC was associated with better EI, feelings of social connectedness, better competence in self-soothing, lower mental health stigma, higher levels of positive emotional memories, and greater emotional well-being (Heath et al., 2018; Castilho et al., 2017; Bluth et al., 2016; Cunha et al. 2016; Heffernan et al., 2010; Neff & McGehee, 2010). COVID-19 studies around the world found SC to be a predictor of "peace and meaning" in Spain (Saiz et al., 2021); negatively associated with negative affect and anxiety in China (Guan et al., 2021); a mitigator of employee's work loneliness in the US (Andel et al., 2021); and a means of strengthening the pathway from extrinsic motivation to intrinsic motivation for graduate students in the UK (Kotera et al., 2021). However, at the time of this writing, there was no study examining the role of SC on the well-being of US undergraduate students.

Overview of the present study

Although EI and SC are well-known topics, little is known about their roles as protective buffers for racially diverse college students during COVID-19 pandemic. The mechanisms through which EI and SC regulate negative *and* positive emotions are also unclear. I investigated

these open questions through a study of psychosocial responses of college students of color before and during the developing COVID-19 pandemic.

I examined between-group and between-cohort differences in EI, SC, and college well-being. To do so, I compared student survey responses at the beginning of 1) the winter quarter of 2020, prior to the appearance of COVID-19 in the US; 2) the spring quarter after the switch to emergency online learning, about a month after the declaration of COVID-19 as a global pandemic; and 3) the fall quarter during the 2020-2021 academic year. In addition, I explored the underlying mechanism through which EI and self-compassion serve as protective buffers of well-being. Specifically, I observed whether positive emotions can be cultivated through EI and SC, and, in turn, mediate the relationship between EI and negative emotion or SC and negative emotion.

Findings from this study can inform the development of effective and equitable psychosocial interventions. Research questions include:

1. Were there significant group differences in students' EI, SC, and college well-being before COVID-19 by gender, race, first-generation status, and class standing?

2. Were there significant group differences in students' EI, SC, and college well-being during COVID-19 by gender, race, first-generation status, and class standing?

3. Were there significant cohort differences in students' EI, SC, and college well-being before and during different COVID-19 time points when surveys were administered?

4. What was the relationship between EI, SC, and college well-being before and during COVID-19?

My first two research questions contributed to the literature by providing empirical data on potential between-group differences in EI, SC, and well-being of the undergraduate

population before and during a shared public crisis. My focus on first-generation, Asian/Pacific Islander, and Latinx students provides much-needed evidence on the state of mental health in underrepresented student populations shortly before COVID-19 and during COVID-19. My results provide new insights on whether COVID-19 has had a differential impact on students' college well-being by race, gender, first-generation status, and class standing. I hypothesized that there was no significant difference in students' EI and SC by sociodemographic factors before and during COVID-19. However, I hypothesized that female and first-generation students reported significantly lower college well-being during COVID-19 than male and continuing-generation students. Based on the results from my first study, I hypothesized that Latinx students reported lower college well-being during COVID-19 than Asian/Pacific Islander students, but this difference was not significant.

The third research question investigates the potential cohort differences in EI, SC, and college well-being at different time points before and during COVID-19. By taking three distinctive time points into account, I aimed to capture the dynamic psychosocial adjustment at the cohort level. Comparing adaptive patterns across time can provide evidence supporting the strength-based models of positive youth development and resilience. Findings could help higher education administrators structure future crisis communications strategies and mental health interventions. I hypothesized that students' reported scores would be lower, on average, during than before COVID-19. I hypothesized that students would report significantly lower positive emotions and higher negative emotions in the spring quarter —since it was the first quarter when students had to abruptly adapt to a drastically different way of learning, living and socializing.

My last research question investigates the relationship between EI, SC, and college well-being, before and during COVID-19. I hypothesized that EI and SC are positively associated

with positive emotion and negatively related to negative emotion, regardless of whether it was before and during the pandemic. However, I hypothesized that EI and SC would show a stronger association with positive emotion during COVID-19. Using mediation analysis, I aimed to validate the theoretical proposal that positive emotion can help to regulate negative emotion and that EI and SC are regulatory processes that cultivate positive emotions. I hypothesized that EI and self-compassion significantly and positively predict positive emotion, which significantly and negatively predicts negative emotion. I hypothesized that positive emotion fully mediates the relationship between SC and negative emotion, and partially mediates the relationship between EI and negative emotion. My findings contribute to understanding the mechanisms underlying the protective utility of EI and SC, as well as the role of positive emotion in coping and resilience. These findings would contribute to the literature on adaptation models for improving the mental health and well-being of today's college student population.

Method

Participants

Undergraduates in the study were drawn from the University of California-Irvine (UCI), a large public university in the southwestern United States. UCI enrolls close to 30,000 undergraduates with a gender distribution of 47% male and 53% female. The U.S. Department of Education designates UCI as a Hispanic-serving institution, which means that one-quarter of undergraduates identify as Latinx, and half of all students receive financial aid. UCI is also designated as an Asian American and Native American Pacific Islander-serving institution. First-generation university students make up approximately 60% of the undergraduate student body.

Setting

On March 3, the university administration of this study sent its first communication, via

email, to the general student body to inform them of ongoing efforts regarding COVID-19 preparedness activities, which included quarantine and isolation plans for student campus housing and increased custodial services in large gathering areas. On March 8, 2020, the university recommended that the last week of the winter term should be made online-friendly for students who cannot attend in-person due to the health risks of potential exposure to COVID-19. Final exams would be administered remotely.

On March 10, 2020, UCI announced that the institution was transitioning to remote learning for the spring term, which would begin on April 6, 2020. On March 10, the campus announced the first suspected COVID-19 case on campus (which later turned out to be negative). On March 13, the office of the Vice Chancellor for Student Affairs "strongly encouraged" all students in campus housing to return to their permanent residence if they are able. On March 19, the governor of California announced a stay-at-home order for the state. On March 21, the first case of COVID-19 was confirmed. The Fall quarter would begin on September 28, 2020, with instruction starting on October 1, 2020.

Procedure

The present study used convenience sampling. Undergraduate students were recruited through word of mouth and email distribution lists. I worked with faculty and student affairs personnel to distribute email communications to students in university divisions, such as the School of Education, School of Social Science, School of Information and Computer Science, and School of Engineering. Students completed the survey during the first four weeks of the winter, spring, or fall quarters in 2020 and received an Amazon e-gift card ranging between $5 and $10. The University of California-Irvine's Human Subjects Research Review Committee provided the Institutional Review Board (IRB) approval for this research study.

Measures

  Emotional Intelligence. Students' social and emotional competence was measured using the *Assessing Emotions Scale (AES)*, also referred to as the *Emotional Intelligence Scale*. The self-report scale was developed based on Salovey and Mayer's (1990) EI model to provide an overall measure of the "adaptive emotional functioning involving inter-related competencies relating to perception, understanding, utilizing and managing emotions in the self and others" (Schutte et al., 2013, p. 56). *AES* consists of 33 items measured on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree" with a higher score indicating high levels of EI (Schutte et al., 2009; Schutte et al., 1998). Factor analytic studies on *AES* identified four subscales: perceiving emotions, managing own emotions, managing others' emotions (social skills), and utilizing emotions (Pau & Croucher, 2003; Ciarrochi et al., 2001; Petrides & Furnham, 2000). An example of the perception of emotions is "I am aware of my emotions as I experience them." An example of managing own emotions is "when I experience a positive emotion, I know how to make it last." An example of managing others' emotions is "I know when to speak about my personal problems to others." An example of utilizing emotions is "when my mood changes, I see new possibilities." Ciarrochi et al. (2002) validated these four factors in university populations. The scale has been used extensively in observational and intervention-based EI and well-being studies with over 200 publications in the PsycINFO (Schutte et al., 2009). The alpha coefficients related to internal consistency were reported to range from .76 to .95 in studies with university students from different countries (Siegling et al., 2015). Schutte et al. (1998) reported a two-week test-retest reliability of .78. The Cronbach's alpha for this study is $\alpha = 0.89$.

  Self-Compassion. The *Self-Compassion Scale – Short Form (SCS-SF)* consists of 12

items scored on a 5-point Likert scale with 1 as "*almost never*" to 5 as "*almost always*." (Neff, 2003) The scale also includes six dimensions: self-kindness ("When I'm going through a very hard time, I give myself the caring and tenderness I need"), self-judgment (reverse-scored; "I'm intolerant and impatient toward those aspects of my personality I don't like), common humanity ("When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people"), isolation (reverse scored; "When I fail at something that's important to me, I tend to feel alone in my failure"), mindfulness ("When something painful happens I try to take a balanced view of the situation"), and over-identification (reverse-scored; "When I'm feeling down I tend to obsess and fixate on everything that's wrong"). Subscale scores are computed by calculating the mean of the related item responses and the composite score is the mean of the subscales (three reverse-coded) with higher scores reflecting higher self-compassion. The short-form scale has a near-perfect correlation with the long scale when examining the total score, which is the mean of the subscales (with self-judgment, isolation, and over-identification reverse coded). In this study, the scale's reliability is $\alpha = 0.83$.

College Well-Being. Using a slider bar ranging from 0 (not at all) to 100 (very much), students rated their positive and negative emotions during college by responding to two statements. One statement assessed positive well-being: "I tend to feel a lot of positive emotions in college," and another statement assessed negative well-being: "I tend to feel a lot of negative emotions in college." Research with adolescents suggests that students' emotional well-being at school is the difference between positive and negative emotional experiences (Romero et al., 2014). A higher score means more positive emotional well-being in college.

Sociodemographic variables. Students provided their gender, race/ethnicity, major, class standing (i.e., freshman, senior), first-generation status, and transfer status.

Analysis Plan

For research questions one and two, I calculated the means and standard deviations of the variables of interest for the winter quarter before COVID-19 and the spring and fall quarters combined as during COVID-19. I used independent sample t-test to compare the differences in means between student subgroups by gender, first-generation, race/ethnicity, transfer status, and class standing. For research question three, I used one-way analysis of covariance (ANCOVA) to evaluate the differences of the three quarters and the difference between before and during COVID-19. Quarter (winter, spring, fall) was used as a fixed factor with gender as a covariate. I used nonparametric test (Kruskal-Wallis) when the normality assumption was violated (Rey & Neuhäuser, 2011). Cohen's d was used to calculate effect sizes. Cohen's d and partial eta-squared (η^2_p) were used to calculate the effect sizes of independent t-test and ANCOVAs, respectively.

For research question four, I investigated the relationship among variables of interest using correlation analysis (Pearson or Spearman's rho for nonparametric test). I examined the differences in the strength, direction, and significance of the bivariate correlations before COVID-19 and during COVID-19. Mediation analysis was conducted to investigate whether positive emotion mediated the relationship between EI and negative emotion and whether positive emotion mediated the relationship between SC and negative emotion, respectively. One set of mediation models with standardized estimates was performed on EI for before-COVID and during-COVID, and one set of mediation models was for SC for before-COVID and during-COVID. As recommended by Hayes (2009), I used 95% bias-corrected bootstrap confidence interval based on 5000 bootstrap samples. STATA 17.0 was used to conduct descriptive and regression analysis and JASP 0.16 was used to conduct the mediation analyses.

Results

Sample Description

A total of 345 students (76% female) filled out the online questionnaire: 82 responded in the winter quarter, 79 responded in the spring quarter, and 184 students responded in the fall quarter. The majority of the student respondents were Asian/Pacific Islander (57%) and Latinx (27%). Seventeen percent were transfer students, and approximately 46% reported first-generation status (39 did not respond to first-generation status). The majority of the students had an upper-class standing (78%).

Since Asian and Latinx were the student populations of interest in this study, a categorical race variable was created for Asian/Pacific Islander, Latinx, and all others. I conducted Chi-squared tests to examine comparability between pre-COVID-19 (winter quarter) and during COVID-19 (spring and fall quarters). Chi-squared tests indicated a significant difference in gender for 1) between before and during COVID-19 and 2) across all three quarters. Therefore, gender will be used as a control variable. No significant difference was found on first-generation, race, and class standing. Transfer status and major were statistically different, but will not be controlled since they are not of primary interest in this study. Table 4.1 provides descriptive statistics of demographic variables by academic quarter.

RQ1: Were there significant group differences in students' EI, SC, and college well-being before COVID-19 by gender, race, first-generation status, and class standing?

Independent sample t-test indicated no significant differences by race, first-generation, or class standing on the measures of interest (composite means of EI and SC, well-being, positive emotion, negative emotion. However, female students reported significantly lower positive emotions than male students ($p = .035$, $ES = .50$). Further independent sample t-tests at the EI

Table 4.1

Descriptive statistics of demographic variables by quarter

	Winter (n = 82)		Spring (n = 79)		Fall (n = 184)		Total (N = 345)	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Gender								
Female	53	65	55	70	155	84	263	76
Male	29	35	24	30	29	16	82	24
First-Generation	37	45	27	34	95	52	159	46
Race/Ethnicity								
Asian/Pacific Islander	44	45	45	57	108	59	197	57
Latinx	21	45	22	28	49	27	92	27
All Other	17	20	12	15	27	14	56	16
Transfer Status	25	30	15	19	19	10	59	17
Class Standing								
Lower Class Standing	14	17	13	16	48	26	75	22
Upper Class Standing	68	83	66	84	136	74	270	78
Major								
Arts, Humanities and Business	2	2	9	11	20	11	31	9
Social and Behavioral Sciences	42	51	34	43	122	66	198	57
STEM and Health Sciences	38	47	36	46	42	23	116	34

Note: 39 students did not respond to first-generation status (12 in the winter, 27 in the spring).

subscale level revealed that female students scored significantly higher than male students on managing others' emotions ($p = .015$, $ES = .54$). See Table 4.2 and the Supplementary Table 1 in Appendix C for a detailed measure comparison.

RQ2: Were there significant group differences in students' EI, SC, and college well-being during COVID-19 by gender, race, first-generation status, and class standing?

Female students reported significantly lower positive emotions ($p < .001$, $ES = .57$) and significantly higher negative emotions ($p = .008$, $ES = .41$) than male students. Females reported more negative emotions than positive emotions, whereas males reported a higher degree of positive emotions over negative emotions (see Table 4.3). As a result, the overall college well-being of females was significantly lower than male students ($p < .001$, $ES = .55$). Further independent sample *t*-tests at the EI subscale level revealed that female students scored significantly higher than male students on managing others' emotions ($p = .038$, $ES = .33$).

Table 4.2

Before COVID-19 comparison by student subgroups

	AES	SCS	Well-Being	Positive Emotion	Negative Emotion
Gender					
Female (n = 53)	114.62(15.22)	2.56(0.72)	-8.453(46.339)	48(23.71)	56.45(26.60)
Male (n = 29)	111.21(14.87)	2.77(0.77)	11.21(44.70)	59.93(24.60)	48.72(27.31)
p-value	0.328	0.236	0.065	*	0.216
ES	0.23	0.28	0.43	**0.50**	0.29
First-Generation					
No (n = 33)	113.06(13.44)	2.67(0.55)	3.30(40.7)	55.85(20.3)	52.55(25.77)
Yes (n = 37)	113.16(17.78)	2.56(0.90)	-4.57(50.84)	49.6(27.21)	54.16(28.78)
p-value	0.979	0.541	0.481	0.284	0.806
ES	0.01	0.15	0.17	0.26	0.06
Race/Ethnicity					
Asian/PI (n = 44)	113.46(16.83)	2.70(0.75)	2.16(46.89)	52.77(24.98)	50.61(23.77)
Latinx (n = 21)	112.33(12.79)	2.49(0.82)	-13.76(55.71)	46.05(27.29)	59.81(32.50)
p-value	0.788	0.323	0.233	0.328	0.256
ES	0.07	0.26	0.32	0.26	0.32
Class Standing					
Lower (n = 14)	114.36(10.57)	2.82(0.69)	8.57(40.34)	54.93(19.07)	46.36(23.24)
Upper (n = 68)	113.22(15.92)	2.60(0.75)	-3.57(47.63)	51.66(25.62)	55.24(27.55)
p-value	0.799	0.303	0.376	0.653	0.264
ES	0.08	0.30	0.26	0.13	0.33

Note: First-generation missing responses from 12 students. Race/Ethnicity did not include "All Other" due to small sample size. AES = Assessing Emotions Scale; SCS = Self-Compassion Scale. *ES* = Cohen's *d* . * p < .05, ** p < .01, *** p < .001

Compared to male students, female students scored lower on all six subscales of SC with a significant difference found on mindfulness (p = .005, *ES* = .43). See Table 2 in Appendix C for a detailed breakdown of measures by subgroup.

Juniors and seniors reported significantly lower college well-being than freshmen and sophomores (p = .012, *ES* = .37) due to significantly higher negative emotions (p =.002, *ES* = .45). Students with upper-class-standing also reported noticeably lower SC (p = .082, *ES* = .26) than students with lower-class-standing as a result of reporting worse mean scores on all six subscales (kindness, common humanity, mindfulness, self-judgment, isolation, and over-identification). In particular, juniors and seniors reported significantly higher self-judgment (p

$= .031$, $ES = .32$). Further independent sample t-tests at the EI subscale level revealed that juniors and seniors reported significantly lower scores in managing one's own emotion ($p = .046$, $ES = .28$) than freshmen and sophomores.

Table 4.3
During COVID-19 comparison by student subgroups

	AES	SCS	Well-Being	Positive Emotion	Negative Emotion
Gender					
Female (n = 210)	120.82(13.53)	2.78(0.65)	-4.73(43.32)	48.67(24.07)	53.4(24.55)
Male (n = 53)	119.74(15.54)	2.96(0.72)	19.13(43.48)	62.23(23.18)	43.09(25.85)
p-value	0.614	0.076	***	***	*
ES	0.08	0.27	**0.55**	**0.57**	**0.41**
First-Generation					
No (n = 114)	121.54(15.20)	2.81(0.68)	2.57(45.08)	52.51(24.87)	49.94(26.64)
Yes (n = 122)	120.4(12.21)	2.84(0.65)	-2.02(43.96)	49.57(23.87)	51.59(24.14)
p-value	0.527	0.75	0.430	0.356	0.619
ES	0.08	0.04	0.10	0.12	0.07
Race/Ethnicity					
Asian/PI (n = 153)	120.48(14.96)	2.85(0.69)	2.01(47.5)	53.01(25.89)	51.01(26.54)
Latinx (n = 71)	121.06(13.03)	2.75(0.61)	-0.58(35.48)	50.8(19.33)	51.38(22.09)
p-value	0.782	0.293	0.683	0.522	0.912
ES	0.04	0.15	0.06	0.09	0.02
Class Standing					
Lower (n = 61)	121.74(12.43)	2.94(0.61)	12.56(42.17)	55.54(23.68)	42.98(23.18)
Upper (n = 202)	120.26(14.36)	2.77(0.68)	-3.69(44.37)	50.15(24.62)	53.84(25.18)
p-value	0.468	0.082	*	0.126	**
ES	0.11	0.26	**0.37**	0.22	**0.45**

Note: First-generation missing responses from 27 students. Race/Ethnicity did not include "All Other" due to small sample size. AES = Assessing Emotions Scale; SCS = Self-Compassion Scale. ES = Cohen's d. * $p < .05$, ** $p < .01$, *** $p < .001$

RQ 3: Were there significant cohort differences in students' EI, SC, and college well-being before and during different COVID-19 time points when surveys were administered?

One-way ANCOVAs were used to assess the differences in EI, SC, and college well-being by quarter. Quarter (winter, spring, fall) was used as a fixed factor with gender as a covariate. See Table 4.4 for ANOVAs of measures by quarter. A significant quarterly difference was found on the EI composite score and three of four subscales (perception of emotion, managing own emotion, managing others' emotion). The lowest means were reported by

students in the quarter before COVID-19, and the highest means were reported by students in the later quarter during COVID-19. One exception was the utilize emotion subscale, which changed minimally across quarters. During the pandemic, students reported significantly higher scores on the perception of emotions ($p = .020$, $\eta^2_p = .02$) and managing others' emotions ($p = .024$, $\eta^2_p = .02$) in the fall than in the spring.

A significant quarterly difference was found on the SC composite means across quarters. Post hoc analysis revealed that the reported SC means were significantly higher during the pandemic than before the pandemic primarily due to significantly lower subscale means in self-judgment, isolation, and over-identification during COVID-19 than before COVID-19. Further, self-judgment was significantly lower in the fall quarter than the spring quarter during COVID-19. Reported positive emotions experienced in college were significantly different across quarters ($p = .010$, $\eta^2_p = .03$) with the spring quarter as the highest and the fall quarter as the lowest. There was no significant difference in negative emotionality and in overall college well-being.

RQ4: What was the relationship between EI, SC, and college well-being before and during COVID-19?

Correlation analyses were conducted on the composite measures of EI and SC, positive emotion, negative emotion, and gender (male, female) for before COVID-19 and during COVID-19, respectively. See Tables 4.5 and 4.6. For before and for during the pandemic, both EI and SC significantly and positively correlated with positive emotion; and significantly and negatively associated negative emotion. However, the strength and the significance of the correlation between EI and emotionality measures were higher before COVID-19 ($0.333 \leq |r| \leq 0.424$, $p < .01$) than during COVID-19 ($0.137 \leq |r| \leq 0.157$, $p < .05$). Similarly, the strength of the

Table 4.4

Quarterly differences in measurement

	Winter (n = 82)		Spring (n = 79)		Fall (n = 184)		Quarterly Difference	
	M	*SD*	*M*	*SD*	*M*	*SD*	*p*	η^2_p
Emotional Intelligence								
AES Composite Score	113.42	15.09	117.96	15.78	121.73	12.94	***	0.05
Perception of emotion	32.48	6.79	34.15	7.14	36.22	6.06	***	0.05
Managing own emotion	30.23	4.94	31.70	5.81	32.34	4.54	**	0.03
Managing others' emotion	28.06	4.31	28.92	3.90	30.23	3.64	***	0.04
Utilizing emotion	22.65	2.69	23.19	3.13	22.95	2.65	0.435	0.01
Self-Compassion								
Composite Score	2.64	0.66	2.72	0.68	2.85	0.66	*	0.03
Self-kindness	2.91	0.95	3.04	0.86	3.00	0.91	0.502	0.00
Self-judgment^	3.59	1.10	3.57	0.98	3.20	1.13	**	0.04
Common humanity	2.97	0.90	3.13	0.97	3.12	0.90	0.352	0.01
Isolation^	3.81	1.00	3.70	0.93	3.45	1.08	**	0.03
Mindfulness	3.31	0.99	3.29	0.85	3.33	0.93	0.707	0.00
Over-identification^	3.98	0.96	3.89	1.02	3.69	1.05	*	0.02
College Well-Being								
Composite Score	-1.50	46.46	5.71	40.54	-2.34	45.74	.484	0.00
Positive Emotion	52.22	24.56	59.42	22.21	47.96	24.64	**	0.03
Negative Emotion	53.72	26.95	53.71	23.97	50.30	25.59	.179	0.01

Note: Gender was used as a covariate. ^Self-judgment, isolation, and over-identification are negative subscales (high score means lower compassion). *$p<.05$, **$p<.01$, ***$p<.001$

correlation between SC and emotionality measures was higher before COVID-19 ($0.600 \leq |r| \leq 0.691$) than during COVID-19 ($0.269 \leq |r| \leq 0.337$). However, unlike EI, the significance between SC and emotionality measures remained the same ($p < .001$). SC and EI were more positively correlated before COVID-19 than during COVID-19.

A deeper dive examining the differences between the two quarters during COVID-19 revealed that EI was not correlated with the emotionality measures in the fall quarter. Self-compassion was significantly correlated with emotionality measures in both quarters, but the strength was stronger in the spring ($0.379 \leq |r| \leq 0.477, p < .001$) than in the fall ($0.241 \leq |r| \leq 0.284, p < .001$). Gender significantly and positively correlated with emotionality measures only during the fall quarter. See Supplementary Tables 3 and 4 in Appendix C for correlation tables for the two quarters during COVID-19.

Table 4.5

Correlation table for measures before COVID-19

	1	2	3	4	5
1. Assessing Emotions Scale	-				
2. Self-Compassion	0.533***				
3. Positive Emotion	0.436***	0.649***			
4. Negative Emotion	-0.333**	-0.600***	-0.656***		
5. Gender	-0.109	0.136	0.234*	-0.138	-

Note: Pearson's r or Spearman's rho (when normality is violated). Gender: male = 0; female = 1. *$p < .05$, **$p < .01$, ***$p < .001$

Table 4.6

Correlation table for measures during COVID-19

	1	2	3	4	5	6
1. Assessing Emotions Scale	-					
2. Self-Compassion	0.385***					
3. Positive Emotion	0.144*	0.269***				
4. Negative Emotion	-0.137*	-0.332***	-0.578***			
5. Gender	-0.031	0.087	0.211***	-0.163**		
6. Quarter	0.124*	0.107	-0.215***	-0.071	-0.167**	-

Note: Pearson's r or Spearman's rho (when normality is violated). Gender: male = 0; female = 1. Quarter: spring = 0; fall = 1. *$p < .05$, **$p < .01$, ***$p < .001$

Two sets of mediation pathway models were conducted for before-COVID and for during-COVID to investigate whether positive emotion mediated the relationships between EI and negative emotion, and between SC and negative emotion, while controlling for gender. Before-COVID mediation model indicated a significant and medium indirect effect on EI and negative emotion ($\beta = -.27$, *SE* = .07, $p < .001$). The total effect was significant, but the direct effect was not. During-COVID mediation model indicated a significant but a much smaller indirect effect on EI and negative emotion ($\beta = -.09$, *SE* = .04, $p < .05$). The total effect was significant, but the direct effect was not. This suggested full mediation of positive emotion on the relationship between EI and negative emotion before and during COVID-19. EI positively predicted positive emotion, but the strength of the association was weaker during COVID-19 ($\beta = .47, p < .001$) than before COVID-19 ($\beta = .15, p < .05$). Positive emotion negatively predicted

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negative emotion and the strength of the association was similar for before and during COVID-19. See Figures 4.1 and 4.2 for effects before and during COVID-19.

Supplementary mediation models were conducted as a subsequent validation of my theoretical hypothesis of the role of positive emotion. To do so, I explored whether *negative* emotion mediated the relationship between EI and positive emotion while controlling for gender. The pathway model before-COVID-19 indicated a significant and small indirect effect on EI and positive emotion ($\beta = .18$, *SE* $= .06$, p $< .01$). Both the total effect and the direct effect between EI and positive emotion were significant. During-COVID mediation model indicated a significant but a much smaller indirect effect on EI and negative emotion ($\beta = .08$, *SE* $= .04$, *p* $< .05$). The total effect was significant, but the direct effect was not. This suggested a partial mediation of negative emotion on the relationship between EI and positive emotion before COVID-19 and a full mediation during COVID-19. EI negatively predicted negative emotion, but the strength of the association was weaker during COVID-19 ($\beta = -.14$, *p* $< .05$) than before COVID-19 ($\beta = -.35$, *p* $< .001$). Negative emotion negatively predicted positive emotion and the strength of the association was slightly stronger during COVID-19. See supplemental Figures 1 and 2 in Appendix C.

Effect of IV on M (a)
$\beta = .47, p < .001$

Positive Emotion

Effect of M on DV (b)
$\beta = -.59, p < .001$

Emotional Intelligence

Total effect (c)
$\beta = -.35, p < .001$

Direct effect (c')
$\beta = -.08, p = .438$

$.59$

Negative Emotion

Indirect effect
$\beta = -.27, SE = .07, p < .001$

Covariate: Gender

$-.02$

Figure 4.1. Before-pandemic relationship between EI and negative emotion with positive

emotion as mediator (standardized estimates).

Figure 4.2. During-pandemic relationship between EI and negative emotion with positive emotion as mediator (standardized estimates).

Before-COVID mediation model for positive emotion mediating the relationship between SC and negative emotion indicated a significant and medium indirect effect ($\beta = -.26$, *SE* = .08, *p* < .001). Both the total effect and the direct effect were significant (see Figure 4.3). During-COVID mediation model indicated a significant and small indirect effect on self-compassion and negative emotion ($\beta = -.14$, *SE* = .03, *p* = .001). Both the total and direct effects were significant (see Figure 4.3). This suggested a partial mediation for both before and during COVID-19, and that the mediating strength of positive emotion was stronger before COVID than during the pandemic. SC positively predicted positive emotion, but the strength of the association was stronger before COVID-19 ($\beta = .63$, *p* < .001) than during COVID-19 ($\beta = .25$, *p* < .001).

Supplementary mediation models explored the mediating role of *negative* emotion on the relationship between SC and positive emotion while controlling for gender. The pathway model before-COVID-19 indicated a significant and small indirect effect on SC and positive emotion ($\beta = .21$, *SE* = .07, p < .001). Both the total effect and the direct effect between SC and positive emotion were significant. During-COVID mediation model also indicated a significant and small

indirect effect on SC and negative emotion (β = .18, *SE* = .04, *p* < .001). The total effect was

significant, but the direct effect was not. This suggested a partial mediation of negative emotion

on the relationship between SC and positive emotion before COVID-19 and a full mediation

during COVID-19. SC negatively predicted negative emotion before COVID-19 (β = -.59, *p*

< .001) and during COVID-19 (β = -.32, *p* < .001). See supplemental Figures 3 and 4 in
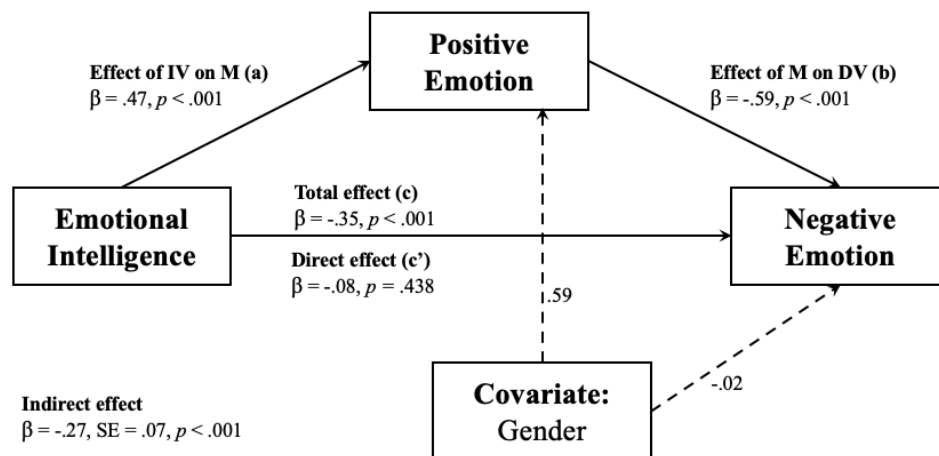
Appendix C.
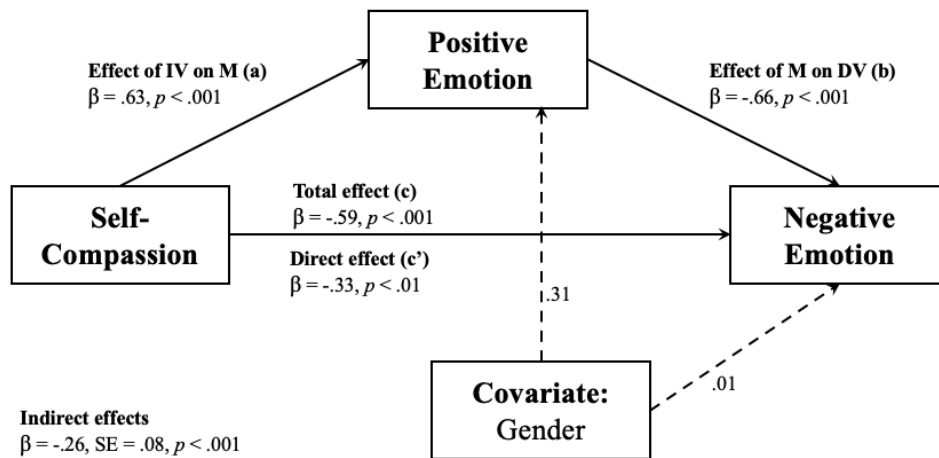
Figure 4.3. Before-pandemic relationship between SC and negative emotion with positive
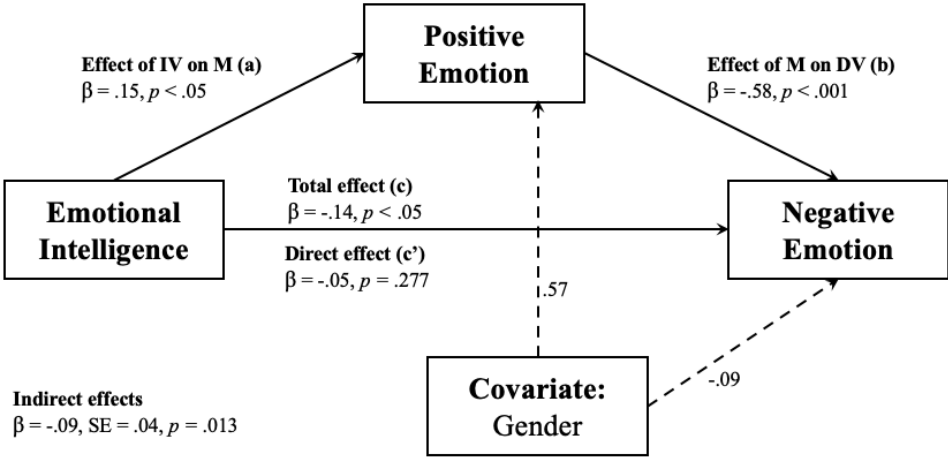emotion as mediator (standardized estimates).
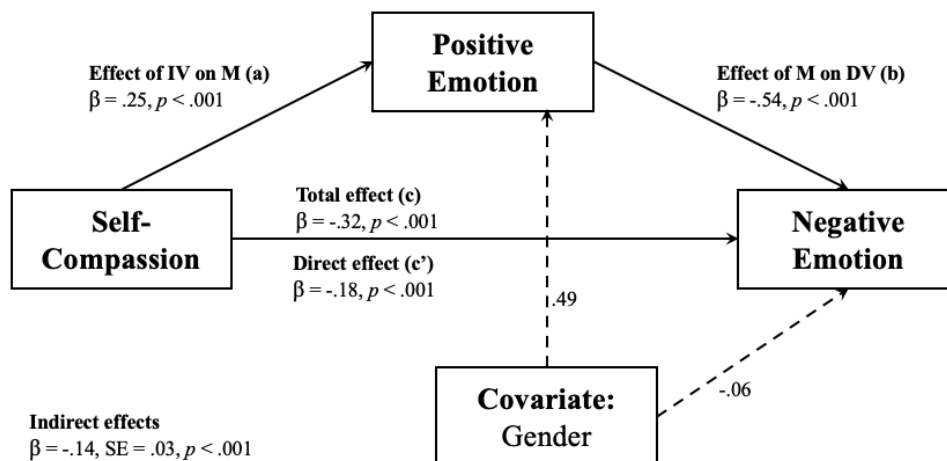
Figure 4.4. During-pandemic relationship between SC and negative emotion with positive
emotion as mediator (standardized estimates).

Discussion

The present study investigated the roles and mechanisms through which EI and SC serve as protective factors for students' college well-being. To the best of my knowledge, this is the first study that examines positive emotion as an explanatory variable underlying the way in which EI and SC serve to buffer the negative emotions in racially-diverse college students. By comparing the association of EI, SC, and emotionality before and during a shared public crisis, I shed light on the utility and durability of EI and SC on students' college mental health and well-being. The results of this study support my central hypothesis regarding the adaptive roles of EI and SC in the college student population and the mediating role of positive emotion in the relationship of EI and SC with negative emotion.

Group differences

Gender differences were most prominent in positive emotions. Female students reported significantly lower levels of positive emotions than male students before the pandemic. As hypothesized, this gender difference widened even more during the pandemic with females also reporting significantly higher levels of negative emotions than male students. In general, females reported experiencing less positive than negative emotions; whereas males reported experiencing more positive than negative emotions. This pattern might be explained by the gender differences found in EI and SC, both before *and* during the pandemic. Female students reported significantly higher scores on managing others' emotions and consistently lower levels of SC. Further, female students reported significantly lower levels of mindfulness compared to male students during COVID-19.

The parallel of gender differences in EI, SC, and well-being suggests that female students' relatively greater attempts in managing the emotions of others might come at a personal

cost. The majority of my study sample comprised of Asian/Pacific Islander and Latinx students, whose cultures have traditionally emphasized collectivism. A meta-analysis of gender differences in SC revealed that males had slightly higher levels of SC than females and that this difference was more prominent in samples with female ethnic minorities (Yarnell et al., 2015). It is foreseeable that emotional tolls from both the obligatory and voluntary care of others led to significantly lower well-being in female students than male students.

In the same line of thinking, it is also not surprising that female students' SC and well-being deteriorated even more during COVID-19. A majority of the students moved back home with their parents and thus, were likely to have re-experienced the tensions in navigating between independence and interdependence, autonomy and relatedness, and individualism and collectivism (Juang et al., 2012a). Studies have found that acculturation-based conflicts predicted poorer well-being in Asian American and Latinx adolescents and young adults (Juang et al., 2012b; Rivera et al., 2008). COVID-19 studies also found that female students, in general, were more likely to report lower levels of mental health than male students (Kroshus et al., 2021; Soria et al., 2020). Finally, it is also plausible that female students are more willing to acknowledge and accept their negative emotional experiences. As noted in my previous chapter, Asian and Latinx male students reported greater stigma toward negative emotional experiences and expressions (Lipson et al., 2018). The overarching similarities in collectivism and perception of stigmatism may also explain why my findings revealed significant gender differences–but not racial differences–between Asian/Pacific Islander and Latinx students.

Juniors and seniors were substantially impacted by COVID-19 in their reported college well-being than freshmen and sophomores. They also reported lower EI in terms of their hindered ability to manage their own emotions, and lower SC attributed to their higher levels of

self-judgment compared to students with lower-class-standing. It does not come as a shock that students who were closer to graduating were unhappier during the developing pandemic than students who were newly embarking on their college career. In a survey of about 1500 undergraduate students at the Arizona State University in April 2020, 40% lost a job, internship, or a job offer and 13% had delayed graduation—with lower-income students 55% more likely than higher-income peers to do so (Aucejo et al., 2020). Amidst economic uncertainty, juniors and seniors have endured accumulating disappointments such as losses of study abroad plans, internships, job prospects, dating opportunities, and in-person graduation.

There were no significant differences in EI, SC, and college well-being between first-generation and continuing-generation students before *or* during COVID-19. Contrary to my hypothesis, my results suggest that first-generation students at UC Irvine were not disproportionately impacted by COVID-19. This seems questionable since a larger-scale survey conducted at multiples University of California sites in the same year found that 40% of first-generation students (compared to 33% of continuing-generation students) screened positive for major depressive disorders. One explanation could be the fact that I asked for students to report their well-being specifically as it was related to college instead of the broader overall context, and that I focused on both the positive and negative emotions instead of solely on psychopathological distress. At the group-level, this could be an illustration of first-generation students' coping and resilience. At the institutional-level, this could be a testament to UCI's support services for first-generation students, which make up 60% of the entire undergraduate student body. Alternatively, from a research standpoint, it is also likely that the first-generation participants who volunteered for this study and took the time to complete the survey were not representative of the overall student body.

Cohort differences

Across the three quarters, the positive emotions reported by students fluctuated nearly four times more than negative emotions. This notable finding suggests that positive emotions might be more transient, and perhaps more malleable, than negative emotions in the college student population. This is interesting because studies employing momentary experience sampling have found that individuals with major depressive disorder reported lower levels of positive emotion and greater instability of negative emotions than healthy controls (Thompson et al., 2012). Other studies on general populations have found that greater diversity of both positive and negative emotions predicted better mental and physical health (Quoidbach et al. 2014). Although I relied on limited cross-sectional patterns, my finding of the differential fluctuations between positive and negative emotions at the quarterly cadence make a strong case for further investigation in the roles of positive and negative emotions in the college student population.

Contrary to my hypothesis, students reported the highest levels of positive emotions and well-being in the spring quarter—within the first month of the declaration of the global pandemic. Perhaps despite the abrupt shelter-in-place mandate and switch to online learning, students in the sample actually experienced a greater influx of positive emotions related to gratitude for good health, time with family, and a sense of security for sustenance. The recent experience of moving back home with family after the shock from the onset of the pandemic could unleash a flood of relief. Students completed the study survey during the first two weeks of April 2020—a period when the novel coronavirus was believed to be short-lived in the US. In early April, optimistic sentiments were communicated in national headlines such as CNN's "Coronavirus model projects some states have passed their peaks, others are weeks away" (Azad, 2020). This was a time when students were told that distance learning was temporary and faculty

members were encouraged to make accommodations for assignment deadlines.

By the fall quarter, students have sufficiently cycled through bouts of hope and hopelessness as a result of the developing pandemic. Students had also experienced a number of sociopolitical developments such as immigration and racial injustice, on top of grieving for family members who may have been impacted by the pandemic. An online survey conducted by The Jed Foundation on college students' emotional readiness for the fall 2020 semester found that 61% of students felt extremely or very concerned about racial unrest in this country and 82% experienced anxiety in the month leading up to the semester.

Fall 2020 was the first quarter when students were officially allowed to move back to campus housing and utilize institutional facilities following the emergency move-out in the spring. Even before the start of the quarter, the inboxes of all students—whether moving back on campus or not—were inundated with new move-in procedures, testing, and social distancing protocols, and masking requirements. On top of the pandemic, there were also local fires that prompted evaluation around nearby neighborhoods. *All* students, regardless of class standing, were likely to have experienced some form of discomfort in their process of academic transition and social acclimation (back) into college. Borrowing from the first-year retention and belonging literature, students were likely to have encountered anxiety and insecurity—in particular in this predominately underrepresented study sample (Hoffman et al., 2002; Hurtado & Carter, 1997; Tinto, 1993). It is likely that for these reasons students reported the lowest levels of positive emotions in the fall quarter. However, it is also important to note that students' levels of negative emotions were similar across all three quarters. The relationship between positive and negative emotions will be discussed in the following sections.

Contrary to my hypothesis, students who filled out the survey before the pandemic

reported the lowest levels of EI, and those who completed the survey eight months into the pandemic (fall 2020) reported the highest levels of EI. This can be attributed to students' reported increase in their perception of emotions and increase in managing others' emotions during the pandemic. One likely explanation could be that the dangers associated with the pandemic had brought forth an increased intensity, range, and prolonging of emotions—in oneself, in others, and in the media. Complementary to this increase in emotional experiences, the stay-at-home mandate and social distancing measures may have forced students to turn their attentions toward themselves and connect emotionally with others on a more dyadic basis. The Jed Foundation revealed that a minority of students (16%) reported that their mental health was better in fall 2020 than before the pandemic, attributing to a time for self-reflection: "*Been able to learn a lot about myself during quarantine. So my emotional health is pretty good*" (JED, 2020). However, my finding is inconclusive at the time of this writing: there has yet to be a study that assessed within-person changes in EI as a result of the pandemic.

Similar to EI, SC showed an upwards trend from before the pandemic to eight months into the pandemic. Most prominently, students reported lower levels of self-judgment, isolation, and over-identification quarter over quarter, and substantially so between the spring and fall quarters during the pandemic. It is interesting to note that the drop in these three negative emotion-eliciting subscales was paired with only minimal changes in the reported self-kindness, common humanity, and mindfulness. Unfortunately, there has been a lack of research in this area on the role of self-compassion in ethnic minority populations. Recent research on Asian American college students suggests that self-compassion mediates emotional suppression of help-seeking attitudes (Kim et al., 2021), moderates the effects of imposter feelings on interpersonal shame (Wei et al., 2020), and protects against COVID-19 discrimination (Zhang et

al., 2021). However, more research is needed to understand how the positive and negative subscales of self-compassion contribute to these findings.

The relationship between EI and SC during crisis

EI and SC were highly correlated ($r = .533$) before the pandemic, which aligns with the findings from the sparse number of studies that explored the association between EI and SC. Castilho et al. (2017) found a similar correlation of $r = .48$ in 1101 high school students in Portugal, Heffernan et al. (2010) found $r = 0.55$ in a sample of 135 American nurses in New York, and Senyuva et al. (2014) found $r = 0.40$ in 571 Turkish nursing undergraduates. These studies converged on the finding that EI and SC serve as adaptive emotion regulation processes that contribute to better mental health and job performance.

At the time of the writing, the present study is the first to reveal that the strength of the association between EI and SC—two of the widely recognized protective factors—could be diminished in the context of real-world crisis. The correlation of EI and SC for the cohort during COVID-19 was $r = .385$. This suggests that the underlying mechanisms in which EI and SC buffer mental health and well-being may work differently during times of high distress than during normal everyday circumstances.

The mechanism in which EI buffers emotionality is circumstantial

As hypothesized, positive emotion mediated the relationship between EI and negative emotion. There was a significant positive relationship between EI and positive emotion, and significant inverse relationship between EI and negative emotion and between positive and negative emotion. Yet unexpectedly, a full mediation was found for both before and during COVID-19. This means that with the introduction of positive emotion as a mediator, EI is no longer significantly associated with negative emotions, but rather only through the cultivation of

positive emotions, which then influences the level of negative emotions. This important finding challenges the sweeping assumption that EI increases well-being through the reduction of negative emotions.

Although significant, the strength of the full mediation pathway was lower during than before COVID-19. This was because the direct association between EI and positive emotion dampened during COVID-19. Interestingly, a supplementary mediation model that explored the role of negative emotion as the mediator on EI and positive emotion confirmed that positive emotion was a stronger mediator before COVID-19. However, it revealed that *both* positive and negative emotions partially mediated the relationship between EI and emotionality during COVID-19. These dynamic circumstantial differences suggest that during the "good" times, EI protects well-being primarily through improvements in positive emotions, and during the "bad" times, EI protects well-being equally through the cultivation of positive emotions and the mitigation of negative emotions. As a result, my finding can only *partially* confirm Fredrickson (2003)'s declaration of positive emotion as the active ingredients in coping and thriving. Perhaps positive emotion is the primary ingredient in thriving, but negative emotion is an equal ingredient to consider in the context of coping. Moreover, my finding also underscores the importance of capturing both positive and negative emotional outcomes in EI research *and* the critical need to consider the sociocultural context in which the data were collected.

During COVID-19, students reported higher levels of perception of emotions, managing their own emotions, and managing others' emotions, with minimal improvements in utilizing emotions. Higher perception of negative experiences and managing of others' distress during a time of distress are likely to overload one's cognitive, attentional, and appraisal systems. Without the ability to utilize emotions adaptively, students might not be able to employ timely coping

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strategies to mitigate emotional burnout and empathy fatigue. This suggests that a balanced EI profile with complementary skills in the accurate perception and the adaptive utilization of emotions may play an important role in determining well-being. Further, this also highlights the importance of equipping college students with a variety of coping strategies that can either improve positive emotions *or* decrease negative emotions during the COVID-19 pandemic.

Self-compassion is associated with positive and negative emotions

Contrary to my hypothesis, both positive and negative emotion partially mediated the relationship between SC and emotionality before COVID-19. This suggests that SC improves well-being through multiple pathways: the cultivation of positive emotion, the reduction of negative emotion, and additional mediators beyond the variables measured in this study. Perhaps personality traits and circumstantial outlook might serve as additional mediators of the relationship between SC and well-being. An inquiry into the adjacent empirical studies revealed that future outlook (Phillips, 2018) such as hope (Yang et al., 2016), rumination and worry (Raes, 2010), positive and negative automatic thoughts (Arimitsu & Hofmann, 2014), and social safeness (Kelly & Dupasquier, 2016) mediated the relationship of SC and mental health. Tying in with my first study, it would be worthwhile to investigate whether students' beliefs about emotions could serve as a mediation for the relationship between SC and well-being.

During COVID-19, negative emotion appeared to be a stronger mediator than positive emotion. SC is more inversely associated with negative emotion than it was positively associated with positive emotion. This suggests that during times of suffering, SC might be more effective in the direct reduction of negative emotion than the increase in positive emotion. It is likely that this dynamic switch is a method of triaging the emotions that are most contextually salient. This also appears to be reasonable given the psychometric characteristics in the Self-Compassion

Scale. Self-kindness, common humanity and mindfulness are the three factors related to positive emotions. Self-judgment, isolation, and over-identification are the three opposing factors related to negative emotions. The present study found that students reported significantly less self-judgment, isolation, and over-identification during COVID-19 than before COVID-19, whereas there were minimal changes in the three positive SC factors. This suggests that in the college student population, SC primarily reduces suffering through the reduction, or perhaps, the neutralization of negative emotions. As proposed by Neff & Dahm (2015): "through welcome negative emotions rather than resisting or suppressing them, self-compassionate behaviors are posited to engender positive emotions and are associated with psychological strengths" (Bluth & Blanton, 2015, p. 220).

Limitations

The present study used convenience sampling and is cross-sectional. As a result, the temporal patterns discuss in the study need to be verified by within-person changes supported by longitudinal studies. My sample consisted of a smaller number of males compared to females, and more research is needed to validate the generalizability of the gender differences suggested in my study. In addition, a majority of the students in my sample were Asian/Pacific Islander and Latinx. Future studies are warranted to understand additional racial group needs. In addition, a balanced sample of ethnic-diverse and white students would help to examine group differences or the individualistic and collectivistic differences in EI, SC, and well-being.

The well-being measure I used in this study was limited to the college setting and restricted to positive and negative emotions. Additional and more in-depth outcome measures are needed in future studies. A more comprehensive well-being measure such as the Ryff Scale of Psychological Well-Being, along with a more in-depth affect measure such as the Positive and

Negative Affect Schedule (PANAS) would to better uncover the association between EI, SC, well-being, and emotionality. In addition, I used the short-form version of the self-compassion measure. Although the total score has a near perfect correlation with the long-form, the subscales might be less reliable. Using the long-form would shed clarify on the trends in subscales.

Conclusion and next steps

The present study finds that emotional intelligence and self-compassion are associated with the cultivation of positive emotions and reduction of negative emotions. My findings offer a dose of confidence in both the versatility and the dynamic utility of EI and SC as protective factors for racially diverse college students. More importantly, my study explains the underlying mechanism through which EI and SC regulate well-being, and how this process can vary from everyday context to during prolonged period of distress. In my predominately racially-diverse sample, female students and students with upper-class-standing were found to be disproportionately impacted by the COVID-19 pandemic. This can be attributed to the emotional toll of managing one's own emotions and managing that of others, as well as an increase in self-judgment and a decrease in mindfulness. This suggests that ethnically diverse college students need skills related to the awareness and acceptance of their emotions, as well as implementable coping strategies. Interventions for this population should equip students with both intrapersonal and interpersonal skills. For example, students need self-awareness skills to recognize when they are partaking in negative self-talk and rumination of negative experiences, as well as the self-management and relationship skills to manage their emotional fatigue.

My next study expands on the findings from my first and present studies by investigating the transferability and durability of such an EI intervention effects on college students' adaptive and maladaptive coping skills during COVID-19. My first study examined the combined effects

of the intervention across three quarters on students' beliefs about emotions, and study three assesses students' behaviors toward emotions during the pandemic. The present study finds that both the cultivation of positive emotion and the reduction of negative emotion are important in managing mental health during the pandemic. My next study provides a deeper understanding of how students do so by assessing the effects of the EI intervention on students' emotion-focused, problem-focused, socially-supported, and avoidance-based coping behaviors.

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CHAPTER 5

Coping behaviors during COVID-19:

The impact of an emotional intelligence intervention on college students

The COVID-19 pandemic has brought and continues to bring sweeping psychological distress to university students. College students reported an influx of new stressors such as fear of contagion (Cao et al., 2020), an increase in coronavirus-related news (Huckins et al., 2020), loneliness (Arslan, 2020; Bzdok & Dunbar, 2020), worry about their health and their loved ones (Son et al., 2020), adapting to remote instruction (Chirikov et al., 2020), financial constraints (Park et al., 2020), and uncertainty related to academic performance and career prospects (Sundarasen et al., 2020). The 18- to 24-year-olds group reported the highest levels of increase in substance use to cope with pandemic-related stress or emotions (24.7%) and likelihood of experiencing least one adverse mental or behavioral health symptoms (74.9%; Czeisler et al., 2020). A meta-analysis of the impact of COVID-19 pandemic on the mental health of college students found an increased prevalence of depression (39%) and anxiety (36%) among this population (Li et al., 2021). With the length of the pandemic nearing two years, students are enduring the ever-present negative emotions surrounding COVID-19 as they navigate the changes in how they live, learn, and socialize in college.

Students' mental health and well-being are intimately linked with academic performance (Eisenberg et al., 2009; Roeser et al., 1998), school persistence (Hartley, 2010), and life expectancy (Arora et al., 2016). Devastatingly, COVID-19 studies across the globe noted greater mental health deterioration in students who have reported poor emotional regulation and coping skills (El-Monshed et al., 2021; Kar et al., 2020; Son et al., 2020). Taken together, these findings show that there is an urgent and universal need for postsecondary institutions to help students

develop healthy emotion regulation and adaptive coping skills if they are to thrive during and beyond the COVID-19 pandemic. In the present study, I evaluate the effects of a skills-building teaching intervention on students' emotional intelligence, coping behaviors, and psychological distress.

Intelligent emotion regulation

When we engage in emotion regulation (ER), we are regulating, monitoring, evaluating, and redeploying additional strategies according to our regulatory and affective goals (McRae & Gross, 2020). Our goals are shaped by sociocultural, functional, temporal, developmental, and ability factors (Bonanno & Burton, 2013). Thus, when evaluating the effectiveness of a regulatory behavior, we must also consider the individual's unique goals and context when determining the adaptiveness of a particular ER strategy. In general, we regulate by modifying the type, intensity, duration, and quality of the emotion we are experiencing to achieve optimal adaptation and functioning (Peña-Sarrionandia et al., 2015).

Emotional intelligence (EI) refers to the *outcome* in which people influence emotions in themselves and others (Mayer & Salovey, 1997). Although both ER and EI converge on emotion management, EI focuses on "the consequences of individual differences in ER on social, health, educational, and occupational outcomes" (Peña-Sarrionandia et al., 2015, p. 6). To do so, EI measures differences in people's knowledge, skills, and traits related to intrapersonal and interpersonal domains (Mikolajczak et al., 2009). An individual is described as high on EI if they can perceive and regulate emotions flexibly and adaptively to solve problems, make decisions, and regulate behaviors. The ability to accurately perceive and manage one's emotional states and others' emotions predicts physical and psychological health benefits. Numerous studies support the positive relationships between EI and mental and physical health (Martins et al. 2010;

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Schutte et al. 2007), subjective well-being (Di Fabio & Kenny, 2016; Sánchez-Álvarez, 2016), belonging (Moeller et al., 2020), social relationships (Ciarrochi et al., 2001), adaptive coping (Resurrección et al., 2014), sleep (Brown & Schutte, 2006), and academic achievement (MacCann et al., 2020).

College students' coping needs during COVID-19

Coping refers to the regulation of distress and the management of problems causing that distress (Parker & Endler, 1996; Skinner & Zimmer-Gembeck, 2007). To cope is to employ "thoughts and behaviors to regulate their emotions and address underlying problems" (Folkman & Moskowitz, 2007, p. 193). In the context of COVID-19, students must learn to cope with the acute stressors brought forth by the pandemic *and* the chronic yet ever-changing stressors related to the uncertainties in how they must live and learn. Lazarus & Folkman's (1984) transactional model of coping describes two main coping mechanisms: adaptive and maladaptive. An adaptive coping behavior enables students to manage stressful situations and reduce negative emotions. For example, problem-focused coping aims to alter the stressful situation itself with an action; emotion-focused coping aims to change one's own emotional response to the situation. Conversely, maladaptive coping such as engaging in avoidance-based behaviors significantly predicts mental health problems in college students (Mahmound et al., 2012). Students who used more maladaptive coping and fewer adaptive coping strategies were more likely to experience clinical levels of depressive and anxious symptoms (Stallman et al., 2020).

Already disproportionately impacted by psychological distress, students of color were confronted with a slew of sociopolitical issues on top of pandemic-related stressors. The wrongful killings of Breonna Taylor and George Floyd spurred widespread anxiety and outrage in students on topics related to police brutality and racial inequity (Black Lives Matter). Students

dealt with the threatening appearance of racist Zoombombers during class and the looming sense of helplessness surrounding U.S. Immigration and travel restrictions. Despite the added distress, students of color utilized college counseling services the least due to stigma on mental illness and a lack of perceived need (Eisenberg, 2009). A bleak picture persists: students of color are experiencing more psychological distress during COVID-19 but were also less likely to seek professional help.

Cross-sectional studies of COVID-19 found that students with high distress levels exhibited a higher preference for avoidance coping strategies (Thai et al., 2021). Although avoidance strategies may help reduce stress in the short-term, continual reliance leads to harmful long-term implications. For example, a study of coping behaviors among nursing students found the association of high anxiety levels with mental disengagement behaviors related to alcohol, sedative drugs, and excessive eating (Savitsky et al., 2020). Similarly, Gurvich et al. (2020) found maladaptive behaviors such as self-blame associated with poorer mental health, and positive reframing and acceptance associated with better mental health. These findings suggest the importance of equipping students with a range of healthy coping strategies and the adaptive skills to appraise and apply appropriate strategies in response to the demands of the context (Carver et al., 1989). The Student Experience in the Research University (SERU) Consortium urged colleges and universities to consider improving students' psychological well-being with "academic program-based interventions and services" (Chirikov et al., 2020, p. 9).

Promoting resilience during times of crisis

The concept of resilience emerged around 1970 from scientists seeking to understand and prevent the development of psychopathology—particularly in disadvantaged youth—due to high-risk situations such as poverty, trauma, or disaster (Garmezy, 1991; Garmezy, 1985).

Resilience is "the capacity of a dynamic system to withstand or recover from significant challenges that threaten its stability, viability, or development" (Masten, 2011, p. 494). At the individual level, resilience is the ability to cope and adapt in the face of adversarial circumstances successfully.

Devastatingly, what had been once perceived as an anomalous college academic year (2019 – 2020) due to social distancing measures is now the "standard" college experience (2020 – 2022). Unlike prior 21st century crises such as SARS, H1N1 virus, and September 11th attack, the COVID-19 pandemic has created disruptions at an unprecedented level shared by humankind. Resilience science emphasizes the opportunity to promote personal competence and well-being without discounting risks and vulnerabilities (Masten, 2011; Masten, 2001). Applying this asset-based framework toward higher education, Hartley (2010) proposes that "all individuals can achieve college success by using protective factors, that is, personal qualities or contexts that predict positive outcomes under high-risk conditions" (p. 296). Internal protective factors include positive self-efficacy, emotional regulation, adaptive coping, positive emotionality, and social skills (Shing et al., 2016; Hartley, 2010; Folkman & Moskowitz, 2000; Luthar, 1991). External protective factors include access to positive peer relationships, supportive adult relationships, safety, and emergency social services. Postsecondary interventions must incorporate these internal and external protective factors to counteract the ecological instability of the COVID-19 pandemic effectively.

An EI teaching intervention to equip coping skills and reduce distress

Emotional intelligence theory provides a framework for understanding individual differences in managing and regulating emotions. Skills in regulating one's emotional states enable one's capacity for coping to reduce stress (Salovey & Mayer, 1990). Individuals high in

EI are found to adapt well to stressful events, and those with low EI cope poorly (Ciarrochi et al., 2001; Gawali, 2012). In their study of EI, coping, and stress with UK nursing students, Por et al. (2011) suggest that increased emotional competence enabled students to adopt healthy coping strategies when dealing with stress, which in turn enhanced their subjective well-being. More specifically, Campbell et al. (2007) found that EI predicted high school students' coping behaviors, and these coping behaviors, in turn, predict students' psychological distress. In a study of college students during COVID-19, Li et al. (2021)'s path analysis found that EI partially mediated the association between pandemic exposure and students' psychological disorders.

In recent years, Social and Emotional Learning (SEL) has expanded from once a conceptual framework derived from emotional intelligence to a widely recognized blueprint for improving students' mental health and emotion regulation in K-12 education (Hoffmann et. al., 2020). SEL interventions have shown promising improvements in disadvantaged children's psychological well-being and academic achievement by helping "students accumulate knowledge and skills that facilitate the optimal emotion processing of their social contexts." (Reyes et al., 2013, p. 355). However, the applicability and efficacy of SEL as a teaching intervention have yet to be evaluated in higher education, despite the deteriorating trends in mental health in college students. The SEL model includes five competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision making (refer to Dissertation Chapter 2 for definitions).

Virtual intervention during distress

Due to the rapid transmission of SARS-CoV-2, educational institutions and counseling centers were forced to transition abruptly to virtual online platforms. Despite challenges, several

studies show preliminary efficacy in online psychoeducational interventions. Moreno-Fernandez et al. (2020) found that 47 Pharmacy degree students in Spain experienced less academic burnout after participating in a 2-month online physiology class that incorporated several concepts of emotional intelligence. However, the results are only suggestive since the study did not include a control group and did not measure students' EI or coping behaviors. Studies from Iran and Brazil found that online peer support interventions might play a role in improving college students' perceived stress (Kazerooni et al., 2020; Arenas et al., 2020).

Persich et al. (2021) investigated whether an online EI training that students took before COVID-19 could bolster their emotional resilience against the stressors posed during the pandemic. The researchers found that predominately white college students who completed the online EI training scored lower on depression, suicidal ideation, and anxiety than those assigned to a placebo program. However, the efficacy of an online EI intervention delivered in real-time *during* the pandemic on students' EI and psychological health remains unknown. Will learning about EI while under COVID-19 adversities transfer into real-time behavioral adaptations of coping strategies?

The Present Study

In the present study, I evaluate the effects of an online EI teaching intervention delivered in real-time during COVID-19 on undergraduate students' emotional intelligence, coping behaviors, and psychological distress. The intervention was replicated four times, which took place during the spring and fall of 2020. My research questions include:

1. Was participation in the EI training associated with an improvement in students' emotional intelligence, as revealed by the *Assessing Emotions Scale*?

2. Was participation in the EI training associated with a change in students' coping behaviors, as revealed by *The BRIEF Cope Scale*?

3. Did Asian/Pacific Islander and Latinx students differ in their reported use of social support and avoidance-based coping strategies at baseline and post-intervention?

4. Was participation in the EI training associated with an improvement in students' level of psychological distress?

The first research question evaluates whether EI can be learned virtually and improved within six weeks of training. I hypothesized that exposure to the SEL program is associated with an improvement in students' emotional intelligence. The second research question contributes practical insights as to whether an intervention delivered during a time of shared crisis could promote changes in students' coping behaviors; and, if so, which coping strategies might be more malleable with training. Findings would help explain and extend the results from my first study on whether changes in students' beliefs about negative emotions are associated with changes in coping behaviors. I hypothesized that students who participated in the intervention would report an increase in adaptive behaviors and a decrease in maladaptive coping behaviors.

The third research question examines the potential differential patterns in a mental health-oriented EI intervention on different populations of students of color. I assess how Asian/Pacific Islander and Latinx students employ coping behaviors related to social support (instrumental support, emotional support, venting), avoidance-based behaviors (behavioral disengagement, denial, substance use), and self-blame. Findings would contribute to the literature on topics related to the role of culture on coping, the malleability of help-seeking behaviors, and the effects of inequities in COVID-19 experiences. Based on my finding from the first study, I hypothesized that although Asian/Pacific Islander and Latinx students would report a decrease in

social support and avoidance-based coping behaviors, Latinx students would outperform Asian/Pacific Islander students. The fourth question provides new evidence on the link between EI, coping, and psychological distress in the undergraduate student population. I hypothesized that participants in the EI intervention would, on average, report a decrease in their psychological distress post-intervention.

Method

Participants

Undergraduates in the study were drawn from the University of California-Irvine (UCI), a large public university in the southwestern United States. UCI enrolls close to 30,000 undergraduates with a gender distribution of 47% male and 53% female. The U.S. Department of Education designates UCI as a Hispanic-serving institution, which means that one-quarter of undergraduates identify as Latinx, and half of all students receive financial aid. UCI is also designated as an Asian American and Native American Pacific Islander-serving institution. First-generation university students make up approximately 60% of the undergraduate student body.

The intervention group consisted of 100 undergraduates (72% female). The majority of the participants were Asian/Pacific Islander (56%) and Latinx (28%), and 48% reported first-generation status. Participants consisted of more juniors and seniors (81%) than freshmen and sophomores (19%). The control group consisted of 98 undergraduates (86% female). Comparably, a majority of students were Asian/Pacific Islander (63%) and Latinx (25%), 45% reported first-generation status (18 students did not respond to first-generation status). Students were primarily higher-class standing (69%).

Since Asian and Latinx were the student populations of interest in this study, a categorical race variable was created for Asian/Pacific Islander, Latinx, and all others. Chi-

squared tests showed group comparability on race, first-generation status, class standing, and

transfer status. A significant group difference was found on gender ($p < .018$), which will be

used as a control variable. Table 5.1 provides descriptive statistics of demographic variables by

program.

Table 5.1

Descriptive statistics of demographic variables by program

	Intervention (N = 100)		Control (N = 98)		Group Differences Treatment vs. Control
	n	*%*	*n*	*%*	*p*
Gender					**.018**
Female	72	72	84	86	
Male	28	28	14	14	
Race/Ethnicity					.290
Asian/Pacific Islander	56	56	62	63	
Latinx	28	28	24	25	
All Other	16	16	12	12	
First-Generation	48	48	44	45	.353
Class Standing					.059
Lower Class Standing	19	19	30	31	
Upper Class Standing	81	81	68	69	
Major					.398
Arts and Humanities	6	6	5	5	
Business	12	12	2	2	
Health Sciences	18	18	9	9	
Social and Behavioral Science	35	35	72	74	
STEM	29	29	10	10	

Note: 18 students in the control group did not respond to first-generation

Procedure

Undergraduates were recruited into the virtual SEL program through word of mouth and

department email lists. The intervention was conducted prior to COVID-19 as an in-person

course called *Emotional Intelligence for School & Job Success*. In this study, the intervention

was conducted virtually during COVID-19 as a 6-week experiential workshop-style online

course that offered two units of credit. Interested students filled out an online form indicating

their availability (students who had schedule conflicts were encouraged to fill out the form for a

future offering) and their school-related information. Referring to the interest list, I conducted purposeful sampling and invited students to register for the elective course. Then, I emailed the remaining students who had expressed interest to fill out an online waitlist questionnaire (pre-test) for the following quarter. The control group consisted of students who completed the waitlist questionnaire and subsequently took the course the following quarter, and students who had filled out the waitlist questionnaire but did not take the course in the subsequent academic term.

I enrolled students on the waitlist first, before inviting additional students to enroll using the same recruitment procedure. Because a waitlist control group could not be achieved for the last quarter of the intervention, I recruited students who shared an Arts in Education class. Due to limited participation, I supplemented this control group with students who shared classes at the School of Education. My goal was to have an active control group where students shared the same class or major, which simulated the shared learning experience of the intervention group. Students who filled out the questionnaire (pre-test) received a $5 Amazon gift card and later received the same amount for a post-test. In the winter quarter, the intervention and the control group completed the post-test questionnaire within five weeks upon program completion. The intervention and control groups in the spring and fall quarters completed the post-test questionnaire within two weeks upon program completion.

Students who did not complete the post-test questionnaire were excluded from the study. Four students dropped out of the intervention group either prior to starting (2 students), during as a result of dropping out of college (1 student), and the loss of contact (1 student). Eighty-seven students out of the original 185 students in the control group did not complete the post-test questionnaire. The students who were omitted were comparable to those in the study in terms of

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demographics. The University of California-Irvine's Institutional Review Board (IRB) approved this research study.

Setting

The intervention was offered as an online course during the spring and fall quarters of 2020. Each quarter consisted of two course offerings (April 13 to May 20; April 14 to May 20; and October 15 to November 19, with two sessions back-to-back). Each week, a new SEL module that consisted of pre-recorded (asynchronous) MOOC-style lecture lessons and guided exercises were made available to students. Students also participated in a 30-minute live (synchronous) Zoom discussion. The live discussions typically began with takeaways and clarifications from the week's lecture, followed by an interactive and group-based cooperative SEL game related to the topic of the week. Students spent most of their Zoom sessions in breakout rooms with their designated team of "peer support buddies". Each team consisted of a maximum of 4 students who were preassigned based on their interests, major, and/or professional aspirations.

Measures

Emotional Intelligence. Students' social and emotional competence was measured using the *Assessing Emotions Scale (AES)*, also referred to as the *Emotional Intelligence Scale*. The self-report scale was developed based on Salovey and Mayer's (1990) EI model to provide an overall measure of the "adaptive emotional functioning involving inter-related competencies relating to perception, understanding, utilizing and managing emotions in the self and others" (Schutte et al., 2013, p. 56). *AES* consists of 33 items measured on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree" with a higher score indicating high levels of EI (Schutte et al., 2009; Schutte et al., 1998). Factor analytic studies on *AES* identified four

subscales: perceiving emotions, managing own emotions, managing others' emotions (social skills), and utilizing emotions (Pau & Croucher, 2003; Ciarrochi et al., 2001; Petrides & Furnham, 2000). Ciarrochi et al. (2002) validated these four factors in university populations. The scale has been used extensively in observational and intervention-based EI and well-being studies with over 200 publications in the PsycINFO (Schutte et al., 2009). The alpha coefficients related to internal consistency were reported to range from .76 to .95 in studies with university students from different countries (Siegling et al., 2015). Schutte et al. (1998) reported a two-week test-retest reliability of .78. The measure showed good internal consistency in the present sample: $\alpha = 0.88$ for pre-test and $\alpha = 0.91$ for post-test.

Coping Behaviors. The 28-item multidimensional Brief COPE questionnaire is the abbreviated inventory of the complete 60-item COPE Inventory (Carver, 1997; Carver et al., 1989). The instrument consists of 14 two-item subscales, each measuring a specific coping behavior. The subscales are active coping, planning, positive reframing, acceptance, humor, religion, emotional support, instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame. Each item is rated on a 4-point Likert scale ranging from 1 ("I have not been doing this at all") to 4 ("I have been doing this a lot"). Coping is the sum of the 28 items ranging from 0-84. Bose et al. (2015)'s four-factor model was also used to conduct higher order analysis on Brief COPE. The categories are problem-focused coping (active coping, planning), emotion-focused coping (positive reframing, acceptance, humor, religion), socially supported coping (emotional support, instrumental support, venting), and avoidant coping (behavioral disengagement, denial, substance use). Subscales were added to determine the total scores within each factor. Two subscales (self-blame, self-distraction) did not load onto the two higher-order factors and were analyzed separately. Each subscale indicates satisfactory

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internal consistency ranging from .62 to .92 (Carver et al., 1989). In this study, Cronbach's alpha

is .79 for pre-test and .73 for post-test.

Psychological Distress. The 10-item Kessler Psychological Distress Scale (K10) is

internationally validated used to assess non-specific psychological distress and contains items

that measure symptoms of anxiety and depression (Kessler et al., 2002). Each item is rated on a

5-point Likert scale ranging from 1 ("none of the time") to 5 ("all of the time"). Scores range

between 10 and 50, with severity of stress categorized as: below 19 = no psychological distress,

20-24 = mild psychological distress, 25-29 = moderate psychological distress, and 30-50 =

severe psychological distress (Andrews & Slade, 2001). This scale was administered to students

in the fall quarter groups (not spring). The K10 showed good internal consistency in this study

sample ($\alpha = 0.88$ for pre-test, $\alpha = 0.88$ for post-test).

Sociodemographic variables. Students provided their gender, race/ethnicity, major,

class standing (i.e., freshman, senior), and first-generation status.

Analysis Plan

Repeated-measures ANOVA is a statistical method appropriate for nonrandomized

control group pretest-posttest designs (Dimitrov & Rumrill, 2003; Weinfurt, 2000). I first

conducted a series of checks to validate that the assumptions for running ANOVAs were

fulfilled. I confirmed that my dependent variables were continuous, independent variables were

categorical, observations were independent, the test variables were normally distributed, and

sphericity was not violated. If normality assumption was violated, I used nonparametric analysis

using Wilcoxon rank-sum test, also known as the Mann-Whitney two-sample statistics

(Wilcoxon 1945; Mann & Whitney 1947). When conducting test-retest reliability on pre-test and

post-test within a group, I used Pearson Correlation if the samples were normal or Spearman rank-order correlation if normality was violated.

For research questions 1, 2, and 4, I used 2x2 repeated-measures analysis of covariance (ANCOVAs) to examine whether students showed significant improvement on coping strategies, emotional intelligence, and psychological distress, and to compare whether the students in the intervention group showed a differential growth rate from those in the control group. Repeated-measures ANCOVAs were used with program (control, intervention) as the between-subject factor and time (pre-test, post-test) as the within-subject factor. Gender and quarter were used as covariates to control for potential group differences and cohort effects during the different stages of the COVID-19 pandemic. For research question 3, I used two three-way repeated-measures ANCOVAs to investigate the differences in outcome measures related to race (Asian/Pacific Islander, Latinx students), time (pre-test, post-test), and program (control, intervention). I controlled for gender and quarter.

Significant interactions and main effects were followed up with post-hoc pairwise comparisons using Tukey, and Bonferroni's adjustment for multiple comparisons. Planned contrasts were used when investigating a specific comparison that was guided by my hypothesis and/or the literature. To follow up on significant p values, I used partial eta-squared from the r family to measure effect size, which is the proportion of the variance explained. $\eta^2_p = 0.01$ is generally considered a small effect, $\eta^2_p = .06$ as medium effect, and $\eta^2_p \geq 0.14$ as large effect (Lakens, 2013). Cohen's d was used for calculating the effect sizes of simple main effects. The alpha was set to 0.05 for all statistical tests. STATA 17.0 and JASP 0.16 were used to conduct the analyses.

Results

Descriptive and Baseline Analyses

Table 5.2 summaries the means and SDs for pre-test and post-test by program. Two-sample t-tests revealed no significant differences between programs at baseline on the Assessing Emotions Scale, Brief Cope, and Psychological Distress (K10). This suggests that the students in both groups started with similar levels of emotional intelligence and distress level, and similar approaches to coping behaviors.

Table 5.2
Pre-test and post-test comparison between intervention and control

	Intervention (N = 100)		Control (N = 98)		Program Baseline
	Pre	Post	Pre	Post	Pre-test vs. Pre-test
	M (SD)	M (SD)	M (SD)	M (SD)	p
Emotional Intelligence					
AES Composite Score	119.68 (14.72)	129.43 (14.94)	120.40 (13.33)	120.49 (13.10)	0.720
Perception of emotions	34.92 (6.55)	38.77 (5.11)	35.74 (6.10)	36.16 (5.49)	0.376
Managing own emotions	31.89 (5.28)	34.89 (5.15)	31.84 (5.02)	32.04 (4.49)	0.942
Managing others' emotions	29.63 (4.11)	31.30 (4.54)	29.70 (3.50)	29.34 (4.25)	0.903
Utilizing emotions	23.24 (3.04)	24.35 (3.32)	23.12 (2.68)	22.95 (2.93)	0.734
Coping Behaviors					
Problem-focused	10.97 (2.50)	11.95 (2.63)	10.56 (2.67)	10.67 (2.27)	0.220
Emotion-focused	19.50 (4.34)	20.55 (3.87)	19.65 (3.94)	19.89 (3.28)	0.695
Socially supported	14.47 (4.28)	16.17 (3.61)	13.93 (3.66)	14.42 (4.01)	0.541
Avoidance-based	9.05 (3.10)	8.73 (3.38)	8.55 (2.38)	9.04 (3.15)	0.495
Remaining Subscales					
Self-Blame	4.84 (1.74)	4.26 (1.62)	4.75 (1.85)	4.80 (1.81)	0.649
Self-Distraction	6.39 (1.44)	6.12 (1.41)	6.49 (1.23)	6.33 (1.48)	0.773
Psychological Distress					
K10 Composite Score	23.74 (7.66)	23.75 (7.88)	24.39 (7.47)	24.23 (7.43)	0.551

Note : AES = Assessing Emotions Scale. K10 = Kessler Psychological Distress Scale was administered in the fall only (intervention = 61, control = 67).

RQ 1: Was participation in the EI training associated with an improvement in students' emotional intelligence, as revealed by the *Assessing Emotions Scale*?

Two-way repeated-measures ANCOVAs were conducted on the composite and subscales of *AES* with program (control, intervention) as the between-subject factor and time (pre-test, post-test) as the within-subject factor. Gender was used as a covariate to control for significant difference found between control and intervention groups. Quarter was also used as a covariate to control for potential cohort and temporal differences during the spring and fall phases of COVID-19 pandemic. Results showed a significant interaction of program x time on the composite *AES* score, and the main effects of program and time. See Table 5.3 for repeated-measures ANCOVA results. Post hoc comparisons revealed that the intervention group improved significantly at post-test (M*Diff* = 9.75, *p* = .000, *d* = .63). No significant difference was found within the control group at post-test (M*Diff* = 0.09, *p* < .989, *d* = .01).

Repeated-measures ANCOVAs on each of the four EI competencies also reported significant interactions of program x time. See Table 5.3 for repeated-measures ANOVA results. The intervention group showed significant improvement between pre-test and post-test in each of the four competencies (ordered by effect size): perceiving emotions (M*Diff* = 3.85, *p* = .000, *d* = .62), managing own emotions (M*Diff* = 3, *p* = .000, *d* = .60), utilizing emotions (M*Diff* = 1.11, *p* = .000, *d* = .47), and managing others' emotions (M*Diff* = 1.67, *p* = .000, *d* = .42). The control group did not have significant changes in any four subscales. Notably, the control group's competencies related to interpersonal skills (managing others' emotions and utilizing emotions) decreased. See Appendix D for pre-test and post-test comparison within the program (Table 1) and a comparison of effect sizes on outcome measures (Figure 1).

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Table 5.3

2 x 2 Repeated Measures ANCOVAs results with Program (control, intervention) as between-subject factor, Time (pre-test, post-test) as within-subject factor on outcome measures, and Gender and Quarter as covariates

			F	df	MS	η^2_p	p
Emotional Intelligence							
Assessing Emotions Scale: Composite	Between subjects	Program (P)	7.07	1/194	2124.16	0.04	**
	Within subjects	Time (T)	4.64	1/194	422.56	0.02	*
		P x T	**26.08**	**1/194**	**2376.16**	**0.12**	***
Perception of emotions	Between subjects	Program (P)	2.35	1/194	123.77	0.01	0.127
	Within subjects	Time (T)	7.29	1/194	106.15	0.04	**
		P x T	**20.10**	**1/194**	**292.79**	**0.09**	***
Managing own emotions	Between subjects	Program (P)	5.28	1/194	209.99	0.03	*
	Within subjects	Time (T)	1.32	1/194	13.89	0.01	0.252
		P x T	**19.03**	**1/194**	**200.31**	**0.09**	***
Managing others' emotions	Between subjects	Program (P)	5.63	1/194	146.54	0.03	*
	Within subjects	Time (T)	1.38	1/194	9.28	0.01	0.241
		P x T	**15.99**	**1/194**	**107.38**	**0.08**	***
Utilizing emotions	Between subjects	Program (P)	5.26	1/194	70.01	0.03	*
	Within subjects	Time (T)	2.41	1/194	12.11	0.01	0.122
		P x T	**10.08**	**1/194**	**50.69**	**0.05**	**
Coping Behaviors							
Problem-focused	Between subjects	Program (P)	6.83	1/194	65.53	0.03	**
	Within subjects	Time (T)	0.40	1/194	1.28	0.00	0.527
		P x T	**7.17**	**1/194**	**22.72**	**0.04**	**
Emotion-focused	Between subjects	Program (P)	0.44	1/194	10.41	0.00	0.507
	Within subjects	Time (T)	2.69	1/194	17.94	0.01	0.103
		P x T	1.80	1/194	12.03	0.01	0.181
Socially supported	Between subjects	Program (P)	8.66	1/194	192.35	0.04	**
	Within subjects	Time (T)	2.63	1/194	18.89	0.01	0.107
		P x T	**4.20**	**1/194**	**30.30**	**0.02**	*
Avoidance-based	Between subjects	Program (P)	0.12	1/194	1.64	0.00	0.735
	Within subjects	Time (T)	2.71	1/194	10.92	0.01	0.102
		P x T	**4.71**	**1/194**	**19.00**	**0.02**	*
Remaining Subscales							
Self-Blame	Between subjects	Program (P)	1.26	1/194	5.74	0.01	0.263
	Within subjects	Time (T)	5.21	1/194	9.77	0.03	*
		P x T	**4.93**	**1/194**	**7.76**	**0.03**	*
Self-Distraction	Between subjects	Program (P)	0.09	1/194	0.24	0.00	0.761
	Within subjects	Time (T)	0.82	1/194	0.93	0.00	0.367
		P x T	0.15	1/194	0.17	0.00	0.699
Psychological Distress							
K10 Composite Score	Between subjects	Program (P)	0.14	1/125	13.12	0.00	0.707
	Within subjects	Time (T)	0.06	1/125	1.34	0.00	0.810
		P x T	0.00	1/125	0.00	0.00	0.994

Note: gender and quarter were covariates. *p<.05; **p<.01; ***p<.001 (2-tailed).

RQ 2: Was participation in the EI training associated with a change in students' coping strategies, as revealed by *The Brief COPE Scale*?

Two-way repeated-measures ANCOVAs were conducted on *the Brief COPE* scores with program (control, intervention), time (pre-test, post-test), and gender and quarter as covariates. Problem-focused coping, socially supported coping, and avoidance-based coping indicated significant program x time interactions (see Table 5.3). Emotion-focused coping did not show a significant interaction. Post hoc analysis indicated that students in the intervention group reported a significance improvement in problem-focused coping (M*diff* = .98, p <.000, d = .4), socially support coping (M*diff* = 1.70, p <.000, d = .4), and emotion-focused coping (M*diff* = 1.05, p <.01, d = .3), whereas the control group was nonsignificant. Notably, the control group indicated an increase in avoidance-based behaviors (M*diff* = .49).

Self-blame and self-distraction did not load onto the four-factor model and were analyzed separately. Repeated-measures ANCOVA indicated a significant program x time interaction on self-blame, but not on self-distraction (see Table 5.3). The intervention group showed a significant decrease in self-blame (M*diff* = -.58, p <.000, d = .45) and the control group reported a nonsignificant increase in self-blame behaviors (M*diff* = .05, p <.79, d = .11). See Table 2 in Appendix D for comparison of pre-test and post-test within program and Figure 1 for effect sizes.

At pre-test, the adaptive strategies most frequently used (coded as "often" and "most of the time") by the intervention group were acceptance (82%), planning (76%), and positive reframing (70%). The least frequently used (coded as "not at all" or "occasionally") were instrumental support (48%), emotional support (53%), and active coping (66%). The maladaptive strategies most frequently used were by the intervention group at pre-test were distraction (90%),

self-blame (54%), and venting (51%). At post-test, the adaptive strategies most frequently used (often to most of the time) by the intervention group were acceptance (92%), planning (81%), and positive reframing (81%). Although least frequently used, the following coping behaviors improved in frequency compared to pre-test: instrumental support (70%), emotional support (75%), and active coping (78%). The maladaptive strategies most frequently used were by the intervention group at post-test were self-distraction (89%), venting (52%), and self-blame (42%). Note that humor and religion were not ranked because they could be either adaptive or maladaptive depending on context (Hanfstingl et al., 2021; Eisenberg et al., 2012).

At pre-test, the adaptive strategies most frequently used by the control group were acceptance (86%), active coping (70%) and positive reframing (70%); and least frequently used (not at all or occasionally) were instrumental support (48%), emotional support (57%), and planning (65%). The maladaptive strategies most frequently used were by the control group at pre-test were self-distraction (94%), self-blame (51%), and venting (45%). At post-test, the adaptive strategies most frequently used (often to most of the time) by the control group were acceptance (91%), planning (74%), and positive reframing (73%); and least frequently used were emotional support (55%), instrumental support (57%), and active coping (64%). The maladaptive strategies most frequently used were by the control group at post-test were self-distraction (87%), self-blame (51%), and venting (45%).

Notably, the intervention group's usage frequency (coded as "often" to "most of the time") of adaptive strategies jumped from an average of 66% at pre-test to 80% at post-test. The control group's usage frequency of adaptive strategies saw minimal improvement from 66% at pre-test to 69% at post-test. Both groups did not see much change in usage frequency of maladaptive strategies. The intervention group went from 40% at pre-test to 37% at post-test; the

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control group remained at 37% at post-test. See Table 3 in Appendix D for the percentage and frequency of coping strategies employed by students.

RQ 3: Did Asian/Pacific Islander and Latinx students differ in their reported use of social support and avoidance-based coping strategies as baseline and post-intervention?

With control and intervention groups combined, there were no significant baseline differences between Asian/Pacific Islander students and Latinx students (see Table 4 in Appendix D). This suggests that the two race groups reported similar coping behaviors in socially-supported and avoidance-based coping strategies, as well as self-blame coping. Two-sample t-tests on the pre-test scores by program within each race revealed one significant baseline difference: Latinx students in the intervention group reported significantly higher venting behaviors than the Latinx students in the control group ($p = .022$). Since I'm primarily interested in the difference *between* races and no baseline difference between Asian/Pacific Islander and Latinx students on venting, I will not control for venting. Bonferroni's adjustment will be used for multiple comparisons. Table 5.4 summarizes the means and SDs for pre-test by program and race.

Repeated-measures ANCOVAs were conducted on each of the subscales within the socially-supported and avoidance-based categories, as well as self-blame as a maladaptive coping behavior. Program (control, intervention) and race (Asian/Pacific Islander, Latinx) were between-subject factors, time (pre-test, post-test) was the within-subject factor, and gender and quarter were covariates. A significant program x race x time interaction was found only on self-blame (see table 5.5). Latinx students outperformed Asian/Pacific Islander post-intervention on self-blame: Latinx: M$diff$ = -1.43, $p < .000$, $d = .96$; Asian/PI: M$diff$ = -.46, $p = .029$, $d = .39$. For socially supported coping, both Asian/Pacific Islander and Latinx students in the intervention

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group reported a significant improvement in emotional support (Asian/PI: M$diff$ = .61, p = .015, d = .34; Latinx: M$diff$ = 1.14, p = .007, d = .55) and instrumental support (M$diff$ = 1.42, p = .013, d = .42; Latinx: M$diff$ = 1.04, p = .015, d = .49). For avoidance-based coping, Asian/Pacific Islander students in the intervention group did not report a significant change (M$diff$ = -.25, p = .308, d = .2), whereas Latinx students reported a significant decrease in behavioral disengagement (M$diff$ = -1.29, p = .009, d = .71). See Table 5 in Appendix D for pre-test and post-test comparison of the two groups.

Table 5.4

Pre-test comparison by program and race

	Intervention			Control			Intervention vs. Control	
	Asian/PI (n = 56)	Latinx (n = 28)	Asian/PI vs. Latinx	Asian/PI (n = 62)	Latinx (n = 24)	Asian/PI vs. Latinx	Asian/PI	Latinx
	M (SD)	*M (SD)*	*p*	*M (SD)*	*M (SD)*	*p*	*p*	*p*
Socially Supported Coping								
Emotional Support	5.25 (1.73)	4.93 (1.90)	0.419	5.02 (1.65)	4.92 (1.79)	0.607	0.454	0.993
Instrumental Support	4.08 (1.80)	4.71 (1.82)	0.912	4.84 (1.64)	4.13 (1.54)	0.054	0.912	0.222
Venting	4.25 (1.51)	4.79 (1.23)	0.069	4.48 (1.25)	3.96 (1.46)	0.083	0.363	**0.022**
Avoidance-based Coping								
Behavioral Disengagement	3.50 (1.66)	3.57 (1.53)	0.675	3.26 (1.24)	3.21 (1.25)	0.876	0.376	0.468
Denial	2.84 (1.49)	2.68 (1.06)	0.991	2.84 (1.23)	3.00 (1.45)	0.745	0.998	0.517
Substance Use	2.75 (1.30)	2.93 (1.54)	0.630	2.36 (1.07)	2.42 (.97)	0.422	0.076	0.198
Self-Blame	4.89 (1.83)	5.00 (1.68)	0.776	4.98 (1.82)	4.58 (1.86)	0.342	0.787	0.351

Note: *p<.05; **p<.01; ***p<.001 (2-tailed).

Table 5.5

2 x 2 x 2 Repeated Measures ANOVAs results with Race (Asian/Pacific Islander, Latinx) and Program (control, intervention) as between-subject factors, and Time (pre-test, post-test) as within-subject factor on outcome measures.

			F	df	MS	η²ₚ	p	p
Socially Supported Coping								
Emotional Support	Between subjects	Race (R)	0.55	164	2.40	0.00	0.461	0.461
	Between subjects	Program (P)	6.20	164	27.25	0.03	*	0.014
		R x P	0.01	164	0.04	0.00	0.926	0.926
	Within subjects	Time (T)	2.75	164	3.88	0.02	0.099	0.099
		T x R	0.50	164	0.71	0.00	0.479	0.479
		T x P	7.51	164	10.60	0.04	**	0.007
		T x R x P	0.61	164	0.87	0.00	0.434	0.434
Instrumental Support	Between subjects	Race (R)	0.67	164	2.76	0.00	0.416	0.416
	Between subjects	Program (P)	5.85	164	24.21	0.03	*	0.017
		R x P	0.22	164	0.92	0.00	0.639	0.639
	Within subjects	Time (T)	6.03	164	10.58	0.04	*	0.015
		T x R	3.03	164	5.32	0.02	0.083	0.083
		T x P	1.51	164	2.64	0.01	0.222	0.222
		T x R x P	1.19	164	2.09	0.01	0.277	0.277
Venting	Between subjects	Race (R)	0.04	164	0.09	0.00	0.840	0.840
	Between subjects	Program (P)	0.71	164	1.65	0.00	0.401	0.401
		R x P	0.81	164	1.88	0.01	0.371	0.371
	Within subjects	Time (T)	0.46	164	0.69	0.00	0.497	0.497
		T x R	1.27	164	1.88	0.01	0.262	0.262
		T x P	1.94	164	2.87	0.01	0.166	0.166
		T x R x P	2.71	164	4.02	0.02	0.102	0.102
Avoidance-based Coping								
Behavioral Disengagement	Between subjects	Race (R)	0.28	164	0.81	0.00	0.597	0.597
	Between subjects	Program (P)	0.03	164	0.08	0.00	0.872	0.872
		R x P	0.36	164	1.05	0.00	0.548	0.548
	Within subjects	Time (T)	3.20	164	3.23	0.02	0.079	0.079
		T x R	0.09	164	0.09	0.00	0.764	0.764
		T x P	6.28	164	6.51	0.04	*	0.013
		T x R x P	0.79	164	0.82	0.01	0.377	0.377
Denial	Between subjects	Race (R)	0.57	164	1.55	0.00	0.450	0.450
	Between subjects	Program (P)	2.52	164	6.83	0.02	0.115	0.115
		R x P	2.38	164	6.56	0.01	0.125	0.125
	Within subjects	Time (T)	0.07	164	0.08	0.00	0.788	0.788
		T x R	3.46	164	3.64	0.02	0.065	0.065
		T x P	3.21	164	3.37	0.02	0.075	0.075
		T x R x P	0.57	164	0.60	0.00	0.453	0.453
Substance Use	Between subjects	Race (R)	0.71	164	1.55	0.00	0.402	0.402
	Between subjects	Program (P)	2.36	164	5.15	0.01	0.127	0.127
		R x P	0.00	164	0.00	0.00	0.970	0.970
	Within subjects	Time (T)	1.25	164	1.02	0.01	0.265	0.265
		T x R	0.01	164	0.01	0.00	0.928	0.928
		T x P	1.77	164	1.44	0.01	0.185	0.185
		T x R x P	0.66	164	0.54	0.00	0.418	0.418
Self-Blame	Between subjects	Race (R)	0.29	164	1.33	0.00	0.594	0.594
	Between subjects	Program (P)	2.51	164	11.69	0.02	0.115	0.115
		R x P	0.50	164	2.33	0.00	0.480	0.480
	Within subjects	Time (T)	7.35	164	10.85	0.04	**	0.007
		T x R	0.00	164	0.00	0.00	0.979	0.979
		T x P	12.15	164	17.92	0.07	***	0.000
		T x R x P	**7.91**	**164**	**11.67**	**0.05**	**	0.006

Note: Gender and quarter were covariates for all ANCOVAs. *p<.05; **p<.01; ***p<.001 (2-tailed).

RQ4: Was participation in the EI training associated with an improvement in students'

level of psychological distress?

Two-way repeated-measures ANCOVAs were conducted on *Kessler Psychological Scale*
with program (control, intervention), time (pre-test, post-test), and gender and quarter as
covariates. No significant differences were found on the interaction or main effects (see Table
5.3). A breakdown of distress levels revealed that nearly 66% of students in the intervention
group reported experiencing psychological distress at the levels categorized as likely to have
mild, moderate, or severe mental disorders. This percentage dropped by two percentage points at
post-test. About 70% of students in the control group reported similar levels of psychological
distress at pre-test. At post, this post-test, this percentage increased by two points. About 20% of
students in the intervention group reported the highest distress level (categorized as having
severe mental disorder) at pre-test and post-test. The control group reported 16% at pre-test and
21% at post-test. See Figure 5.1 for psychological distress breakdown by severity. See Table 6 in
Appendix D for percentage breakdown.
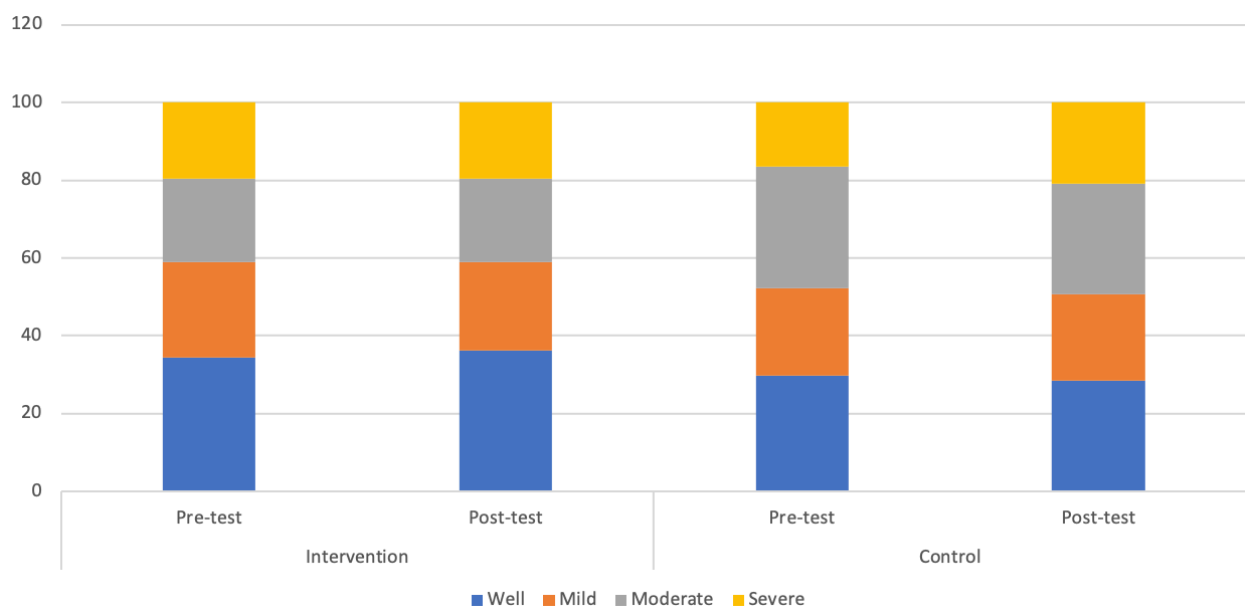
Figure 5.1. Psychological Distress by program and time

Discussion

In the present study, I evaluate the effects of an online EI intervention that was delivered during the COVID-19 pandemic on undergraduates' emotional intelligence, coping behaviors, and psychological distress. The results of this study supported my central hypothesis that exposure to an adaptive skills-building program grounded in the theory of EI could contribute to the development of emotional competence and healthy coping behaviors in college students. The present study demonstrates the timely utility of a skills-building online intervention delivered accessibly to help students develop healthy emotion regulation and coping skills that are beneficial during and beyond COVID-19.

The development of intelligent emotional regulation

As predicted, participation in the SEL program was associated with an improvement in students' emotional intelligence during COVID-19. This aligns with my findings from study one. The intervention group, on average, reported greater effect sizes in intrapersonal skills (perceiving and managing own emotions) than interpersonal skills (managing others' and utilizing emotions). Notably, the control group reported a decline in both competencies related to interpersonal skills. This was not apparent in my first study, since it combined the effects of two interventions delivered before COVID-19. The decline in interpersonal skills is likely a reflection of the devastating decrease in the number of opportunities college students have to interact with others, especially in person. The control group's detectable drop in emotional intelligence in as little as six weeks is concerning since the pandemic is two years and counting. My observation converges with the finding of Khan et al. (2021) that college students declined in their ability to perceive, express, and regulate emotions and explains the decline. Unfortunately,

this means that socially distancing measures of COVID-19 could be accelerating the already

worrisome decline in college students' social and emotional skills.

Healthy and unhealthy coping behaviors

Students in the intervention group showed a significant improvement than those in the

control group in terms of reported healthy coping behaviors in the problem-focused (active

coping, planning) and socially supported (emotional support, instrumental support, venting)

categories. Although this aligns with my hypothesis on students' improvements in healthy

coping, students in the two groups were not different in emotion-focused coping behaviors

(acceptance, humor, positive reframing, and religion). It appears that prior to the intervention,

students were already actively employing these behaviors to modify their emotional responses to

the pandemic. Acceptance and positive reframing were the most frequently used adaptive

behaviors reported by students in both the intervention and the control group. However,

compared to students in the control group, the intervention group reported utilizing multiple

adaptive behaviors more frequently. This increase in the *range* of healthy coping strategies

suggests regulatory flexibility (Bonanno & Burton, 2013).

Students in the intervention group reported a significant reduction of avoidance-based

and self-blame behaviors that was larger than the control group. The control group reported an

increase in these maladaptive behaviors at post-test. This preliminary evidence on the

malleability of maladaptive behaviors is promising. Past studies in college student mental health

point to maladaptive coping as the main predictor of depression, anxiety, and stress—more so

than adaptive coping behaviors. Mahmoud et al. (2012) summarized that "reducing maladaptive

coping behaviors may have the most positive impact on reducing depression, anxiety, and stress"

(p. 149). Recent cross-sectional COVID-19 studies appear to align. Gurvich et al. (2020) found

that self-blame, venting, behavioral disengagement, and self-distraction were associated with poorer mental health during COVID-19 in an Australian adult sample. However, it is important to note that the relationship between mental disorders and maladaptive coping behaviors may be bidirectional. Thai et al. (2021) and Savitsky et al. (2020) found that students with high anxiety and stress levels are associated with more maladaptive coping behaviors such as avoidance and mental disengagement.

It's worth noting that self-distraction was not significantly different between the intervention and control groups. In fact, self-distraction was the most frequently used behavior reported by both programs at pre-test, and the second most frequently used at post-test (acceptance was the highest). Although Gurvich et al. (2020) found self-distraction to be associated with poor mental health during COVID-19 in an adult sample, I argue that self-distraction can play the role of an adaptive strategy during COVID-19—especially for college students with an empty social calendar to fill. Stallman et al. (2020) support my argument in their findings from The Healthy Mind Study with college students indicating distraction as a form of healthy coping. This might explain why the EI intervention did not have an effect on students' self-distraction behaviors.

Who benefitted the most from EI training?

Both Asian/Pacific Islander and Latinx students reported significant improvements post-intervention on coping behaviors related to seeking emotional and instrumental support from others. As predicted, Latinx students outperformed Asian/Pacific Islander students in socially supported coping behaviors. Latinx students also reported a significant reduction of avoidance-based coping in behavioral disengagement, whereas Asian/Pacific Islander students did not. Culture values and norms must be taken into consideration. For example, Sheu and Sedlacek

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(2004) found that Asian American college students used more avoidant and social withdrawal coping strategies than white and black counterparts (Latinx students were not studied).

Low emotional competence and the stigma of mental illness were found to be significant predictors of help-seeking and avoidance behaviors in college students of color (Lipson et al., 2018; Ciarrochi et al., 2003). Students need intrapersonal skills and self-efficacy to engage in socially supported coping willingly and effectively. Thus, the increase in socially supported coping is likely connected with students' increase in emotional intelligence skills. Improvement in the help-seeking behaviors of students of color also complements my first study where Asian/Pacific Islander and Latinx students reported a significant reduction in their maladaptive beliefs about negative emotional experience and expression.

The cognitive-affective-behavioral process model on stigma concealment and, more generally, the appraisal theories of emotion propose that cognitive (beliefs) implications proceed and shape affective and behavioral implications (Moors et al., 2013; Pachankis, 2007). Findings from my first study illustrated the first step in stigma reduction through a significant decrease in students' maladaptive beliefs about emotions. The present study provides promising evidence connecting cognitive beliefs and help-seeking behaviors. Seeking out emotional support indicates an increase in students' willingness to express their feelings to others. In addition, both students of color groups also reported a significant difference in the reduction of self-blame than counterparts in the control group—with a small effect size for Asian/Pacific Islander students and large for Latinx students.

Psychological stress during COVID-19

Contrary to my hypothesis, students in the intervention group did not report a significant difference in changes in psychological distress from the control group. Given the prevalence and

the extensiveness of COVID-19 stressors, it is unrealistic to expect a global improvement in students' well-being. The results in the present study provide evidence on why students' reported college well-being remained unchanged in my first study. My finding on the coupling of the increase in healthy coping behaviors and maintenance of high psychological distress echoes Thai et al. (2021)'s finding: "It is surprising that the high prevalence of stress was observed even when the students reported having used positive, approaching coping strategies during the outbreak" (p. 799). Similarly, Matheny et al. (2008) found that perceived stress and coping resources worked together in predicting life satisfaction for both U.S. and Mexican college students. When perceived stress is increased to moderate to severe intensity, students would need a much greater degree of coping resources in order to lessen negative effects of stress on life satisfaction.

Between 60% and 70% of students reported experiencing some form of psychological distress that is categorized as mild, moderate, or severe mental disorders. These percentages are congruent with previous studies of university students residing in the US, UK, Egypt, experiencing different degrees of depression, anxiety, and stress (El-Monshed et al. (2021)'s indicator of 75%, 47%, and 41%. Alarmingly, about one-fifth of the students in the intervention group reported psychological distress levels that are categorized as severe mental disorders. This begs the question of how general and clinical populations might respond to an EI intervention differently. Due to the small sample size in the present study, more research is needed to explore this question.

Interestingly, Asian/Pacific Islander students in the intervention group reported increased psychological distress at post-test, whereas those in the control group reported a decrease. Conversely, Latinx students in the intervention group reported a decrease in psychological

distress at post-test, whereas those in the control group reported worsening distress. This mirrors my finding from the first study in the increase of negative emotions reported by Asian/Pacific Islander students at post-test. In contrast, Latinx students reported a decrease of negative emotions at post-test.

Limitations

The present study used convenience sampling instead of randomly assigning students to different groups. Students voluntarily opted into the course and may be more willing to change than the general population. A randomized controlled experimental design would be more externally valid. The present study had a larger representation of female than male students and Asian/Pacific Islander students than Latinx students. Follow-up studies should consider having a bigger and more balanced sample size of students by sociodemographic factors.

To better understand the changes in socially-support and avoidance-based coping behaviors that are especially relevant for the students of color populations, a question on *whom* students are getting social supports from (i.e., professional, family, friends) would be helpful. It is also likely that the prolonged distress of the COVID-19 pandemic may require additional ways of coping that were not adequately captured by the *Brief COPE Scale*. For example, meaning-focused coping was proposed as a unique strategy used when stressors cannot be easily overcome with short-term problem solving (Folkman & Moskowitz, 2007). Although the mechanism is similar to positive reframing, conducting qualitative analysis on students' self-reflections, for example, would allow a nuanced understanding of students' coping behaviors.

The outcome measures in this study relied on self-reports and retrospective reporting, which are prone to biases in social desirability and selective memory (Lam & Bengo, 2003). Although it was emphasized to students that the survey questionnaires were not graded, it is still

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likely that some students in the intervention group might have purposely responded favorably to demonstrate progress. Longitudinal studies that follow students beyond the pandemic will provide a more reliable person-environment interaction in coping. Lastly, replication of the online EI intervention at additional colleges can help to validate the generalizability of my findings.

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CHAPTER 6

Final Reflections and Future Directions

Advances in neuroscience and cognitive science demonstrate that emotion plays a central role in facilitating our capacity to learn, make meaningful decisions, and form healthy relationships (Immordino-Yang, 2015; Immordino-Yang & Damasio, 2007). Academic and social integration have traditionally been the yardstick for college retention (Tinto, 1975, 1993). I propose that emotional integration must also be explicitly considered in the blueprint for student success *and* institutional efficacy. In this dissertation, I investigated the effects of emotional intelligence as a protective and adaptive factor on diverse college students' cognitive, affect, and behaviors related to mental health and well-being. Below, I reflect on the collective findings from my studies, discuss themes associated with the cognitive-affect-behavior model, and provide suggestions for future research.

Summary of the Findings

My first study tested the malleability of students' belief systems toward emotion. Could students move from emotional avoidance to emotional awareness? From emotional suppression to emotional acceptance? I found that students who participated in the social and emotional skills-building intervention indicated a significant reduction in their maladaptive beliefs about negative emotional experiences and expressions than students in the control group. This change in beliefs was associated with improvements in emotional intelligence competencies and positive emotions experienced in college despite the presence of negative emotions.

My second study investigated the protective roles of emotional intelligence competencies, self-compassion, and positive emotionality during the COVID-19 pandemic. I found that females and students with upper-class-standing were disproportionately impacted by

the COVID-19 pandemic, which were associated with the emotional toll of managing others' emotions and self-judgment. Moreover, through a comparison with a comparable cohort of students before the pandemic, I show the robust association of emotional intelligence and self-compassion with the cultivation of positive emotion and reduction of negative emotion—both before and during a crisis. In particular, I found that positive emotion served as a stronger buffer against negative emotion for emotional intelligence and self-compassion during everyday experiences than intense stress. This provided a dose of confidence in the utility of positive psychology, even as it suggested a need for caution when predicting the impact of positive and negative emotions in the context of prolonged stress.

My third study extended the findings from study one by examining whether students' positive shift in their belief system was paralleled by adaptive changes in their coping behaviors during the pandemic. I found that exposure to an adaptive skills-building online program is associated with an improvement in students' emotional intelligence and healthy coping behaviors. Specifically, participants in the intervention group showed a substantial increase in problem-focused and socially supported coping behaviors and a decrease in avoidance-based and self-blame tendencies than those in the control group. This study provided promising evidence connecting cognitive beliefs with coping behaviors. Coping with socially supported behaviors suggests an increase in students' willingness to express and acknowledge their emotions with others. However, there were no significant differences in psychological distress changes between students in the intervention and control groups.

Implications of the Findings

The findings from this dissertation research have implications for theory and practice. To my knowledge, this is the first study using an integrative approach to provide academic, social,

and emotional support for underrepresented undergraduates across class standings and majors. From a theoretical standpoint, I broadened the utility of the developmentally-focused SEL framework from childhood and adolescence literature to emerging adulthood. From an application standpoint, my findings demonstrated that exposure to a social and emotional learning program could contribute to developing emotional intelligence skills, adaptive beliefs about emotion, and healthy coping behaviors in diverse college students. I bridge the gap between theory and practice by offering best practices related to developing, designing, and delivering my culturally adaptive intervention, *Emotional Intelligence for School and Job Success*.

I contribute new theoretical and methodological insights by uncovering the association between emotional intelligence, self-compassion, students' beliefs about the acceptability of experiencing and expressing negative emotions, and coping behaviors. I also provide a broader understanding of the connection between the social and emotional learning intervention and students' perceived college well-being. Further, I investigate how Asian and Latinx students— two populations identified as most prone to feeling personal stigma—respond to the intervention. The within-group and between-group differences found in this dissertation research will help move the field toward equitable interventions that address the disparity in mental health needs and supports for college students of color.

By replicating and scaling my intervention six times across three distinct quarters—four of which were during the COVID-19 pandemic, I demonstrate the accessibility and effectiveness of my proposed model of care for supporting students' mental health and well-being. The way students learn, live, and socialize is changing due to advances in educational technology and behavioral shifts accelerated by the COVID-19 pandemic. In studies one and three, I provide

promising evidence that in-person and online versions of mental health intervention can have significant and comparable effects. This demonstrates that postsecondary institutions can utilize multiple pathways to ensure equitable and accessible support for *all* students.

I provide practical insights as to whether an intervention delivered during a shared crisis could promote changes in students' coping behaviors; and, if so, which coping strategies might be more learnable with training. Understanding how college students cope with distress will provide critical insights into developing effective programming for a population prone to mental health challenges. Altogether, my studies provide a comprehensive understanding of the effects of my intervention on college students' development of skills, beliefs, and behaviors related to their social and emotional competencies.

Future Directions

My findings illustrated the critical steps in stigma reduction through a significant decrease in students' maladaptive beliefs about emotions and an increase of adaptive coping behaviors. Future research would benefit from testing the transferability and the relationship between belief and behavior, especially during major life events. Measures that capture help-seeking behaviors and the utilization of mental health services and informal supports would provide more insights into the impacts of the intervention on students' beliefs and behaviors.

Overall, my studies used convenience sampling. Future studies should ideally use a randomized controlled experimental design when possible. Studies should consider having a larger sample size and one that is more balanced by sociodemographic factors. Future research using self-reports, experience sampling, and performance-based measures would also ensure greater reliability in results. Longitudinal studies that follow students of color throughout their college trajectory would be valuable in understanding the malleability and durability of

emotional intelligence and how adaptive beliefs translate into responsive behaviors. It may also be worthwhile exploring the utility of the SEL program as a relapse prevention program with a clinical sample of students who have undergone treatment for mental illness.

In conclusion, my dissertation advanced the theory and practice of equipping college students with social and emotional skills to adaptively manage their beliefs and behaviors for better mental health and well-being. My studies demonstrated significant improvements in students' emotional intelligence, beliefs about emotions, and coping behaviors in the short-run, but did not show significant changes in students' psychological distress and college well-being shortly after the intervention. In their illustrative system variables for the emotion process, Lazarus & Folkman (1987) categorized psychological well-being, somatic health, and social functioning as "long-term effects" (p. 144). Future research should expand the understanding of long-term outcomes on the developmental and adaptational models of emerging adulthood.

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Social and Emotional Learning Model

Supplementary Figure 1. SEL Model by CASEL

Supplementary Tables and Figures for Study 1

Supplementary Table 1

Pre-test and post-test comparison within program

	Intervention (N = 129)								Control (N = 138)							
	Pre-Test		Post-Test		Pre vs. Post				Pre-Test		Post-Test		Pre vs. Post			
	M	SD	M	SD	BF	p	r	ES	M	SD	M	SD	BF	p	r	ES
Emotional Intelligence																
AES Composite Score	117.99	14.91	129.46	14.81	1.57e+11	***	0.47	0.75	118.38	14.75	119.59	13.78	0.15	0.369	0.60	0.09
Perception of emotions	34.46	6.57	38.58	5.03	1.35e+9	***	0.35	0.67	34.54	6.77	35.33	5.90	0.86	0.056	0.72	0.20
Managing own emotions	31.29	5.31	35.01	5.09	1.98e+10	***	0.50	0.71	31.59	4.89	32.03	4.69	0.24	0.171	0.62	0.14
Managing others' emotions	29.19	4.26	31.39	4.41	2.11e+6	***	0.55	0.55	29.25	3.85	29.22	4.19	0.12	0.384	0.56	0.09
Utilizing emotions	23.05	2.94	24.48	3.24	5818.44	***	0.51	0.46	23.00	2.82	23.01	3.04	0.10	0.748	0.43	0.04
Beliefs about Emotion																
Beliefs about Emotion Scale	36.40	8.88	31.05	7.62	1.14e+6	***	0.30	0.63	34.31	8.74	34.22	7.85	0.11	0.903	0.13	0.01
College Well-Being																
Composite Score	1.17	44.19	7.78	38.65	.363	0.103	0.40	0.15	1.14	43.86	3.79	46.11	0.13	0.435	0.61	0.07
Positive Emotion	53.67	24.16	61.98	21.69	33.30	***	0.32	0.31	52.04	24.19	55.5	3.99	0.47	0.072	0.57	0.16
Negative Emotion	52.50	25.31	54.21	24.51	.13	0.450	0.48	0.07	50.91	25.65	51.71	25.78	0.10	0.711	0.52	0.03

Note : AES = Assessing Emotions Scale. BF = Bayes Factor 10. r = re-test reliability; ES = Cohen's *d* . *p<.05; **p<.01; ***p<.001 (2-tailed).

Supplementary Figure 1
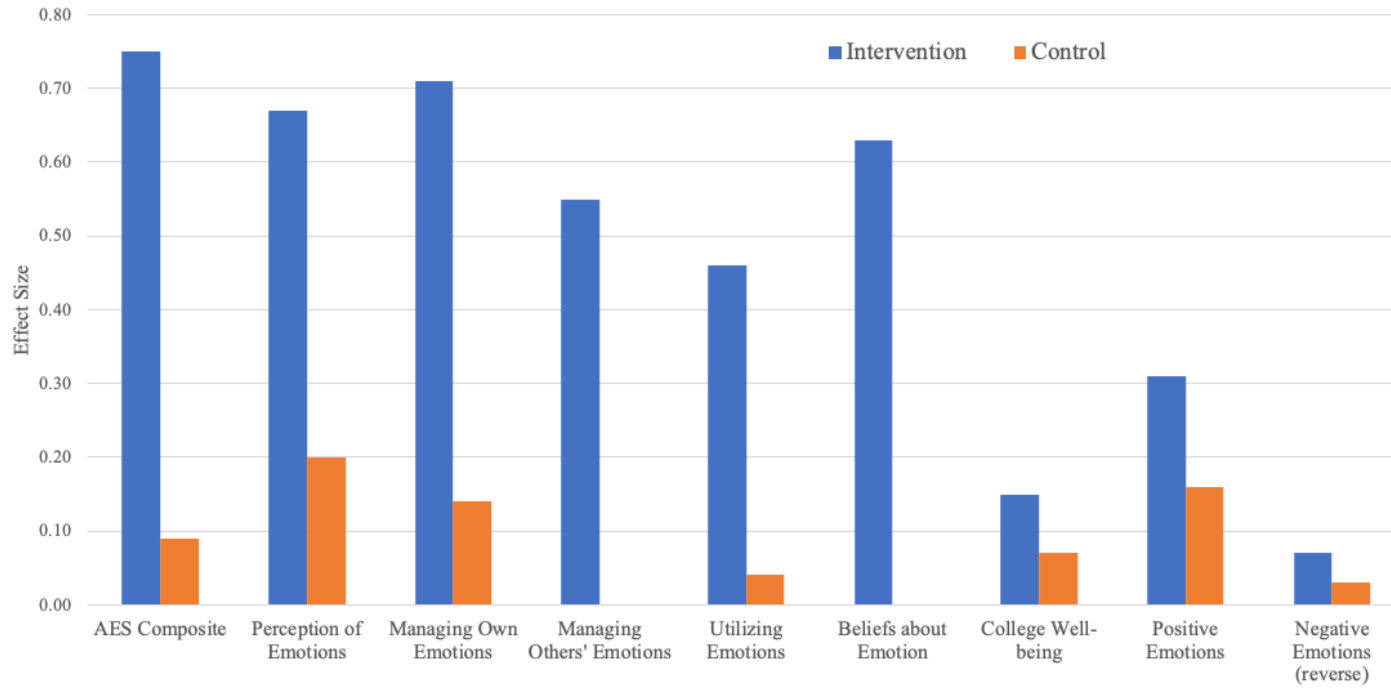
Effect sizes (d') for pre-test and post-test contrasts for outcome measures as a function of group (intervention and control). Note: AES = Assessing Emotions Scale. For the control group, the effect sizes for Managing Others' Emotions = .04 and Beliefs about Emotion = .09, but were not denoted because the post-test performance was worse than pre-test.

Supplementary Table 2

Baseline comparison of Asian/Pacific Islander and Latinx student groups (combining both intervention and control groups)

	Asian/PI n = 154 M (SD)	Latinx n = 70 M (SD)	Asian/PI vs. Latinx p
Emotional Intelligence			
AES Composite Score	118.20 (16.08)	118.89 (13.22)	0.756
Perception of emotions	34.42 (7.35)	34.99 (5.39)	0.515
Managing own emotions	31.50 (5.26)	31.3 (4.97)	0.784
Managing others' emotions	29.38 (4.40)	29.41 (3.64)	0.947
Utilizing emotions	22.91 (2.90)	23.19 (2.96)	0.515
Beliefs about Emotion Scale			
Beliefs about Emotion Scale	36.21 (9.09)	33.69 (8.67)	0.093
College Well-Being			
Composite Score	45.98 (3.71)	-4.56 (42.27)	0.221
Positive Emotion	54.31 (24.86)	49.53 (22.05)	0.151
Negative Emotion	50.94 (25.80)	54.09 (24.79)	0.386

Note: AES = Assessing Emotions Scale. Beliefs about Emotions Scale was not collected in one quarter (118 Asian/PI and 52 Latinx).

Supplementary Table 3
Pre-test and post-test comparison by race (Asian/Pacific Islander and Latinx) within the intervention group.

	Asian/PI (*N* = 67)				Latinx (*N* = 38)			
	Pre-Test	Post-Test	Pre vs. Post		Pre-Test	Post-Test	Pre vs. Post	
	M (SD)	*M (SD)*	*p*	ES	*M (SD)*	*M (SD)*	*p*	ES
Emotional Intelligence								
AES Composite Score	118.48 (16.05)	127.51 (14.42)	***	0.57	118 (13.82)	133.79 (16.43)	***	1.19
Perception of emotions	34.21 (7.21)	37.84 (5.42)	***	0.57	35.21 (5.26)	40.13 (4.49)	***	0.90
Managing own emotions	31.58 (5.37)	34.22 (4.81)	***	0.51	30.61 (5.55)	36.24 (5.68)	***	1.23
Managing others' emotions	29.72 (4.54)	31.12 (4.27)	**	0.38	29.29 (3.87)	32.45 (4.79)	***	0.75
Utilizing emotions	22.97 (4.54)	24.33 (2.90)	***	0.54	29.29 (3.87)	24.97 (4.16)	***	0.65
Beliefs about Emotion Scale								
Beliefs about Emotion Scale	37.95 (8.88)	32.32 (8.49)	***	0.65	34.43 (8.99)	26.93 (8.18)	***	0.93
College Well-Being								
Composite Score	7.72 (47.05)	9.52 (37.68)	0.733	0.04	-10.26 (41.24)	9.66 (39.38)	*	0.40
Positive Emotion	56.90 (25.63)	62.48 (20.78)	0.073	0.22	47.63 (22.27)	64.08 (23.04)	**	0.55
Negative Emotion	49.18 (26.89)	52.96 (24.21)	0.221	0.15	57.90 (23.09)	54.42 (23.85)	0.443	0.13

Note: AES = Assessing Emotions Scale. *p<.05; **p<.01; ***p<.001 (2-tailed).
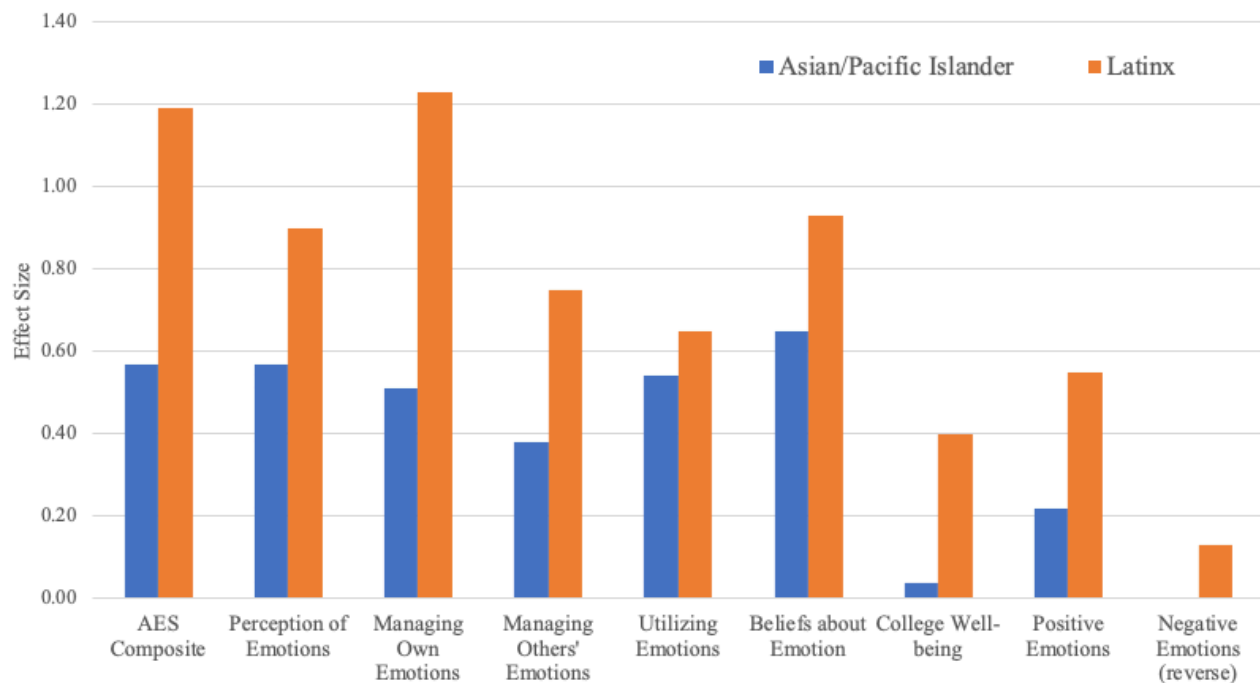
Supplementary Figure 2

Effect sizes (*d'*) for pre-test and post-test contrasts for outcome measures as a function of group and race. Note: AES = Assessing Emotions Scale. Effect sizes for Asian students' Negative Emotions = .15, but was not denoted because the post-test performance was worse than pre-test.

Supplementary Tables and Figures for Study 2

Supplementary Table 1
Detailed measure comparison by student subgroups, before COVID-19

	AES	Perception of Emotion	Manage Own Emotion	Manage Others' Emotion	Utilizing Emotion	SCS	Self-Kindness	Self-Judgment^	Common Humanity	Isolation^	Mindfulness	Over-Identification^	Well-Being	Positive Emotion	Negative Emotion
Gender															
Female (n = 53)	114.62(15.22)	33.55(6.53)	29.87(5.24)	28.87(4.01)	22.34(2.75)	2.56(0.72)	2.84(0.88)	2.64(1.08)	2.91(0.94)	3.90(1.01)	3.26(1.00)	4.10(0.97)	-8.453(46.339)	48(23.71)	56.45(26.60)
Male (n = 29)	111.21(14.87)	30.52(6.92)	30.90(4.34)	26.59(4.51)	23.21(2.53)	2.77(0.77)	3.03(1.09)	2.50(1.16)	3.09(0.83)	3.64(0.99)	3.40(0.99)	3.76(0.93)	11.21(44.70)	59.93(24.60)	48.72(27.31)
p-value	0.328	0.053	0.371	*	0.155	0.236	0.379	0.590	0.389	0.266	0.566	0.119	0.065	*	0.216
ES	0.23	0.45	0.21	**0.54**	0.33	0.28	0.20	0.13	0.20	0.26	0.13	0.36	0.43	**0.50**	0.29
First-Generation															
No (n = 33)	113.06(13.44)	31.79(6.23)	30.79(3.98)	27.97(4.04)	22.52(2.69)	2.67(0.55)	2.91(0.78)	3.50(0.96)	3.08(0.78)	3.82(0.85)	3.32(0.78)	3.94(0.97)	3.30(40.7)	55.85(20.3)	52.55(25.77)
Yes (n = 37)	113.16(17.78)	32.68(7.85)	29.84(5.39)	28.03(4.82)	22.62(3.03)	2.56(0.90)	2.84(1.09)	3.70(1.24)	2.91(1.06)	3.89(1.12)	3.24(1.16)	4.01(0.96)	-4.57(50.84)	49.6(27.21)	54.16(28.78)
p-value	0.979	0.605	0.409	0.957	0.989	0.541	0.752	0.446	0.451	0.755	0.756	0.749	0.481	0.284	0.806
ES	0.01	0.12	0.20	0.01	0.04	0.15	0.08	0.18	0.18	0.07	0.08	0.08	0.17	0.26	0.06
Race/Ethnicity															
Asian/PI (n = 44)	113.46(16.83)	32.48(7.6)	30.50(4.75)	28.11(4.77)	22.36(3.04)	2.70(0.75)	2.94(0.96)	3.47(1.08)	2.99(0.86)	3.66(1.01)	3.30(0.98)	3.92(1.00)	2.16(46.89)	52.77(24.98)	50.61(23.77)
Latinx (n = 21)	112.33(12.79)	32.48(6.1)	29.29(5)	27.52(4.02)	23.05(2.29)	2.49(0.82)	2.67(1.07)	3.76(1.17)	2.67(0.97)	3.91(1.14)	3.33(0.99)	4.05(0.97)	-13.76(55.71)	46.05(27.29)	59.81(32.50)
p-value	0.788	1.000	0.347	0.606	0.364	0.323	0.298	0.334	0.202	0.404	0.885	0.628	0.233	0.328	0.256
ES	0.07	0.00	0.25	0.13	0.24	0.26	0.28	0.26	0.35	0.23	0.04	0.13	0.32	0.26	0.32
Class Standing															
Lower (n = 14)	114.36(10.57)	32(5.97)	31.71(4.3)	28.93(3)	21.71(3.07)	2.82(0.69)	3.04(0.87)	2.68(1.2)	3.11(0.71)	2.64(1.08)	3.29(0.89)	2.14(1.15)	8.57(40.34)	54.93(19.07)	46.36(23.24)
Upper (n = 68)	113.22(15.92)	32.57(6.98)	29.93(5.04)	27.88(4.53)	22.84(2.58)	2.60(0.75)	2.88(0.97)	2.35(1.08)	2.94(0.94)	2.10(0.97)	3.32(1.01)	1.99(0.93)	-3.57(47.63)	51.66(25.62)	55.24(27.55)
p-value	0.799	0.775	0.184	0.411	0.218	0.303	0.561	0.361	0.461	0.101	0.911	0.652	0.376	0.653	0.264
ES	0.08	0.08	0.38	0.24	0.40	0.30	0.17	0.29	0.20	0.53	0.03	0.14	0.26	0.13	0.33

Note: First-generation missing responses from 12 students. Race/Ethnicity did not include "All Other" due to small sample size. AES = Assessing Emotions Scale; SCS = Self-Compassion Scale. ^Reverse for self-judgment, isolation, over-identification (high score means lower self-compassion). *ES* = Cohen's *d*. * p < .05, ** p < .01, *** p < .001

Supplementary Table 2

Detailed measure comparison by student subgroups, during COVID-19

	AES	Perception of Emotion	Manage Own Emotion	Manage Others' Emotion	Utilizing Emotion	SCS	Self-Kindness	Self-Judgment^	Common Humanity	Isolation^	Mindfulness	Over-Identification^	Well-Being	Positive Emotion	Negative Emotion
Gender															
Female (n = 210)	120.82(13.53)	35.69(6.28)	32.02(4.98)	30.1(3.65)	23.01(2.7)	2.78(0.65)	2.98(0.89)	3.36(1.08)	3.10(0.87)	3.54(1.05)	3.24(0.91)	3.77(1.05)	-4.73(43.32)	48.67(24.07)	53.4(24.55)
Male (n = 53)	119.74(15.54)	35.23(7.2)	32.66(4.86)	28.81(4.03)	23.04(3.18)	2.96(0.72)	3.17(0.90)	3.13(1.16)	3.20(1.10)	3.47(1.02)	3.61(0.83)	3.64(1.04)	19.13(43.48)	62.23(23.18)	43.09(25.85)
p-value	0.614	0.669	0.395	*	0.961	0.076	0.166	0.203	0.549	0.685	**	0.409	***	***	*
ES	0.08	0.07	0.13	**0.33**	0.01	0.27	0.22	0.20	0.10	0.06	**0.43**	0.13	**0.55**	**0.57**	**0.41**
First-Generation															
No (n = 114)	121.54(15.20)	36.33(6.42)	32(5.12)	30.18(4.25)	23.02(2.85)	2.81(0.68)	2.97(0.96)	3.24(1.12)	3.05(0.96)	3.53(0.98)	3.33(0.97)	3.73(0.96)	2.57(45.08)	52.51(24.87)	49.94(26.64)
Yes (n = 122)	120.4(12.21)	35.04(6.23)	32.54(4.67)	29.72(3.23)	23.1(2.86)	2.84(0.65)	3.05(0.82)	3.31(1.10)	3.17(0.84)	3.46(1.11)	3.30(0.86)	3.73(1.10)	-2.02(43.96)	49.57(23.87)	51.59(24.14)
p-value	0.527	0.118	0.399	0.345	0.828	0.75	0.519	0.706	0.311	0.600	0.832	0.993	0.430	0.356	0.619
ES	0.08	0.2	0.11	0.12	0.03	0.04	0.08	0.07	0.132	0.07	0.03	0.00	0.10	0.12	0.07
Race/Ethnicity															
Asian/PI (n = 153)	120.48(14.96)	35.60(7.01)	32.01(5.23)	29.95(4.09)	22.93(2.72)	2.85(0.69)	3.09(0.9)	3.26(1.17)	3.19(0.94)	3.57(0.99)	3.38(0.94)	3.75(1.00)	2.01(47.5)	53.01(25.89)	51.01(26.54)
Latinx (n = 71)	121.06(13.03)	35.58(5.62)	32.34(4.78)	30.00(3.20)	23.14(2.97)	2.75(0.61)	2.93(0.86)	3.38(0.94)	2.98(0.81)	3.52(1.04)	3.22(0.87)	3.75(1.10)	-0.58(35.48)	50.8(19.33)	51.38(22.09)
p-value	0.782	0.984	0.640	0.928	0.610	0.293	0.216	0.404	0.083	0.764	0.220	0.993	0.683	0.522	0.912
ES	0.04	0.00	0.07	0.01	0.08	0.15	0.18	0.12	0.24	0.04	0.17	0.00	0.06	0.09	0.02
Class Standing															
Lower (n = 61)	121.74(12.43)	35.82(6.04)	33.16(4.28)	30.16(3.4)	22.59(2.58)	2.94(0.61)	3.17(0.93)	3.05(1.06)	3.21(0.79)	3.45(0.99)	3.44(0.83)	3.67(0.97)	12.56(42.17)	55.54(23.68)	42.98(23.18)
Upper (n = 202)	120.26(14.36)	35.53(6.6)	31.84(5.11)	29.74(3.87)	23.15(2.85)	2.77(0.68)	2.97(0.88)	3.39(1.10)	3.09(0.95)	3.54(1.05)	3.28(0.93)	3.77(1.07)	-3.69(44.37)	50.15(24.62)	53.84(25.18)
p-value	0.468	0.748	*	0.408	0.152	0.082	0.132	*	0.317	0.573	0.186	0.504	*	0.126	**
ES	0.11	0.05	**0.28**	0.12	0.21	0.26	0.23	**0.32**	0.14	0.08	0.19	0.10	**0.37**	0.22	**0.45**

Note: First-generation missing responses from 27 students. Race/Ethnicity did not include "All Other" due to small sample size. AES = Assessing Emotions Scale; SCS = Self-Compassion Scale. ^Reverse for self-judgment, isolation, over-identification (high score means lower self-compassion). *ES* = Cohen's *d* . * p < .05, ** p < .01, *** p < .001

Supplementary Table 3
Correlation table for measures in the spring quarter

	1	2	3	4	5
1. Assessing Emotions Scale	-				
2. Self-Compassion	0.470***				
3. Positive Emotion	0.280*	0.419***			
4. Negative Emotion	-0.297**	-0.379***	-0.500***		
5. Gender	-0.014	0.216	0.129	-0.119	-

Note: Pearson's r or Spearman's rho (when normality is violated). Gender: male = 0; female = 1. *$p < .05$, **$p < .01$, ***$p < .001$

Supplementary Table 4
Correlation table for measures in the fall quarter

	1	2	4	5	6
1. Assessing Emotions Scale	-				
2. Self-Compassion	0.330***				
3. Positive Emotion	0.102	0.241***			
4. Negative Emotion	-0.063	-0.275***	-0.642***		
5. Gender	-0.008	0.049	0.222**	-0.188*	-

Note: Pearson's r or Spearman's rho (when normality is violated). Gender: male = 0; female = 1. *$p < .05$, **$p < .01$, ***$p < .001$

Supplementary Figure 1

Figure 1. Before-pandemic relationship between EI and positive emotion with negative emotion as mediator (standardized estimates).

Supplementary Figure 2

Figure 2. During-pandemic relationship between EI and positive emotion with negative emotion as mediator (standardized estimates).
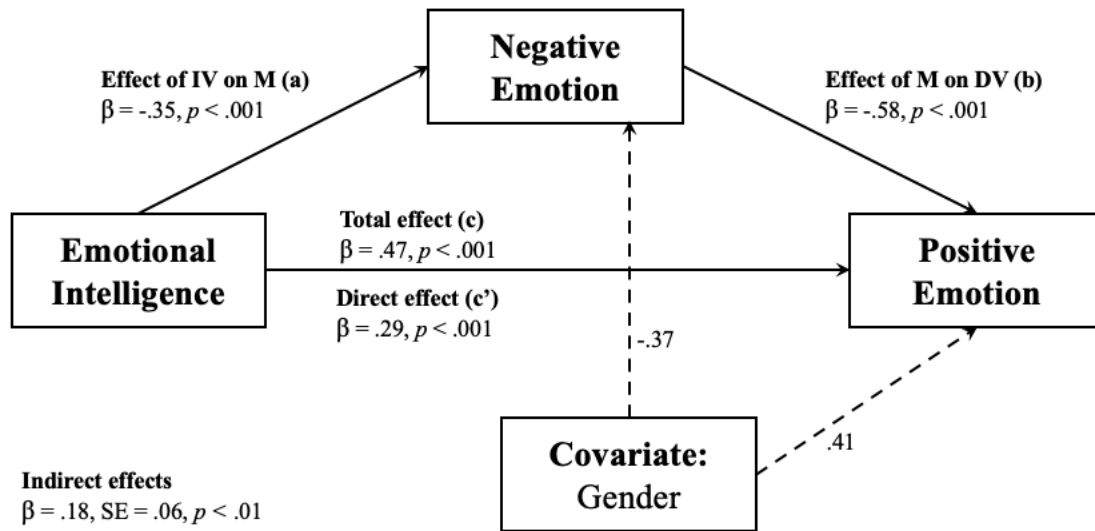
Supplementary Figure 3

Figure 3. Before-pandemic relationship between SC and positive emotion with negative emotion as mediator (standardized estimates).
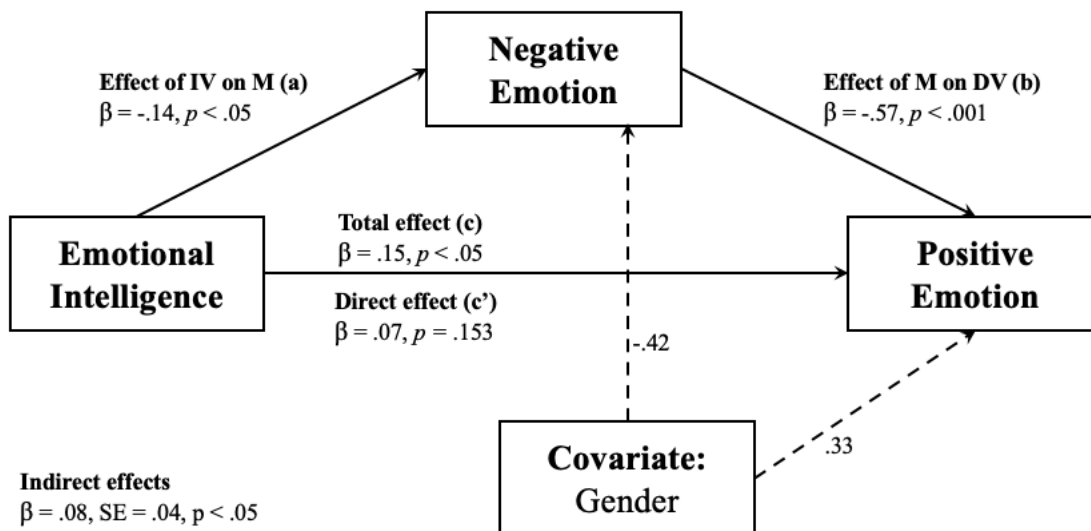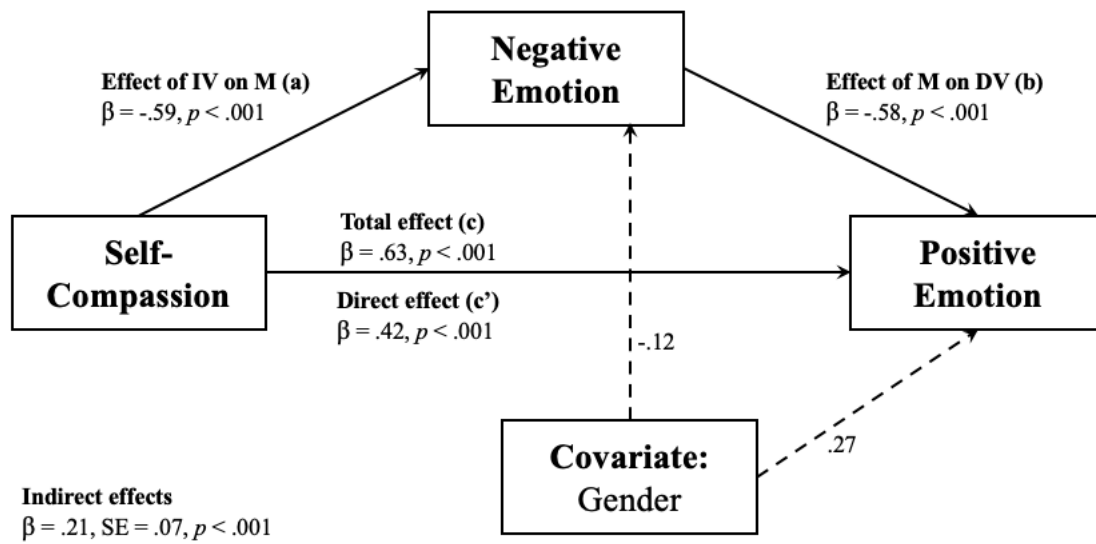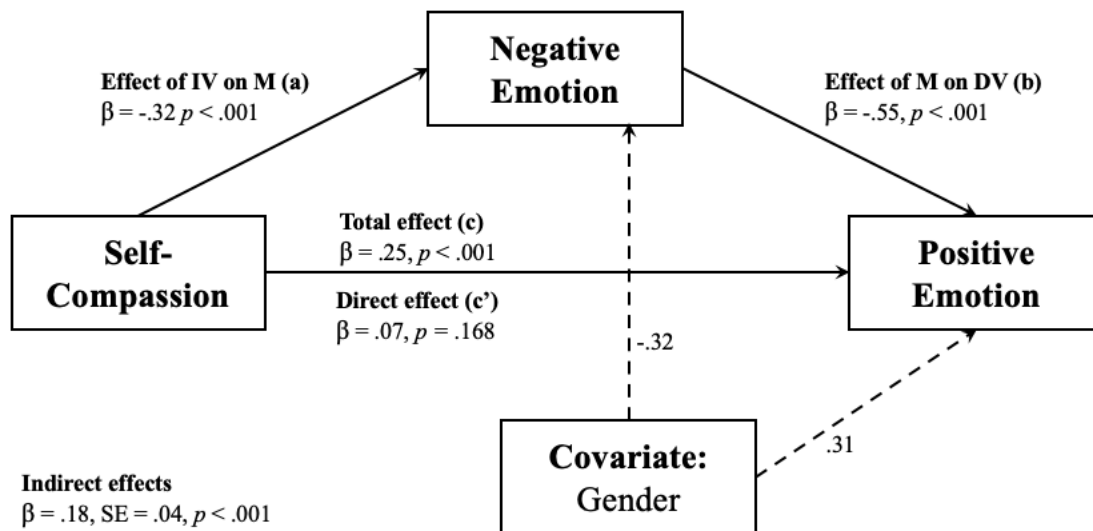

Supplementary Figure 4

Figure 4. During-pandemic relationship between SC and positive emotion with negative emotion as mediator (standardized estimates).

Supplementary Tables and Figures for Study 3

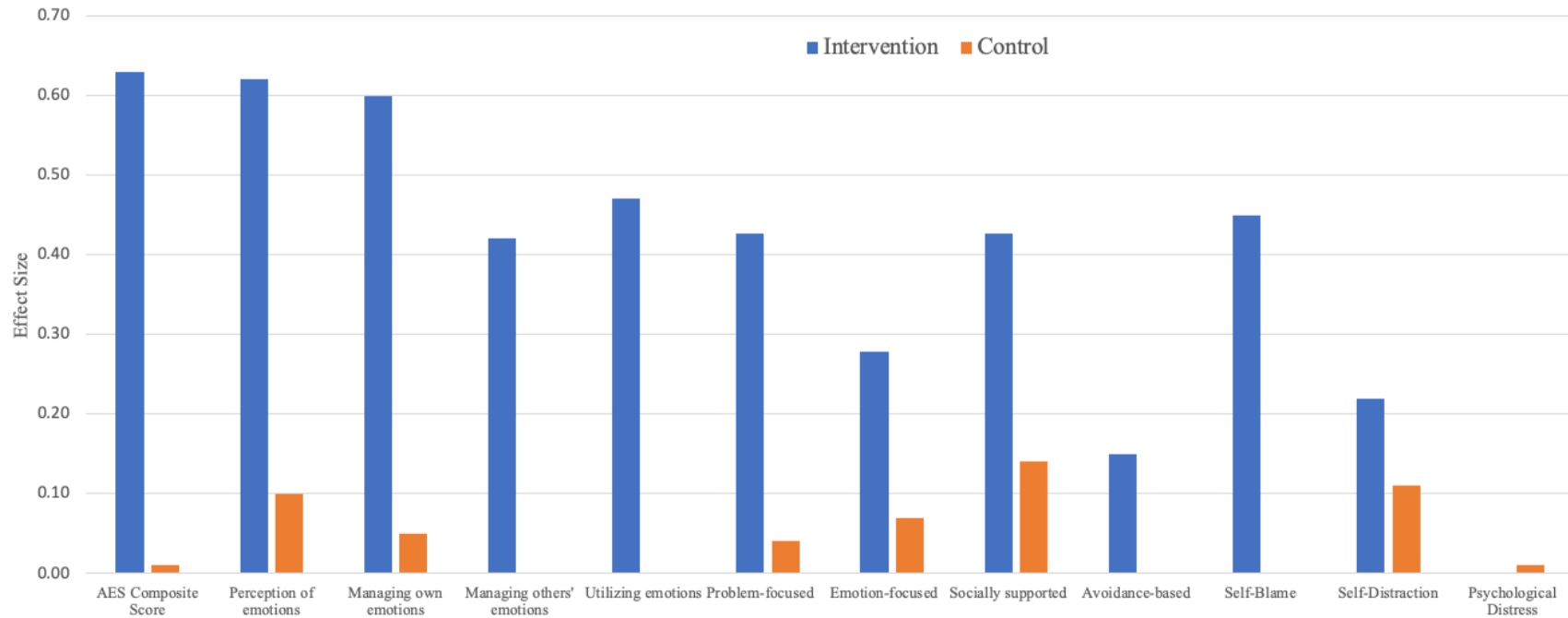Supplementary Table 1
Pre-test and post-test comparison within program

	Intervention (N = 100)						Control (N = 98)					
	Pre	Post	Pre vs. Post				Pre	Post	Pre vs. Post			
	M (SD)	*M (SD)*	*BF*	*p*	*r*	*ES*	*M (SD)*	*M (SD)*	*BF*	*p*	*r*	*ES*
Emotional Intelligence												
AES Composite Score	119.68 (14.72)	129.43 (14.94)	**1.128x+6**	***	0.45	0.63	120.40 (13.33)	120.49 (13.10)	0.110	0.934	0.66	0.01
Perception of emotions	34.92 (6.55)	38.77 (5.11)	**17448.68**	***	0.34	0.62	35.74 (6.10)	36.16 (5.49)	0.18	0.333	0.75	0.10
Managing own emotions	31.89 (5.28)	34.89 (5.15)	**299407.92**	***	0.53	0.60	31.84 (5.02)	32.04 (4.49)	0.13	0.619	0.64	0.05
Managing others' emotions	29.63 (4.11)	31.30 (4.54)	**1296.22**	***	0.58	0.42	29.70 (3.50)	29.34 (4.25)	0.30	0.279	0.58	0.11
Utilizing emotions	23.24 (3.04)	24.35 (3.32)	**445.85**	***	0.49	0.47	23.12 (2.68)	22.95 (2.93)	0.13	0.579	0.40	0.06
Coping Behaviors												
Problem-focused	10.97 (2.50)	11.95 (2.63)	**373.47**	***	0.6	0.4	10.56 (2.67)	10.67 (2.27)	0.12	0.685	0.39	0.04
Emotion-focused	19.50 (4.34)	20.55 (3.87)	**4.17**	**	0.58	0.3	19.65 (3.94)	19.89 (3.28)	0.14	0.512	0.51	0.07
Socially supported	14.47 (4.28)	16.17 (3.61)	**391.15**	***	0.51	0.4	13.93 (3.66)	14.42 (4.01)	0.27	0.178	0.59	0.14
Avoidance-based	9.05 (3.10)	8.73 (3.38)	0.21	0.239	0.64	0.2	8.55 (2.38)	9.04 (3.15)	0.30	0.182	0.46	0.18
Remaining Subscales												
Self-Blame	4.84 (1.74)	4.26 (1.62)	**96.77**	***	0.50	0.45	4.75 (1.85)	4.80 (1.81)	0.12	0.790	0.48	0.03
Self-Distraction	6.39 (1.44)	6.12 (1.41)	0.64	0.112	0.44	0.22	6.49 (1.23)	6.33 (1.48)	0.21	0.276	0.38	0.11
Psychological Distress												
K10 Composite Score	23.74 (7.66)	23.75 (7.88)	0.14	0.986	0.59	0.00	24.39 (7.47)	24.23 (7.43)	0.14	0.963	0.62	0.01

Note: AES = Assessing Emotions Scale. BF = Bayes Factor 10. r = re-test reliability; ES = Cohen's *d*. *p<.05; **p<.01; ***p<.001 (2-tailed).

Supplementary Figure 1

Effect sizes (d') for pre-test and post-test contrasts for outcome measures as a function of group (intervention and control). Note: AES = Assessing Emotions Scale. For the control group, the effect sizes for Managing Others' Emotions = .11, Utilizing Emotions = .06, Avoidance-based = .18, Self-Blame = .03, but were not denoted because the post-test performance was worse than pre-test.

Supplementary Table 2
Pre-test and post-test comparisons of Brief COPE 14-item scale within program

| | Intervention (N = 100) | | | | | | Control (N = 98) | | | | | |
| | Pre | Post | Pre vs. Post | | | | Pre | Post | Pre vs. Post | | | |
	M (SD)	M (SD)	BF	p	r	ES	M (SD)	M (SD)	BF	p	r	ES
Coping Behaviors												
Problem-focused	10.97 (2.50)	11.95 (2.63)	**373.47**	***	0.60	0.43	10.56 (2.67)	10.67 (2.27)	0.12	0.685	0.39	0.04
Active Coping	5.26 (1.33)	5.93 (1.56)	**1688.73**	***	0.52	0.56	5.30 (1.37)	5.21 (1.33)	0.14	0.605	0.35	0.05
Planning	5.71 (1.54)	6.02 (1.40)	**1.31**	*	0.53	0.30	5.27 (1.62)	5.46 (1.35)	0.21	0.685	0.33	0.11
Emotion-focused	19.50 (4.34)	20.55 (3.87)	**4.17**	**	0.58	0.28	19.65 (3.94)	19.89 (3.28)	0.14	0.512	0.51	0.07
Acceptance	6.02 (1.35)	6.34 (1.22)	**0.91**	*	0.25	0.25	5.98 (1.39)	6.13 (1.24)	0.19	0.342	0.27	0.10
Humor	4.69 (1.93)	4.41 (1.74)	0.33	0.202	0.55	0.17	4.41 (1.85)	4.52 (1.87)	0.15	0.507	0.58	0.07
Positive Reframing	5.44 (1.60)	6.04 (1.47)	**56.14**	***	0.34	0.43	5.50 (1.49)	5.50 (1.54)	0.11	1.000	0.51	0.00
Religion	3.35 (1.80)	3.76 (1.92)	**11.94**	**	0.76	0.47	3.77 (1.88)	3.74 (1.69)	0.12	0.813	0.72	0.02
Socially supported	14.47 (4.28)	16.17 (3.61)	**391.15**	***	0.51	0.43	13.93 (3.66)	14.42 (4.01)	0.27	0.178	0.59	0.14
Emotional Support	5.21 (1.82)	5.90 (1.64)	**33.50**	***	0.43	0.46	5.03 (1.68)	5.02 (1.84)	0.12	0.947	0.63	0.01
Instrumental Support	4.82 (1.78)	5.57 (1.78)	**200.03**	***	0.39	0.48	4.65 (1.64)	4.86 (1.72)	0.21	0.255	0.44	0.12
Venting	4.44 (1.44)	4.70 (1.27)	0.43	0.129	0.25	0.19	4.25 (1.32)	4.54 (1.53)	0.30	0.106	0.25	0.17
Avoidance-based	9.05 (3.10)	8.73 (3.38)	0.21	0.239	0.64	0.15	8.55 (2.38)	9.04 (3.15)	0.30	0.182	0.46	0.18
Behavioral Disengagement	3.43 (1.56)	3.13 (1.41)	0.71	0.084	0.53	0.26	3.26 (1.27)	3.39 (1.47)	0.16	0.369	0.48	0.09
Denial	2.82 (1.42)	2.88 (1.35)	0.15	0.366	0.61	0.15	2.88 (1.25)	3.16 (1.56)	0.44	0.070	0.42	0.19
Substance Use	2.80 (1.40)	2.72 (1.40)	0.14	0.675	0.46	0.08	2.42 (1.07)	2.49 (1.21)	0.13	0.544	0.57	0.06
Remaining Subscales												
Self-Blame	4.84 (1.74)	4.26 (1.62)	**96.77**	***	0.50	0.45	4.75 (1.85)	4.80 (1.81)	0.12	0.790	0.48	0.03
Self-Distraction	6.39 (1.44)	6.12 (1.41)	0.64	0.112	0.44	0.22	6.49 (1.23)	6.33 (1.48)	0.21	0.276	0.38	0.11

Note: AES = Assessing Emotions Scale. BF = Bayes Factor 10. r = re-test reliability; ES = Cohen's *d*. *p<.05; **p<.01; ***p<.001 (2-tailed).

Supplementary Table 3

Percentage and frequency of coping strategies employed by students

	Intervention Group				Control Group			
Behaviors	Not at all (%)	Occasionally (%)	Often (%)	Most of the time (%)	Not at all (%)	Occasionally (%)	Often (%)	Most of the time (%)
Pre-Test								
Adaptive Strategies								
Acceptance	0	18	45	37	1	13	52	34
Active Coping	1	33	49	17	2	28	52	18
Emotional Support	6	41	27	26	7	36	38	19
Instrumental Support	10	42	28	20	11	41	36	12
Planning	1	23	44	32	4	31	41	24
Positive Reframing	3	27	46	24	4	26	46	24
Maladaptive Strategies								
Behavioral Disengagement	38	43	12	7	39	46	13	2
Denial	62	26	9	3	55	33	11	1
Self-Blame	9	37	34	20	11	38	31	20
Self-Distraction	0	10	43	47	0	6	46	48
Substance Use	68	20	9	3	83	12	4	1
Venting	9	40	45	6	9	46	42	3
Uncategorized								
Humor	17	31	33	19	16	41	24	18
Religion	47	34	10	9	37	36	17	10
Post-Test								
Adaptive Strategies								
Acceptance	0	8	47	45	0	9	55	36
Active Coping	0	22	43	35	1	35	49	15
Emotional Support	3	22	38	37	13	32	32	23
Instrumental Support	5	25	41	29	11	32	41	16
Planning	0	19	44	37	1	24	52	22
Positive Reframing	1	18	42	39	5	21	46	28
Maladaptive Strategies								
Behavioral Disengagement	50	34	13	3	34	48	14	4
Denial	60	25	13	2	50	36	7	7
Self-Blame	15	43	33	9	9	38	34	19
Self-Distraction	1	10	50	39	1	12	37	50
Substance Use	74	16	7	3	82	12	3	3
Venting	4	44	45	7	6	49	33	12
Uncategorized								
Humor	21	34	34	11	22	27	36	15
Religion	41	27	22	10	33	38	23	6

Supplementary Table 4
Baseline comparison of Asian/Pacific Islander and Latinx student groups (combining both intervention and control groups)

	Combined (Intervention and Control)		
	Asian/PI **n = 118**	**Latinx** **n = 52**	Asian/PI vs. Latinx
	M (SD)	*M (SD)*	*p*
Socially Supported Coping	14.32 (3.96)	13.77 (4.01)	0.481
Emotional Support	5.13 (1.68)	4.92 (1.84)	0.368
Instrumental Support	4.82 (1.71)	4.44 (1.71)	0.368
Venting	4.82 (1.71)	4.40 (1.39)	0.182
Avoidance-based Coping	8.75 (2.79)	8.92 (2.71)	0.580
Behavioral Disengagement	3.37 (1.46)	3.40 (1.40)	0.804
Denial	2.84 (1.35)	2.83 (1.25)	0.865
Substance Use	2.54 (1.20)	2.69 (1.32)	0.329
Self-Blame	4.94 (1.81)	4.81 (1.76)	0.641

Note: *p<.05; **p<.01;

Supplementary Table 5
Pre-test and post-test comparison of Asian/Pacific Islander and Latinx student groups within intervention

	Asian/PI (N = 56)				Latinx (N = 28)			
	Pre	Post	Pre vs. Post		Pre	Post	Pre vs. Post	
	M (SD)	*M (SD)*	*p*	*ES*	*M (SD)*	*M (SD)*	*p*	*ES*
Socially-Supported Coping								
Emotional Support	5.25 (1.73)	5.86 (1.53)	**0.015**	**0.34**	4.93 (1.90)	6.07 (1.78)	**0.007**	**0.55**
Instrumental Support	4.08 (1.80)	5.50 (1.79)	**0.013**	**0.42**	4.71 (1.82)	5.75 (1.84)	**0.015**	**0.49**
Venting	4.25 (1.51)	4.52 (1.32)	0.260	0.18	4.79 (1.23)	4.75 (1.21)	0.821	0.06
Avoidance-based Coping								
Behavioral Disengagement	3.50 (1.66)	3.25 (1.31)	0.308	0.20	3.57 (1.53)	2.82 (1.47)	**0.009**	**0.71**
Denial	2.84 (1.49)	2.84 (1.36)	0.717	0.09	2.68 (1.06)	2.79 (1.13)	0.646	0.14
Substance Use	2.75 (1.30)	2.70 (1.41)	0.809	0.07	2.93 (1.54)	2.57 (1.32)	0.209	0.46
Self-Blame	4.89 (1.83)	4.43 (1.52)	**0.029**	**0.39**	5.00 (1.68)	3.57 (1.53)	**0.000**	**0.96**

Supplementary Table 6
Percentage and frequency of psychological distress

Psychological Distress	Intervention Group				Control Group			
	Well (%)	Mild (%)	Moderate (%)	Severe (%)	Well (%)	Mild (%)	Moderate (%)	Severe (%)
Pre-Test								
Total	34.43	24.59	21.31	19.67	29.85	22.39	31.34	16.42
By Gender								
Female	32.65	22.5	24.49	20.41	27.12	23.73	33.90	15.25
Male	41.67	33.33	8.33	16.67	50.00	12.50	12.50	25.00
By Race								
Asian/Pacific Islander	42.15	26.32	7.9	23.68	29.27	26.83	34.15	9.76
Latinx	15.39	30.77	30.77	23.08	38.89	16.67	22.22	22.22
Post-Test								
Total	36.07	22.95	21.31	19.67	28.36	22.39	28.36	20.9
By Gender								
Female	34.69	24.49	18.37	22.45	28.81	23.73	25.42	22.03
Male	41.67	16.67	33.33	8.33	25.00	12.50	50.00	12.50
By Race								
Asian/Pacific Islander	31.58	23.68	26.32	18.42	29.27	29.27	26.83	14.63
Latinx	46.15	23.08	23.08	7.69	33.33	11.11	22.22	33.33

Note: A score < 20 denotes well; 20-24 likely to have a mild mental disorder; 25-29 likely to have moderate mental disorder; =>30 likely to have a severely mental disorder.