

AN EXPLORATORY STUDY OF EARLY CHILDHOOD TEACHERS' SELF-
REGULATORY WELL-BEING AND SUPPORT OF CHILDREN'S SELF-
REGULATORY DEVELOPMENT

by

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To my mother, Millie Price and aunt, Fran Boyden

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Kellye Ruth Wood

ABSTRACT

AN EXPLORATORY STUDY OF EARLY CHILDHOOD TEACHERS' SELF- REGULATORY WELL-BEING AND SUPPORT OF CHILDREN'S SELF- REGULATORY DEVELOPMENT

by

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A path analysis of 92 preservice early childhood (EC) teachers' psychosocial characteristics and how these related to their emotion self-regulation and self-reported practices for children's self-regulatory development had significant positive results. EC teachers' intrapersonal mindfulness, strongly, and their compassion for self and others, moderately, predicted their emotion self-regulation, which, in turn, moderately predicted their developmentally adaptive support of children's self-regulation. EC teachers' emotional self-regulatory well-being also strongly predicted their psychological and self-determinative well-being, and the latter strongly mediated their support of children's self-regulation. EC teachers' self-compassion strongly correlated with their intrapersonal mindfulness, particularly between the respective components of self-kindness and mindful-nonreactivity. Self-compassion also strongly to moderately predicted psychological and self-determinative well-being, respectively.

Other significant results were that EC teachers who had more secure attachment also had more psychological well-being, self-determinative well-being, and self-

compassion, especially. They also had more compassion for others, intrapersonal mindfulness, emotional self-regulatory well-being, and supportive practices for children's self-regulatory growth. Moreover, EC teachers' self compassion, strongly, and compassion for others, moderately, positively predicted the secure dimension of their attachment style, and negatively predicted their fearful and preoccupied dimensions. Given that compassion for self and others may be more actionable and, hence, malleable than attachment style, supporting the former not only as personal but pedagogical skills may benefit attachment, as well as emotion self-regulation and support for child self-regulation.

The most consistent finding was the positive relationship of self-compassion to intrapersonal mindfulness and other psychosocial characteristics. Intentional kindness and empathy towards oneself and others mattered for self-regulatory well-being and support of children's self-regulatory development. Policy implications included a) developing educative systems at all levels that support the whole person and self-regulatory well-being of adults and children, b) deepening whole teacher pedagogy in preservice teacher education and inservice professional learning through relational processes to synergize knowledge, belief, and practice systems, and c) normalizing self-care as integral to the helping professions, not only to prevent compassion fatigue but flourish as individuals and caregivers.

TABLE OF CONTENTS

ACKNOWLEDGMENTS	iv
ABSTRACT	vi
LIST OF TABLES	xix
LIST OF FIGURES	xxii
LIST OF ABBREVIATIONS	xxiii
CHAPTER ONE	
INTRODUCTION	1
Wider Context	6
Definitions	12
Theoretical Framework	14
Problem Statement	16
Significance of the Current Study	17
CHAPTER TWO	
LITERATURE REVIEW	21
Definition of Self-Regulation	22
Construct of Self-Regulation	23
Metaphor for Self-Regulation	24
Centrality of Self-Regulation in Human Development	27

TABLE OF CONTENTS—Continued

Placing Self-regulation in Child Development Theory and Principles	28
Centrality of Self-Regulation for Self-Determination	36
The Pivotal Role of Self-Regulation in Self-Determination	39
Support for Children’s Self-Regulation: A Missed Opportunity	39
Centrality of Teacher Emotional Support for Child Development of Self-Regulation	41
Teacher Emotion Socialization Practices Support Child Self-Regulation	49
Teacher Discourse Practices Support Child Emotion Socialization and Self-Regulation	53
Centrality of Teacher Empathy in Self-Regulatory Support	56
Definition and Construct of Empathy	60
Connection of Self-Regulation to Empathic Perspective-Taking	61
Centrality of Whole Teacher Pedagogy in Teacher Education for Self-Regulatory Well-Being	66
“Preservice Students’ Dispositional Mindfulness and Developmentally Supportive Practices with Infants and Toddlers”	67

TABLE OF CONTENTS—Continued

”How Are Preservice Early Childhood Professionals’ Mindfulness, Reflective Practice Beliefs, and Individual Characteristics Associated with Their Developmentally Supportive Responses to Infants and Toddlers?”	70
“Attachment Predicts College Students’ Knowledge, Attitudes, and Skills for Working with Infants, Toddlers, and Families”	73
“The Effects of a Relationship-Focused Professional Development Intervention on Infant and Toddler Teachers’ Mindfulness-Based Strategies for Coping”	76
“Long-Term Impacts of the CARE Program on Teachers’ Self-Reported Social and Emotional Competence and Well-Being”	78
“Promising Findings that the Cultivating Healthy Intentional Mindful Educators’ Program (CHIME) Strengthens Early Childhood Teachers’ Emotional Resources: An Iterative Study”	80
“The What, How, and Who, of Early Childhood Professional Development (PD): Differential Associations of PD and Self-Reported Beliefs and Practices”	83
Cumulative Insights from the Preceding Studies	84
Two Studies about the Kindness Curriculum	84
Implications: Summary and Further Insights	90
Theory of Change: Empathy and Compassion Influence Self-Regulation	93
Conclusion	99

TABLE OF CONTENTS—Continued

CHAPTER THREE	
METHODS	101
Setting	102
Participants	102
Recruitment	105
Descriptive Statistics for the Demographic Data	106
Researcher Role and Description	109
Data Sources	111
Measures	112
Data Collection Procedures	151
Research Design	152
Research Sub Question	152
Conceptual Models	154
Data Analysis Plan: Exploring Preservice Early Childhood Teacher Characteristics and Their Developmental Support For Child Self-Regulatory Well-Being	158
Data Analysis Plan: RSQ1 – Correlation of the Initial Four Characteristics	159
Data Analysis Plan: RSQ2 – Path Analysis Segment A – Relationship of the Four Initial Characteristics to Self-Regulation	160

TABLE OF CONTENTS—Continued

Data Analysis Plan: RSQ3 – Path Analysis Segment B – Relationship of Self-Regulation to Developmental Support	161
Data Analysis Plan: RSQ4 – Correlation of Psychological and Self-Determinative Well-Being	163
Data Analysis Plan: RSQ5 – Path Analysis Segment C – Relationship of Emotion Self-Regulation to Psychological and Self-Determinative Well-Being	164
Data Analysis Plan: RSQ6 – Path Analysis Segment D – Relationship of Psychological and Self-Determinative Well-Being to Developmental Support	165
Data Analysis Plan – RSQ7 – Path Analysis Segment E – Relationship of All Characteristics to Developmental Support	166
Data Analysis Plan – RSQ8 – Relationship of Attachment Style to Other Characteristics	167
Conclusion	172
CHAPTER FOUR RESULTS	174
Description of the Results for the 10 Measures	175
State Self-Compassion Scale Long Form (SSCS-L)	175
Compassion Scale (CS)	176
Five-Facet Mindfulness Questionnaire (FFMQ)	178
Mindfulness in Teaching Scale (MTS)	179

TABLE OF CONTENTS—Continued

Emotion Regulation Skills Questionnaire (ERSQ)	179
Diener Flourishing Scale – Psychological Well-Being (PWB)	181
Basic Psychological Need Satisfaction Scale (BPNSS)	181
Multiple-Choice Responses – Developmental Support	183
Narrative Responses – Developmental Support	184
Attachment Style Questionnaire (ASQ)	189
Group Portrait of Preservice Early Childhood Teachers	190
Results for the Research Sub Questions of the Data Analysis Plan	193
Data Analysis Plan Results: RSQ1 – Correlation of the Initial Four Characteristics	193
Data Analysis Plan Results: RSQ2 – Path Analysis Segment A – Relationship of the Four Initial Characteristics to Self-Regulation	202
Data Analysis Plan Results: RSQ3 – Path Analysis Segment B – Relationship of Self-Regulation to Developmental Support	204
Data Analysis Plan Results: RSQ4 – Correlation of Psychological and Self-Determinative Well-Being	206

TABLE OF CONTENTS—Continued

Data Analysis Plan Results: RSQ5 – Path Analysis Segment C – Relationship of Emotion Self-Regulation to Psychological and Self-Determinative Well-Being	207
Data Analysis Plan Results: RSQ6 – Path Analysis Segment D – Relationship of Psychological and Self-Determinative Well-Being to Developmental Support	211
Data Analysis Plan results: RSQ7 – Path Analysis Segment E – Relationship of All Characteristics to Developmental Support	212
Data Analysis Plan Results: RSQ8 – Relationship of Attachment Style to Other Characteristics	212
Relationship of Meditation to Other Characteristics of Preservice Early Childhood Teachers	223
Relationship of Self-Efficacy to Other Characteristics of Preservice Early Childhood Teachers	223
Conclusion	225
CHAPTER FIVE DISCUSSION	226
The Portrait of Preservice Early Childhood Teachers Develops	227
Research Sub Question 1 (RSQ1): Discussion of Findings – First Four Characteristics Significantly Correlated	229
Preservice Early Childhood Teachers Had More Compassion for Others Than for Themselves	229

TABLE OF CONTENTS—Continued

Characteristics of Compassion and Mindfulness Correlated Most Strongly	230
Mindfulness Was Strong but Kindness Was Stronger	233
RSQ2: Discussion of Findings – Path Analysis Segment A – Three of Four Characteristics Significantly Predicted Emotional Self-Regulatory Well-Being	235
RSQ3: Discussion of Findings – Path Analysis Segment B – Emotional Self-Regulatory Well-Being Significantly Predicated Developmental Support	236
RSQ4: Discussion of Findings – Psychological and Self-Determinative Well-Being Significantly Strongly Correlated	239
RSQ5: Discussion of Findings – Path Analysis Segment C – Emotional Self-Regulatory Well-Being Significantly Predicted Psychological and Self-Determinative Well-Being	240
RSQ6: Discussion of Findings – Path Analysis Segment D – Psychological and Self-Determinative Well-Being Significantly Predicted Developmental Support	241
RSQ7: Discussion of Findings – Path Analysis Segment E – No Relationship with Developmental Support When All Predictors Were Tested Simultaneously	243

TABLE OF CONTENTS—Continued

RSQ8: Discussion of Findings – Insights from Two Ways of Analyzing How Attachment Related to Other Characteristics of Preservice EC Teachers	244
A Predominantly Secure Attachment Style Significantly Predicted More Self-Compassion and Interpersonal Mindfulness	245
Mixed Results for Relationship of Predominant Attachment Style and Self-Compassion to Emotional Self-Regulatory Well-Being	246
Dimensions of Attachment: Lessons from a Strengths-Based Approach	247
Self-Efficacy: Discussion of Findings – Self-Efficacy Significantly Predicted Emotional Self-Regulatory Well-Being	249
Developmental Support Significantly Predicted Self-Efficacy	250
Meditation: Discussion of Findings – Meditation Was an Undeveloped and Under-Developed Skill	251
Mindful Observation – A Critical Personal and Pedagogical Skill	252
Observation-Based Reflective Functioning – A Critical Pedagogical Skill	254
Implications for Preservice Early Childhood Teacher Education	255
An Application: Thriving as an Early Childhood Teacher	257

TABLE OF CONTENTS—Continued

Limitations and Implications	260
Conclusion	262
APPENDICES	290
A. Approval Letter from the Oakland University (OU) Institutional Review Board (IRB)	291
B. Email to Course Instructors – Approved by OU IRB	293
C. Student Recruitment Letter for Instructors of the Five Courses Not Taught by the Principal Investigator – Approved by OU IRB	295
D. Written Announcement for the Two Courses Taught by the Principal Investigator – Approved by OU IRB	296
E. Information Sheet – Approved by OU IRB	297
F. Attachment Style Questionnaire	299
G. State Self-Compassion Scale Long Form	302
H. Compassion Scale	304
I. Five-Facet Mindfulness Questionnaire	305
J. Mindfulness in Teaching Scale	308
K. Emotion Regulation Skills Questionnaire	309
L. Diener Flourishing Scale – Psychological Well-Being	311
M. Basic Psychological Need Satisfaction Scale	313

TABLE OF CONTENTS—Continued

N. Protocols for the Qualitative Analysis and Quantitative Scoring of Vignette Narrative Responses	315
REFERENCES	265
FOOTNOTES	289

LIST OF TABLES

Table 3.1	Gender and Race/Ethnicity of Participants	106
Table 3.2	College Class Standing and Prior Child Development/ Early Childhood Courses of Participants	107
Table 3.3	College Majors of Participants	109
Table 3.4	Qualtrics Survey Measures with Estimated Time per Participant and Alignment to Research Sub Questions	111
Table 3.5	Design of the Narrative Response and Multiple-Choice Sections of the Survey	131
Table 3.6	Adaptation of CUPID Survey Multiple-Choice Item into Preschool Survey Multiple-Choice Item	133
Table 3.7	Adaptation of CUPID Survey Multiple-Choice Item into Preschool Survey Narrative Response Item	134
Table 3.8	Adaptation of CUPID Survey Post-Vignette Item into Preschool Survey Post-Vignette Item to Measure Self-Efficacy	135
Table 3.9	Excerpts from Scoring Protocol for Developmental Support	139
Table 3.10	Example of an Anchor Score for a Vignette Response	141
Table 3.11	Example from Interrater Reliability Worksheet	142
Table 3.12	Example from Analyses of Scoring Discrepancies	142
Table 3.13	Meditation Frequencies of Participants	149
Table 3.14	Descriptive Statistics for Responses to “How confident are you that this would be an effective response?”	150

LIST OF TABLES—Continued

Table 3.15	Data Analysis Plan: Exploring Preservice EC Teacher Characteristics and Developmental Support for Child Self-Regulatory Well-Being	169
Table 4.1	Descriptive Statistics for State Self-Compassion Scale Long Form Scores	176
Table 4.2	Descriptive Statistics for Compassion Scale Scores	177
Table 4.3	Descriptive Statistics for Five-Facet Mindfulness Questionnaire Scores	179
Table 4.4	Descriptive Statistics for Emotion Regulation Skills Questionnaire Scores	180
Table 4.5	Descriptive Statistics for Basic Psychological Need Satisfaction Scale Scores and Component Correlations	183
Table 4.6	Preservice EC Teacher Narrative Responses to Vignettes: Examples	185
Table 4.7	Vignette Descriptive Statistics and Correlations of Indicators for Narrative Responses	188
Table 4.8	Vignette Responses: Comparison of Mean Level and Range of Score Levels within One Standard Deviation	189
Table 4.9	Attachment Styles of Preservice EC Teachers	190
Table 4.10	Summary of Data Descriptions for 10 Measures	192
Table 4.11	Correlations between the Four Initial Characteristics	195

LIST OF TABLES—Continued

Table 4.12	Correlations between the 16 Components of the Four Initial Characteristics	197
Table 4.13	Strongest Correlations for Components between Two Measures	202
Table 4.14	Unique Relationship between Preservice EC Teacher Emotional Self-Regulatory Well-Being and the Four Initial Predictors	204
Table 4.15	Unique Relationship between Preservice EC Teacher Psychological Well-Being and Five Predictors	209
Table 4.16	Unique Relationship between Preservice EC Teacher Self-Determinative Well-Being and Five Predictors	211
Table 4.17	Means, Standard Deviations, and Significant One-Way Analysis of Variance Results for Characteristics by Attachment Style	214
Table 4.18	Unique Relationship between Preservice EC Teacher Self-Regulatory Well-Being and Five Predictors	216
Table 4.19	Positive Relationships between Preservice EC Teacher Mean Security and Other Psychosocial Characteristics: Simple Linear Regressions Results	217
Table 4.20	Unique Relationship between Preservice EC Teacher Mean Secure Attachment and the Three Predictors	219
Table 4.21	Unique Relationship between Preservice EC Teacher Mean Fearful Attachment and the Three Predictors	220
Table 4.22	Unique Relationship between Preservice EC Teacher Mean Preoccupied Attachment and the Three Predictors	221

LIST OF FIGURES

Figure 2.1	Organization of Literature Review and Main Findings	22
Figure 2.2	Self- and Co-Regulation Opportunities across the Play Continuum	31
Figure 2.3	Empathy and Compassion Mediate Perspective-Taking and Successful Self-Regulation	96
Figure 2.4	Theoretical Model of Relationships between Teacher Empathy/Compassion, Self-Regulation, and Support for Child Self-Regulation	97
Figure 2.5	Comprehensive Theoretical Model for Self-Regulatory Support and Equitable Self-Determination within Facilitating or Non-Facilitating Ecological Systems	98
Figure 3.1	Conceptual Model: Main Psychosocial Influences on Teacher Self-Regulation and Developmental Support of Child Self-Regulation	156
Figure 3.2	Comprehensive Conceptual Model: All Psychosocial Influences on Teacher Self-Regulation and Developmental Support of Child Self-Regulation	157
Figure 4.1	Empirical Model: Associated Characteristics and Relationships with Preservice EC Teacher Self-Regulatory Well-Being and Developmental Support of Child Self-Regulation	222
Figure 5.1	Thriving as an Early Childhood Professional: Preliminary Conceptualization of Two One-Credit Teacher Education Courses	259

LIST OF ABBREVIATIONS

ASQ	Attachment Style Questionnaire
BPNSS	Basic Psychological Need Satisfaction Scale
CARE	Cultivating Awareness and Resilience in Education
CS	Compassion Scale
CHIME	Cultivating Healthy Intentional Mindful Educators
CUPID	Collaborative for Understanding the Pedagogy of Infant/Toddler Development
EC	Early Childhood
ECP	Early Childhood Professional
ERSQ	Emotion Regulation Skills Questionnaire
FFMQ	Five-Facet Mindfulness Questionnaire
HMB	Hearts and Minds on Babies
IRB	Institutional Review Board
MTS	Mindfulness in Teaching Scale
OU	Oakland University
PBS	Positive Behavior Support
PMS	Philadelphia Mindfulness Scale
PWB	Psychological Well-Being
RSQ	Research Sub Question
SCT	Social Cognitive Theory

LIST OF ABBREVIATIONS-Continued

SDT	Self-Determination Theory
SDWB	Self-Determinative Well-Being
SRWB	Self-Regulatory Well-Being
SSCS-L	State Self-Compassion Scale Long Form

CHAPTER ONE

Introduction

“People who develop their competencies, self-regulatory skills, and enabling self-beliefs can create and pursue a wide array of options that expand their freedom and action”
(Bandura, 2023, p. 12).

“...the ability or inability to direct one’s attention is an essential determinant of the success or failure of any practical operation” (Vygotsky, 1978, p. 35).

Nurturing self-regulatory well-being is both pragmatic in the short run and life changing overall. Deliberately strengthening these skills for children and adults is not only practical but vital for optimal learning and success across one’s life. Relatedly, my professional experiences as an educator showed me the inextricable ties between teacher and child self-regulatory well-being and, more broadly, teacher-child relationships as the medium for learning.

As an early childhood teacher, elementary principal, and early childhood program director, I observed children’s need for developmentally appropriate support to grow in self-regulation. I also observed that educators cared deeply about children but, in turn, needed to learn more about the developmental nature of self-regulation and how to scaffold this growth in what is an ongoing process across childhood. Specifically, teachers needed proactive support to deepen their professional knowledge, beliefs, and practices for enhanced pedagogical decision-making, child by child, interaction by

interaction. This moment-by-moment professional judgment and agency are the core of teaching without which schooling is rendered hollow. Consistently though, the systemic pressure on teachers and administrators from state and federal mandates was to compel children's quick behavioral compliance to maximize acquisition and performance of academic skills on high-stakes tests.

To this end, in some places where I worked, we implemented positive behavior support (PBS) programs to maintain order for maximum academic time on task. PBS programs arose from applied behavioral analysis (Foxx et al., 2006) and are in more than 26,000 schools (Sugai & Horner, 2020; Horner & Sugai, 2015) in the United States. Through the PBS program, we prioritized children being externally or adult-regulated, not internally or increasingly self-regulated. As such, behavioral regulation was more about spurring children's immediate obedience and relatively unthinking adherence to adult directives. This temporal efficiency came at the cost of children building intrinsic motivation as self-regulated learners and developing their understanding about why one way of acting may be more effective than another in a given situation.

From a practical standpoint, we missed opportunities to help children know what to do the next time they were in a similar situation, and an adult may not be there to direct them. Indeed, children needed adults to explicitly give the reason for a desired or effective behavior to help them comprehend, remember, and eventually, more independently transfer and apply that behavior in similar situations. For example, adults could simply tell a preschooler, "You're running. I'm concerned you'll fall. Walk." This

message would put a brake on the action and, in time, help children remember on their own to walk for the reason that they could get hurt otherwise. Developmentally, young children cannot yet construct or internalize these self-regulatory steps, so we needed to deliberately make these connections with them. Too often, though, we were cast more in the role of taskmasters to prepare students for high-stakes tests, e.g., by practicing discrete skills, without enough time to help them co-regulate with our support and, in time, increase their ability to self-regulate their actions.

Moreover, the logistics of tracking and rewarding or punishing children's behavior, e.g., by updating behavior charts posted in classrooms, giving prizes, or taking away privileges, were often time consuming and a distraction from teaching and learning. In these ways, we short-circuited children's essential development of self-regulation. Ironically, taking the time to teach children how to self-regulate would likely have increased not only their development and learning but performance on high-stakes tests. Guiding self-regulatory behavior or teaching academics is not a binary choice. These endeavors are complementary and can occur simultaneously.

What was most troubling for me as an early childhood educator was when children reacted negatively to the positive behavior supports. Preschool and early elementary students were sometimes visibly upset or cried when names other than theirs were called over the public address system to go down to the office for positive behavior prizes. I winced when children sadly asked why they could not choose a toy from the prize box. My attempts to reassure them that their turn would come did not work.

Children seemed to view the awarding of prizes as arbitrary and not getting one could evoke distress akin to being told, “You’re not my friend,” “You can’t play,” or “You can’t come to my birthday party.” Their visceral reactions made sense, as young children do not yet have the cognitive or emotional development in place until about age eight to not take losing personally (Kostelnik et al., 2019).

This public sorting into winners and losers, also inadvertently pitted children against one another to the detriment of a prosocial learning community, characterized by cooperation, kindness, and helpfulness, not competition. As such, winning was likely experienced by winners as their lucky day. Conversely, losing was likely experienced by losers as embarrassment, shame, resentment, or not being liked. Certainly, children’s relationships with one another and their teachers were not positively impacted, nor their learning. This default to expedient behaviorist techniques de-emphasized children, and still de-emphasizes children today across the United States (Sugai & Horner, 2020).

Now, as a professor of teacher education, I support college students who are preparing to become early childhood teachers. Most of these students grew up in the United States, and as children they could have experienced much of what I previously described. If so, their self-regulatory well-being was probably not optimally supported, not to mention the impact of growing up as participants in active shooter drills. I mention these latter, because their dysregulating effects could be more harmful than many adults realize. For example, initially, teachers and I, as their principal, could keep these drills relatively low key and explain them in ways young children understood and were not

frightened by. During a drill they turned out the lights and got cozy with their teacher in a corner of the classroom while she softly read or sang to them, while I came and jiggled their classroom door handle to make sure everyone was safely inside. We hoped for our youngest students that these drills were more like their games on the playground when they would run away and hide from “bad guys.”

Over the years, though, the drills became increasingly participatory and, in that sense, scary as children were schooled on barricading doors and throwing things if a bad person came into their classroom. Now, as I look into the eyes of my college students, I wonder how they were affected not only by these early experiences but disruptions in their middle or high school years during the pandemic. Anecdotally, I feel like these young adults are generally more stressed and less certain of the trustworthiness of others than many of us were at their age. The research literature suggests that this may be the case. For example, the proportion of college students in a sociology course at one midwestern university who had a secure attachment style decreased by 24% between 1997-2019 from 38% to 29% (Sprecher, 2022). The import of this phenomenon is that insecure attachment comes from negative perceptions of self, others, or both. To feel less secure psychologically and physically makes it harder to self-regulate, learn, and enjoy life. We must do better for children and young adults in nurturing their self-regulatory development and well-being.

Wider Context

Why should early education leaders support the self-regulatory well-being of both children and their teachers? When children struggle emotionally, socially, or behaviorally to self-regulate, their development and learning diminish, as well as their belief in themselves and motivation as capable individuals with agency who can act in effective ways. This erosion in personhood has long-term consequences, darkening children's horizons. Also, from a practical perspective, young children as they navigate their daily lives often need adult guidance to self-regulate, i.e., to modulate their emotions with thought to choose and enact appropriate responses in evolving circumstances (Flook et al., 2015). This complex process is challenging for many adults, let alone children. For example, a toddler unable to express a strong desire in words, may have a tantrum – or an excited preschooler may run joyfully but unsafely around the room – absent adult help to recognize their emotions, pause to think, and respond not react.

As such, healthy self-regulation manifests as sufficient self-control and determines the success of any human endeavor. In this sense, self-regulation is self-determinative not only in the short-term but across one's life (Bandura, 2023). Indeed, if children do not get the self-regulatory coaching that they need from adults, children's self-regulatory difficulties may persist into adulthood, hurting their learning, relationships, and success, whether at school, home, work, or elsewhere. However, adults may have their own unmet self-regulatory needs that compromise their ability to give positive self-regulatory care to themselves and children.

This may be especially true for early childhood teachers who report being more stressed than teachers of older children (Nwoko et al., 2023), perhaps because they work in places with fewer resources, and younger children are more dependent on adults. These realities suggest that supporting the self-regulatory well-being of both adults and children with empathy, compassion, and person-first processes is crucial for them to flourish and fully reach their potential. This premise is evident in the current study's exploration of what impacts preservice early childhood teachers' self-regulatory well-being and, in turn, their support of children's development of self-regulation.

Indeed, self-regulation is so fundamental to learning and life that all people should have equitable opportunities to develop it. Self-regulatory ability in childhood, measured as incremental self-control, predicts adulthoods that are safer, healthier, and wealthier (Moffitt et al., 2011) and, thus, is an equity issue for children, especially those at-risk for social and academic difficulties. Children grow in self-regulation when they have authentic opportunities to make, carry out, and learn from their choices, which requires skilled guidance from adults in what is a long-term developmental process. Yet, many children, particularly those from socioeconomically and racially or ethnically marginalized groups, do not have this bodily decision-making autonomy or personal agency. Indeed, children of color are more likely to encounter narrowed, scripted, decontextualized curricula in high-poverty under-resourced schools that face high external accountability (Brezicha et al., 2024; Golann, 2015).

Inequitable power distributions in education often create detrimental

contexts for children and teachers (Kincheloe, 2008, p. 6). Often, this educational milieu promulgates ineffective and rigid responses from school leaders and teachers demoralizing those who work and learn there, evidenced by high teacher turnover rate (Hopper et al., 2021; Ingersoll & Strong, 2011) and the persistent opportunity gap in high-poverty schools (Welner & Carter, 2013). (Brezicha et al., 2024, p. 1460)

Importantly, teachers also need self-regulatory and self-determinative agency. Teachers with agency have appropriate latitude to make professional judgments about how to best serve and instruct the children in their care, as well as partner with families. Instead, many teachers contend with bureaucratic or authoritarian education systems that compromise their professionalism and developmentally appropriate support for children. Their “self-regulation typically takes place in a confined space that is limited by external constraints” (Pekrun, 2021, p. 316). This lack of professional agency wears teachers down, hurts their self-efficacy, and contributes to burnout and turnover (Clement, 2016; Farewell et al., 2023; Peck et al., 2015). In the worst cases, as one teacher said, “This school is killing my soul...” (Brezicha et al., 2024, p. 1474).

Teachers at public schools in the U.S. who chose to move to another school after school year 2020-2021, cited the following as their most important reasons. Thirty-one percent cited school factors and 11% cited assignment or classroom factors, meaning 42% indicated school level reasons as their main reason for moving. This high percentage suggests school culture and climate markedly influenced their decisions, (perhaps

exacerbated by the COVID-19 pandemic). In comparison, only nine percent cited salary and benefits and 27% cited personal life factors (National Center for Education Statistics, 2024). These statistics point to the need to develop education systems where all participants can thrive.

Teachers also may not have had preservice education or inservice professional learning that features evidence-based practices from the developmental sciences for children's, let alone their own, self-regulatory well-being. This latter omission partly compelled the current study, in short because teaching is a demanding profession (Jennings, 2015). The emotionally, cognitively, behaviorally, and often physically intense work of teaching regularly dips into one's reserves (Agyapong et al., 2022; Farewell et al., 2023), especially for early childhood teachers (Hatton-Bowers et al., 2023; Nwoko et al., 2023).

Furthermore, self-regulation does not fully develop until a person's early to mid-twenties (American College of Pediatricians, 2022), which indicates that young preservice teachers and novice inservice teachers may particularly need self-regulatory support for their emotional well-being and resilience. Even thereafter, self-regulation is not static and individuals, including seasoned teachers, may benefit from support for their self-regulatory well-being. Indeed, teachers are more at risk for negative stress and burnout than those who do not work in the helping professions (Agyapong, 2022) and may be open to such opportunities. Focusing on self-regulation is consistent with person-

first pedagogy and should be intentionally addressed in preservice teacher education and inservice professional learning.

In addition to ensuring all children equitable opportunities to develop self-regulation as their right to self-determination, there are practical reasons to prioritize children's self-regulatory well-being. According to Cui and Natzke (2021), most young children today are in child care or preschool. Indeed, 59% of children birth through age 5 were in nonparental care at least once a week in 2019, including 42% of children younger than 1 year of age, 55% of toddlers one to two years old, and 74% of children ages 3 through 5 with 83% of these preschoolers in center-based care. By the year before children were age-eligible for kindergarten, four fifths or more of children were in preschool (Montroy et al., 2014). Based on these data, children probably need to self-regulate better or at least more often than in previous generations out of sheer necessity. Thus, as educators, we should be intentional about supporting children's development of self-regulation.

Furthermore, preschool has become more like K-12 compensatory education, translating to pressure on young children to self-regulate in ways that older children do. Relatedly, most U.S. states have adopted the Common Core Standards (National Governors Association Center for Best Practices & Council of State School Officers, 2010), requiring young children to engage earlier with more abstract academic content, work well with peers, problem solve, and persevere. Yet, I observed that many children did not have genuine opportunities to playfully collaborate or investigate their compelling

interests and questions as active, self-regulated and -determined learners. It seemed to me that, ironically, our traditional classroom management and instructional methods in the United States from the 19th and 20th centuries were at odds with children self-actualizing through developmentally appropriate experiences as 21st century thinkers.

These realities of children's lives also revealed the ecological importance (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006; Rogoff, 2003; Rogoff, Dahl, & Callanan, 2018) of supporting children's optimal development of self-regulation as a protective factor, particularly as the family income of 50% of young children in nonparental early care and education settings is below the poverty threshold (Cui & Natzke, 2021). Moreover, that we provide this explicit, embedded but intentional, self-regulatory support is more important now than ever as children who were infants and toddlers during the Covid-19 pandemic enter preschool and kindergarten with more self-regulatory concerns (Miller & Mervosh, 2024; The Annie E. Casey Foundation, 2024). Educators in leadership positions can do much to support children by deeply supporting teachers. Put another way, and more directly, teachers whom I have known in my decades of being in the profession do not need fixing. What does need improvement, however, are our educational systems, including those for preservice teacher education and inservice professional learning. These better systems would be characterized by the self-regulatory well-being and self-actualization of intrinsically-motivated self-determined learners, whether adults or children.

Definitions

In this section, I briefly describe the context for key terms used in the current study and then list their working definitions. This information also relates to the current study's theoretical framework, discussed in the next section. More formal definitions with detailed descriptions are given later in this paper with citations.

When environments and relationships provide children with abundant rich experiences their *self-efficacy* and *motivation* to plan for and achieve their aims are strengthened. manifesting as purposeful action and *personal agency* that is self-determinative. Theorists and empirical researchers refer to such processes as *self-efficacy*, *self-agency*, *self-regulation*, or *self-determination* as children seek *well-being* (S. Oden, personal communication, November 15, 2024). Indeed, from infancy into adulthood, opportunities across environments with parents, family members, caregivers, teachers, and other educators contribute to children's developing *self-regulation* which acts to enhance or diminish and determine their learning. In turn, *self-regulation* can be conceptualized as *self-determination* (J. Smith, personal communication, January 16, 2019).

- *Agency, Self-Agency, or Personal Agency*: Capability or capacity to act upon one's environment and interact with others in ways that influence and are effective and satisfying for the circumstance
- *Attachment*: the bond or trusting relationship between two people built by positive interactions over time

- *Compassion*: Enacted empathy, being compelled to alleviate someone's suffering or help in some way; and the integration of the emotional, cognitive, and behavioral components of compassion
- *Empathy*: Understanding what someone else is experiencing and feeling a version of someone else's emotion, i.e., being able to imagine what they are feeling; and the integration of the emotional, cognitive, and behavioral components of empathy
- *Motivation*: Internal impetus to act, e.g., to initiate, discover, problem solve, persist, etc.
- *Self-Determination*: Individual choice and freedom to act, the result of self-regulation and agency; and the fruition of autonomy, relatedness, and competence
- *Self-Determinative Agency*: Individual choice, freedom, and capability or competence to act
- *Self-Determinative Well-Being*: Healthy or optimal self-determination; and the integration of the emotional, cognitive, and behavioral components of self-determination
- *Self-Efficacy*: Belief in one's capabilities, effectiveness, and agency
- *Self-Empathy*: Giving oneself the empathy and acceptance one would give to a friend
- *Self-Compassion*: Giving oneself the compassion and help one would give to a friend

- *Self-Regulation*: One's ability to recognize their own and others' emotion in a circumstance and modulate one's emotion with thought to decide how to respond, then enact that choice, and continue the self-regulatory cycle in the evolving situation
 - *Co-Regulation*: The support or guidance a more knowledgeable other, e.g., a parent, teacher, or peer, gives to another person to help them self-regulate
- *Self-Regulatory Well-Being*: Healthy or optimal self-regulation that is situationally successful; and the integration of the emotional, cognitive, and behavioral components of self-regulation

Theoretical Framework

In this section, I describe the theory that I assessed most comprehensively explains the multi-faceted self-regulatory process in the context of self-determination, i.e., Social Cognitive Theory (SCT) (Bandura, 2023). In later chapters, I build from this foundation to describe how other theories relate to self-regulation and present my theory of change, theoretical models, conceptual models, and empirical models for the current study.

Bandura's *Social Cognitive Theory: An Agentic Perspective on Human Nature* (2023) serves as the definitive explanation of SCT and all its aspects, especially personal agency, the through-line across his theoretical, empirical, and applied work. "Agency describes broad capability; to be an agent is to be able to influence intentionally one's

functioning and life circumstances” (Bandura, 2023, p. 2). In other words, personal or self-agency is related to self-determinism. But what determines one’s agency? In a word, self-efficacy, as the motivating force, which is “central among the psychological constructs Bandura posited as influencing behavior, and reflects beliefs in one’s ability to master particular challenges... thereby establishing a sense of control over their life course... as authors of their own experience” (Bandura, 2023, p. xxiii). But what determines self-efficacy and personal agency? In a word, self-regulation, because individuals “are self-organizing, proactive, self-reflecting, and self-regulating agents who contribute causally to their life circumstances and personal growth” (Bandura, 2023, p. 6). Thus, we arrive at the focus of the current study, self-regulation.

Bandura described self-regulation within and across the three core mechanisms of agency, i.e., forethought, self-reactiveness, and self-reflection. Each of these three interactive “agentic aspects of psychosocial functioning” (Bandura, 2023, p. 6) contains self-regulatory processes which are italicized in the next sentences of this section. First, through forethought, individuals in an immediate circumstance decide what to do next which includes *recognizing salient aspects of the situation and planning to accomplish a desired goal*. Over time, acting with forethought can be expected to foster a more meaningful self-determined life.

Second, through self-reactiveness, individuals *regulate their behavioral responses*. They govern themselves according to what they believe they should do, not only for the current circumstance but to meet their personal standards for appropriate and

moral conduct. Their analysis manifests as motivation to *regulate their behavior to achieve the desired goal*. Indeed, *moving from analysis to action is inherently self-regulative*.

Third, through self-reflection, individuals evaluate their behavior in the short- and long-run, resulting in beliefs about their self-efficacy, which, as mentioned before, is chief among the influences on personal agency. Indeed, *self-efficacious beliefs are inherently self-regulative*, as these determine motivation and how one chooses to act, what they aspire to, and what to achieve in the moment and across time. I explain in later parts of this paper how I applied more insights from Social Cognitive Theory (Bandura, 1997, 2016, 2023).

Problem Statement

In this section, I first describe the problem that the current study addresses and then summarize the problem in one sentence. The self-regulatory well-being of young children and early childhood teachers is not systemically supported or prioritized in many early care and education settings. Children and teachers should get what they need to enhance and strengthen their self-regulation, because these skills determine learning and success. When we overemphasize controlling children from the “outside in,” we miss opportunities to scaffold their self-regulatory learning from the “inside out.” Indeed, we miss chances to build their self-regulatory and psychological well-being and not just academic but intellectual achievement.

When we under-emphasize or do not emphasize teachers' self-regulatory well-being, we miss opportunities to support their resilience, effectiveness, satisfaction, and longevity as educators. Indeed, we miss chances to give them the care and compassion we ask them to give to the children and families whom they serve. Instead, we often ask teachers to practice self-care in education systems that make self-care difficult or nearly impossible. When we do not systemically provide equitable opportunities for the self-regulatory well-being of all children and teachers, their right to self-determinism is diminished. In one sentence:

- The problem is twofold: one, that education systems do not provide support for children and adults to develop self-regulatory well-being, even though self-regulation determines lifelong learning and success; and two, that teachers need support to learn about children's development of self-regulation and strategies to scaffold that growth.

Significance of the Current Study

This research seeks to understand what psychosocial characteristics of preservice early childhood teachers are related to their healthy self-regulation, and, in turn, how that well-being relates to their support of children's development of self-regulation. The current study matters, because self-regulation largely determines human development and learning (IOM & NRC, 2012; NRC, 2015; NRC & IOM, 2000). When people's cognitive and emotional self-regulatory skills are functioning adequately, they experience better outcomes in the short run and greater self-actualization over the course of their lives.

Indeed, healthy self-regulation is so essential for flourishing in learning and life, that adults should intentionally support children's opportunities to grow in that capacity. This guidance and teaching by adults would likely not only optimize children's learning and satisfaction – even joy – as capable people but, collectively, ultimately advance progress and self-determinative equity for humankind (Freire, 1970, 1993, 2000; NAEYC, 2019). However, in an extensive literature review, I found no empirical research, other than the current study, which conceptualized self-regulation as self-determination for children and adults.

Overall, the vast majority of studies about self-regulatory development were solely about children's self-regulation. Of the few studies that linked adult self-regulation to that of the children with whom they interact, most were in the parenting literature, e.g., about parents' discipline styles or parents as emotion socializers of their children. There has been only a modest increase in studies in the last 10-15 years about teachers of young children also being emotion socializers and the importance of supporting teachers' emotion self-regulation. More broadly, though, there were many studies about mindfulness-based interventions for children and teachers, though most of this research was not at the early childhood level. Indeed, only in the last five to ten years were there somewhat more studies about early childhood teachers' psychosocial characteristics and how these related to their overall developmental support of children, as detailed in the next chapter's literature review. However, I found no other study that tested a path analysis with hypothesized influences on preservice early childhood teachers' self-

regulation and their support of children's development of self-regulation, as in the current study.

The present research is also significant as the second in a trio of studies. It builds on a preliminary small qualitative study I did about how preschool teacher beliefs about self-regulatory development influenced their support of children's self-regulatory development (Wood, 2020). In that study, a theme that emerged was that teachers who conveyed empathy for children's self-regulatory difficulties, also reported more compassionate and developmentally-appropriate practices.

Now, in the current study, I delve into how teacher empathy and compassion for oneself and others are quantitatively associated with their mindfulness and attachment style, and relate to their self-regulation and support for children's self-regulation. To that purpose, the overarching research question is

- *In what ways, do preservice early childhood teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and attachment style predict their self-regulatory well-being and developmental support of child self-regulation for the self-determinative well-being of both teacher and child?*

Thereafter, I will use insights from the results to create a module or course for preservice early childhood teachers and do an intervention study, i.e., the third study. These connected studies are meant to iteratively address gaps in the research literature. Most of all, though, I hope to enhance preservice teacher education, so that these novices will be

better prepared as inservice teachers for some of the challenging situations and emotions they will experience.

CHAPTER TWO

Literature Review

To review the extant literature, I accessed peer-reviewed primary research mainly through Oakland University on Library Onesearch but also Google Scholar. I searched these online sources using keywords that included: self-regulation, self-regulatory learning, self-determination, emotion regulation, emotion socialization, empathy, compassion, mindfulness, child development, early childhood curriculum, teacher education, teacher professional development, teacher emotional consistency, teacher burnout, and teacher well-being. I read and organized more than 150 peer-reviewed research articles and primary sources, first by broad topic then results, to illuminate trends across findings. From these trends, I extracted main findings as overarching themes which became subheadings within the literature review, as shown in Figure 2.1. Through this methodical process I “drilled down” to essential insights that, thereafter, informed my development of a theory of change, theoretical model, and conceptual model.

Figure 2.1

Organization of Literature Review and Main Findings



Note. Through a deliberate approach in the literature review, I gained insight about essential components of self-regulatory development and well-being for adults (teachers) and children, as well as how to support preservice teachers in their teacher education coursework.

Definition of Self-Regulation

Across many studies, I identified a consistent definition and construct of self-regulation. These definitions were largely about individuals mindfully modulating their emotions and thoughts in a given situation to plan what to do next, carry out that plan, reflect on the impact in the moment, and then adaptively respond again (Lawson et al., 2019; Rashedi & Schonert-Reichle, 2019; Rosenbalm & Murray, 2017).¹ (The superscript refers to endnotes with additional citations). In a meta-analysis of 75 peer-reviewed studies about the relationship of self-regulatory inhibitory control and academic abilities in preschool and kindergarten, the authors described self-regulation as “internal

and transactional processes that individuals use to guide their goal-directed behavior over time and in varying contexts” (Karoly, 1993; as cited in Allan et al., 2014, p. 2368). The word “transactional” reflected the ecological aspect of self-regulation in which one’s emotions, thoughts, and actions are shaped by and shape the unfolding situation (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006). An individual may experience self-regulation as the ability, attempt, or failure to contextually adapt one’s feelings and thinking to decide what to do then take that action with ongoing monitoring and adjustments, whether it is to get along with others, learn academic content, perform a task, or all of these at the same time (Flook et al., 2015).

Construct of Self-Regulation

The neuroscientific construct of self-regulating involved executive functioning in the prefrontal cortex which relied on three higher order processes of working memory, inhibitory control, and mental agility (Murray et al., 2015; Rosenbalm & Murray, 2017; Solomon et al., 2018).² These essential functions were the ability to 1) hold information in working memory so that it can be acted upon, 2) inhibit distraction and maintain focus, yet also 3) shift attention and thinking as needed to salient emerging details, clues, and cues. Young students with inhibitory control were described as tuning out distractions to tune into learning, shifting gears to redirect attention and transition more smoothly from one classroom activity to another, and cognitively holding, sifting, and synthesizing information to accomplish learning tasks (Weiland et al., 2014). Overall, self-regulation was described as recursive, elaborative, and contextually embedded in daily lived

experience, functioning crucially as the brain's "air traffic control system" (Center on the Developing Child at Harvard University, p. 1, 2011). I likened these complexities of self-regulating for young children to them being an orchestra conductor who simultaneously needs to play all of the instruments.

Metaphor for Self-Regulation

The word "modulate" appeared frequently in descriptions of self-regulation. Synonyms for modulate included harmonize and attune. I imagined that successful self-regulation happens when one is attuned to the environment and able to harmonize emotions, feelings, motivation, and thoughts for adaptive, even proactive, decision-making and action. Further, I reasoned that a person needs to continually and contextually attune and orchestrate self-regulation, acting as one's own symphony conductor through melodious rounds of explicit and implicit plan-do-review. Indeed, "in self-regulation, the learner is in charge" (Winner, 2018, p.4; as cited in Lawson et al., 2019, p. 224) and "children are the experts of their experiences" (Rashedi & Schonert-Reichl, 2019, p. 732). If the timing or tone of the rounds devolves, the conductor experiences disharmony, akin to a cacophony of noise or isolating silence because of playing stops. The conductor, then, either adapts and is able to make music again or freezes, flees rather than flecks, or fights.

Thus, self-regulation involves not just intra-play but interplay, melding "top-down influences," i.e., cognition with "bottom-up influences," i.e., emotions and motivation (Blair & Raver, 2014, p. 2) to affect the evolving situation. This intricate self-regulatory

process is exquisitely sensitive to emotion as a motivational hot or cool force (Montroy et al., 2016) that either enhances or hampers cognition and behavioral self-regulation, i.e., the integration of cognitive, emotional, and behavioral dimensions. If self-regulating is like conducting an orchestra but the conductor has to play all of the instruments in concert while monitoring the audience, then is it any wonder that making music is challenging, even for adults. Children need explicit, developmentally responsive, co-regulatory support from adults to compose and conduct these orchestral movements in a symphony of enhanced self-regulation and self-determination. Furthermore, when teachers as orchestra co-conductors with children provide this scaffolding, children's zone of proximal development (Vygotsky, 1978) is optimally activated. Yet, to do so, teachers need administrators to give them the time, support, and appropriate autonomy to exercise professional agency and make their own self-determinative self-regulatory decisions, synergizing the art and science of this teaching.

Researchers emphasized that the “integration of cognitive and emotional processes is the essential work of self-regulation” (Murray et al., 2015, p. 6). Therein, cognitive self-regulation and behavioral self-regulation were differentiated (Allan et al., 2014; Fuhs et al., 2013; Montroy et al., 2014). While these intertwined mechanisms of self-regulation both required executive function, behavioral self-regulation carried more of an emotional charge, ranging from strong positive to negative feelings that must be absorbed, integrated, or handled in some way by the individual. Montroy et al. (2016) further differentiated between the affective cool and hot executive functioning of

cognitive and behavioral self-regulation respectively, recognizing, though, that “no task is entirely free of an emotional context” (p. 1745).

Likewise, neuroscientist Mary Immordino-Yang, who has advocated for interdisciplinary studies with human development and education researchers (Immordino-Yang & Gotlieb, 2017), emphasized that “emotions steer our thinking; it’s the rudder that directs our mind...” (Sparks, S.D., 2016, para. 2). Moreover, “it is literally neurobiologically impossible to build memories, engage complex thoughts, or make meaningful decisions without emotion (Immordino-Yang, 2015; as cited in Tracey & Morrow, 2017, p. 148). “Extensive research makes clear that the brain networks supporting emotion, learning, and memory are intricately and fundamentally intertwined” (Panksepp & Biven, 2012; as cited by AERA, n.d., p. 1).

Indeed, young children often experience feelings that may temporarily reduce their access to higher levels of cognition, appropriate behavioral choices, and successful self-regulation. Though children grow substantially in self-regulation in the early childhood years, they still often need help to co-modulate emotion, thought, and behavior in what is a long-term developmental process to construct and internalize self-regulatory strategies. Indeed, self-regulation is not fully developed until one’s early to mid-twenties (American College of Pediatricians, 2022), suggesting a need for intentional support into adulthood and “boosters” for self-regulatory well-being across one’s lifespan.

Centrality of Self-Regulation in Human Development

A preponderance of research since the year 2000 found that self-regulation determines learning and, by extension, human progress, and survival (IOM & NRC, 2012; NRC, 2015; NRC & IOM, 2000).³ “The need to delay gratification, control impulses, and modulate emotional expression is the earliest and most ubiquitous demand that societies place on their children, and success at many life tasks depends critically on children’s mastery of such self-control” (Moffitt et al., 2011, p. 2693). Moffitt et al. (2011) used the term “self-control” to encompass self-regulatory processes. In this seminal study that followed a birth cohort of 1,000 individuals for 32 years, the researchers found that children at every level on a self-control gradient benefited in life outcomes for health, income, and lawful behavior from more self-control. Even among children with above average levels of self-control, those with progressively higher levels reaped greater outcomes in life, suggesting that all children benefit from intentional support of their developing self-regulatory abilities.

Moreover, the most dramatic growth in self-regulation and its benefits occurred for children with the lowest baselines for self-control. This finding revealed that, for vulnerable learners especially, access to developmental support for self-regulatory growth is nothing less than a matter of equity. Self-control was also identified as much more changeable than IQ or socioeconomic status, and, hence, amenable to intervention (Blair & Raver, 2014; Moffitt et al., 2011). Cumulatively, these outcomes showed self-

regulation as a protective factor and causal mechanism, leveraging human development and learning.

More broadly, stakeholders, e.g., researchers, economists, politicians, parents, and teachers, have increasingly conceptualized the long-term impact of high-quality early childhood education with benefits that go beyond academic to life performance (Schweinhart, 2013). Therein, self-regulatory skills likely act as a force multiplier for positive outcomes across one's lifespan. Consistent with self-regulation as profound for self-determination, self-regulatory development as a complex process lasting into adulthood was no surprise. Indeed, children need explicit but contextualized support over many years and teachers need explicit contextualized support through teacher education and coaching to scaffold this growth, particularly if progress seems silent.

Placing Self-Regulation in Child Development Theory and Principles

Vygotsky and Piaget. Intentional embedded self-regulatory support helped learners engage and make the most of opportunities for Vygotskian socio-cultural language exchanges of thinking and ideas with one another that develop the intellect (Berk & Winsler, 1995; Vygotsky, 1978). This self-regulatory scaffolding (Bruner, 1996) optimized intellectual assimilation and accommodation as a Piagetian adaptive learner (Mooney, 2000; Piaget & Inhelder, 1969, 2000; Thomas, 2005).⁴ Moreover, self-regulatory abilities helped learners as thinkers and doers fully engage in playful, mindful, empathic interactions (Vygotsky, 1978), reaching individual and collective states of flow, characterized by a balance of skill and challenge (Csikszentmihalyi, 1990;

Csikszentmihalyi, 1979; as cited in Sutton-Smith, 1979) for innovating solutions to situational dilemmas.

Indeed, children were highly motivated to self-regulate affectively, cognitively, and behaviorally when actively engaged in playful learning (Blair & Raver 2014; Bodrova et al., 2013; Vygotsky, 1978). They put their whole selves into these experiences. Consider what happens, for example, when children are immersed in the pretend play that heightens self-regulation, abstract thinking, and language (Vygotsky, 1978): If the child's role is to be the mother, then mother strives to act parental and use her most mature language, even if it would be fun to wail loudly with the babies. If children are acting out a favorite story, they work together with zeal to place themselves in the imaginary action of the plot and play their roles. Such drama involves recall, sequencing, and improvisation as players enact the literary events (Roskos et al., 2010). When partners play a counting game, they focus on taking turns and doing the math to keep the game going. These examples suggest that play and high-quality instruction have much in common. Furthermore, playfully inspired attempts to self-regulate are not just child's play but critical for brain development and strengthening integrated attentional, affective, reasoning, and motor functions (Center on the Developing Child at Harvard University, 2011). This self-regulatory dance in which one's self-regulatory steps shape and are shaped by the evolving circumstance is highly ecological (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006), affecting not only current but future learning.

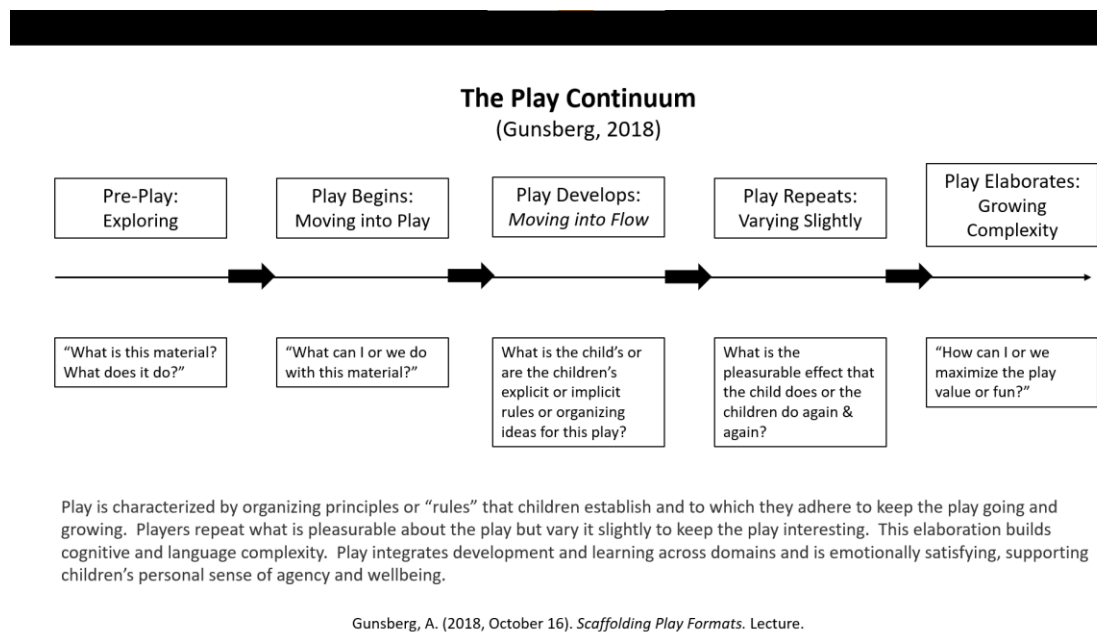
Relatedly, Vygotsky (1978) conceptualized that engaging in make-believe play, i.e., conjuring what is not present, was a profound cognitive accomplishment, as did Piaget (Piaget & Inhelder, 1969, 2000), and supported self-regulation by separating thought from action and quelling impulsive emotional reactions in favor of chosen responses. These functions corresponded with what we now know from neuroscience about the self-regulatory executive function that largely predetermines learning, i.e., the interplay of inhibitory control, working memory, and mental agility. Pedagogy reflecting the powerful developmental synergy of play and self-regulation could include project-based learning and literacy experiences in which children imagined themselves in or took other perspectives from fictional or nonfictional settings of books.

Given the complementary relationship of play and self-regulation for learning, as well as high-quality instruction, I reasoned that The Play Continuum in Figure 2, mapping exploration or pre-play to play (Hutt, 1971) and further play elaboration, also mapped opportunities for self-regulatory support. In this conceptualization, the playful learning circumstance acts as children's contextual zone of proximal development (Vygotsky, 1978) for practicing self-regulation. Children immersed in flow (Csikszentmihalyi, 1990; Csikszentmihalyi, 1979; as cited in Sutton-Smith, 1979) within this zone, actively co-construct integrated affect, thought, and actions. In contrast, less successful self-regulation may look like what happens when the play frame (Bateson, 1971; Garvey, 1990) breaks down with disengagement, maladaptive withdrawal, or even a meltdown. Regardless, the teacher's role is to embed in children's respective zone of

proximal development, and scaffold thinking, affective approaches to active learning, interactions, and actions, as children self- and co-regulate (Housman et al., 2018) with their teacher and peers. Moreover, as will be further emphasized later in this paper, the ability to empathize is an act of imagination, critical for social-emotional competence and self-regulation.

Figure 2.2

Self- and Co-Regulation Opportunities across the Play Continuum



Note. Playful learning, e.g., project-based learning, supports the development of the mindful, empathic self-regulation and executive function that largely determine human progress.

Bandura. As shared in chapter one, I assessed that Social Cognitive Theory most comprehensively explained the process of self-regulation in cognition and how self-regulation relates to self-determinism. In this next section, I discuss SCT from the child's perspective and compare and contrast SCT with other theories.

Both Bandura and Vygotsky were interested in how culture is transmitted among individuals through exchanges that are inherently social. However, while Vygotsky saw language and playful dialectical exchanges as the main cultural or environmental tool for sculpting the intellect, self-regulation, and behavior, Bandura saw observation of others and imitation as the primary means to shaping thought and action: Children learn through social interaction, imitation, and observation, intrinsically motivated through personal agency and self-efficacy (Bandura, 2018; Crain, 2011; Thomas, 2005) which requires self-regulation. In fact, Bandura said, "Human agency operates principally through cognitive and other self-regulatory processes" (2023, p. 2). Of note, both Social Cognitive Theory and Self-Determination Theory (Deci & Ryan, 1985; as cited in Ryan & Deci, 2017; Deci & Ryan, 2000; Ryan & Deci, 2017) explicitly linked self-agency and -efficacy with -motivation, emphasizing their causal influences on learning. Interestingly, both Social Cognitive Theory and behaviorism conceptualized consequences as a means for behavior modification.

However, Bandura's insight about the cognitive role that observation plays in learning sharply diverged from behaviorism's reliance on operant conditioning. Instead, Bandura emphasized the paramount role of personal agency in learning and considered

behaviorism, anti-personal-agency (Bandura, 2023). Bandura asserted that the child observes what someone is doing or has done and also the consequence of that action. Rather than a reward or punishment unrelated to the situation as in behaviorism, the child receives relevant information, in context, about what happened. For example, was the action well received by others or not? Did it achieve the intended end? This practical feedback is inherently self-regulatory and either immediately informs the child's next action or is stored for later use. If stored, it may be easier to code for memory and future retrieval, because the information was texturized and connected to meaning.

Indeed, children can learn from and apply observation, regardless of whether they immediately imitate or perform what they have learned. Children can learn and be influenced by negative as well as positive observations and examples. They can learn what to do and what not to do. However, behavior that is culturally acceptable and observed in their milieu probably directly influences their thinking and actions. What people model or do and what children observe them doing is more powerful than language. Actions trump words. Bandura's theory supports the idea that adult self-regulatory modeling affects child self-regulatory functioning and self-determinism. It complements and connects with Vygotsky's emphasis on social-cultural influences (1978), Piaget's insights about adaptive learning with the cognitive interplay of assimilation and accommodation (Piaget & Inhelder, 1969, 2000), and an ecological (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006) integrative perspective (Bandura, 2018; Crain, 2011; Thomas, 2005).

Bronfenbrenner. Of note, Vygotsky (1978) emphasized that “human learning presupposes a specific social nature and a process by which children grow into the intellectual life of those around them” (p. 88) which Bronfenbrenner alluded to as the centrality of “linked lives” in human development (Elder, 1998, p. 5). Lives are linked, with all affecting and affected by all else, through four levels of systems in Bronfenbrenner’s model, i.e., the microsystem, mesosystem, exosystem, and macrosystem. Importantly, the model has evolved from this emphasis on environmental influences to include wider processes affecting human development within and across environments, as its name change from ecological to bioecological signals (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006).

Human beings develop through four interactive dimensions (within and across the four environmental dimensions), according to the bioecological model (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006). These dimensions are influences of process, person, context, and time. A child’s development occurs primarily through an interactive process, particularly proximal processes of microgenetic adaptation and learning. The person dimension of biopsychological characteristics encompasses how a person’s dispositions; resources in “ability, experience, knowledge, and skill;” and “demand characteristics [that] invite or discourage reactions from the social environment” (p. 796) affect the emerging situation and the person’s development.

Next, the context dimension considers “immediate and remote” (p. 795) environmental influences on what is happening and the impact on personal development.

The time dimension recognizes the developmental influences of microtime within “ongoing episodes of proximal process;” mesotime “across broader time periods, e.g., days and weeks;” and macrotime “within and across generations” (p. 796). This focus on time meshes with Vygotsky’s “useful framework for thinking about the integrated, dynamic nature of individual, cultural, and species development (Rogoff, 2003, p. 65),” comprised of four interwoven levels of development. These are the microgenetic level of development or “moment-to-moment learning;” ontogenetic development, within the “time frame of the individual lifespan;” phylogenetic development, “slowly changing species history;” and cultural-historical development, “across decades and centuries, leaving a legacy in symbolic and material technologies” and tools (Rogoff, 2003, p. 65; Rogoff, 2018). Relatedly, Bronfenbrenner’s bioecological process-person-context-time model is infused with Elder’s life course development principles (Elder, 1998; Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006), regarding influences of historical time and place, timing in individual lives, and linked lives within and across generations. Moreover, these four dimensions of the model are conceptualized as not only “products” of change but “producers” (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006, p. 822) of change across time, the epitome of the ecological principle.

Bronfenbrenner’s intricate bioecological model reflects the broad ecological influences of time, space, and energy. The four environmental dimensions of microsystem-mesosystem-exosystem-macrosystem with the four dimensions of process-person-context-time constitute a matrix that can be envisioned not as a linear 2-

dimensional model but 3-dimensional array. These forces connote interaction among influences on human development, including that of self-regulation and self-determinism. Bronfenbrenner's model, though relatively young compared to other theories of human development, also provides an analytical framework for systems thinking. This emphasis supports the idea that working across systems to compel change is important, especially at the macrosystem level in governmental and educational policy, particularly as we consider the difficult circumstances under which many teachers work.

Also of note, Bandura (1997), Bronfenbrenner (2005), and Deci and Ryan (1985; as cited in Ryan & Deci, 2017; Deci & Ryan, 2000; Ryan & Deci, 2017) focused on self-efficacy and self-agency respectively which relate to self-regulation. Bandura (2023) particularly emphasized self-efficacy as the driving force (i.e., motivation) in human agency and self-regulation. Similarly, Bronfenbrenner conceptualized the importance of self-agency in the self-actualized determination of one's life course. All emphasized the importance of these self-influences which supports the idea that self-regulation is essential for optimal development and learning.

Centrality of Self-Regulation for Self-Determination

Arising from humanistic and positive psychology, Self-Determination Theory (SDT) (Deci & Ryan, 1985; as cited in Ryan & Deci, 2017; Deci & Ryan, 2000; Ryan & Deci, 2017) explicitly linked self-efficacy and -agency to self-motivation and emphasized the latter driver as essential for optimal human development. SDT posited that there are three basic psychological needs that all human beings have for autonomy (choices and

control), relatedness (being cared about, caring for others, and belonging), and competence (self-efficacy) that determine the level of self-motivation. SDT pointedly differentiated between intrinsic motivation as self-endorsed behavior and controlled motivation as behavior expected or demanded by others. Relatedly, the focus in SDT was on the quality not quantity of motivation with more learning, higher performance, and greater satisfaction for the individual resulting from self-motivated rather than other-motivated behavior. Yet, controlled motivation could convert to self-motivation if one had a chance to learn about and value the reasons for the required behavior. This transformative experience should include authentic opportunities to contribute to decisions and shape outcomes.

These empirical findings have implications for systems thinking and the importance of developing collaborative workplaces and schools that support employee and student autonomy, relatedness, and competence. For example, imagine if all educational systems substantively and consistently treated teachers as individuals worthy of care and respect whose professional judgment, decisions, and contributions were essential for optimally educating students. Then, just as self-regulation determines not only the progress of individuals but, collectively, humankind, this related self-determination could be expected to result in optimal outcomes for the individual as well as others. Indeed, educational systems that supported self-determinative autonomy, relatedness, and competence achieved increased engagement, performance, and well-being, physically and psychologically, for both teachers and their students (Deci & Ryan,

2000; Ryan & Deci, 2017). From a systems' perspective, nurturing self-determinism is not only right for individuals but also the positive impact of the organization and greater good of the community and, more broadly, society.

Moreover, SDT researchers, through findings from hundreds of studies, curated five broad strategies for the healthy development of any system (Ryan & Deci, 2017). These intentional ways of being for the positive culture and climate of the workplace sought to actionize a central idea: The crux of self-determination is that individuals have agency – reasonable autonomy – in their life choices from those that are mundane to those that are more consequential, and this inclusivity results in more self-motivation and skill development. A major reason for this outcome is that individuals' contributions are valued both by themselves and others in the system. In early childhood, self-determination may look like choices in what to wear, eat, play, and investigate as curious learners, particularly at school, for engaging experiences that incorporate children's interests, strengths, and needs. In adulthood, self-determination may look like choices in where to live, who to love, and the what and how of work and leisure pursuits. The system in its human – humane – processes

- 1) includes the perspectives of participants,
- 2) collaboratively develops choices,
- 3) promotes chances to explore possibilities and innovate,
- 4) gives opportunities to set one's own goals and exercise initiative, and
- 5) promotes dialogue about the rationale behind potential courses of action.

Ryan and Deci (2017) summarized these five strategies as autonomy support and emphasized that the question for any system should not be how to increase motivation but how to optimize the conditions that would allow intrinsic motivation and self-determinism to flourish.

The Pivotal Role of Self-Regulation in Self-Determination

Self-determinism is the result when motivation is internalized and manifests as self-regulatory action. As such, self-regulatory well-being can be understood as the highest form of internalized or intrinsic motivation arising from exercising autonomy, an inborn need of human beings (Deci & Ryan, 2000), along with relatedness and competence, for self-determinative well-being. “Autonomy, as a human characteristic, is an extension of this deeply evolved tendency in animate life, describing as it does the propensities toward self-regulation of action...” (Deci & Ryan, 2000, p. 253). Just as the descriptors “evolved tendency in animate life” (Deci & Ryan, 2000, p. 253) and inborn need apply to autonomy and self-determinism, they should apply to self-regulation, the operational linchpin. Moreover, another way of describing an “evolved tendency in animate life” (Deci & Ryan, 2000, p. 253) and intrinsic need is as a species’ behavior. Indeed, self-regulation seems a species’ behavior critical for adaptive learning and self-determination. Self-regulation is self-determination.

Support for Children’s Self-Regulation: A Missed Opportunity

Though early childhood is a critical period of rapid development in self-regulation and executive function (Flook et al., 2015; Montroy et al., 2016; Weiland et al., 2014)⁵

and a teachable capacity (Blair & Raver, 2014; Poehlman-Tynan et al., 2016; Rashedi & Schonert-Reichle, 2019)⁶, self-regulation is seldom taught (Flook et al., 2015; Lawson et al., 2019; Rosenbalm & Murray, 2017) despite being a robust indicator of lifelong benefits. For young children, self-regulation is hard work, so not teaching it is not fair, particularly from an equity perspective for vulnerable learners from historically marginalized groups (NAEYC, 2019). “It is strange that we expect students to learn yet seldom teach them to learn” (Norman, 1980; as cited in Lawson et al., 2019, p. 225).

Though early childhood teachers prioritize self-regulation as a key indicator of kindergarten readiness, early childhood pedagogy, as manifested in prekindergarten through third grade classroom practices, may not intentionally support self-regulatory development. This omission is likely because education systems do not value and educators do not know how to teach self-regulation in a gradual release-of-responsibility dynamic from children co-regulating with teacher scaffolding to children increasingly self-regulating. In turn, this disconnect reveals an opportunity to improve preservice teacher education programs and inservice professional learning. Of note, self-regulation may be sufficiently complex as both a developmental maturational skill and teachable learned skill, that appreciably moving the needle takes longer than one or two years of preschool (Skibbe et al., 2011), which further suggests the need for ongoing support of not only children’s efforts but teachers’ practices.

This implication aligns with findings (Montroy et al., 2016) that while self-regulation accelerated markedly for most preschool-age children, individual development

differed with early, intermediate, and late trajectories indicating differentiated needs for support. Of concern, approximately 20% of children were late developers, and they did not have the same level of self-regulation until first or second grade that early developers benefited from in preschool. This inequity signals missed opportunities for not only children's self-regulatory development but their learning across domains and content areas as all are enhanced by self-regulation. Inequity for children also suggests inequity for teachers in the support they received in preservice teacher education and inservice professional learning. Systemic support for teachers is crucial, so that they can explicitly support children's self-regulatory development with embedded individualized practices to optimize timely growth in this fundamental capacity that affects all other learning.

Centrality of Teacher Emotional Support for Child Development of Self-Regulation

The long-term work of deliberately supporting children's self-regulation requires teachers to self-regulate with mindfulness, empathy, and compassion, so that they can respond to children in emotionally-supportive ways that encourage their self-regulatory attempts. In an early but large study about preschool classroom predictors of diverse children's cognitive self-regulatory skills, Fuhs et al. (2013) found that higher levels of teacher emotional support – specifically, more approval than disapproval and positive tone – were related to greater executive function gains. Of note, this was a correlational study of 803 preschoolers with 71% economically disadvantaged, 61% children of color, and 30% English language learners. Though not tested, teachers' emotional support of children may have also correlated positively with children's emotional self-regulatory

skills, because teacher emotions affect student emotions. Furthermore, emotional, i.e., affective, and cognitive self-regulation are intertwined, often manifesting in visible behavior, with emotions carrying a greater charge that can override cognition. The responsive relationships of emotionally supportive teachers with their preschoolers were likely a protective factor for these vulnerable learners' equitable opportunities and optimal self-regulatory development.

Fuhs et al.'s (2013) nonexperimental results were consistent with experimental study findings from Raver et al. (2011) that an emotionally supportive classroom climate for self-regulatory development increased preschoolers' preacademic skills. This large study was about the efficacy of the Chicago School Readiness Program (CSRP) in Head Start classrooms. Effect sizes were large for behavioral regulation, medium for cognitive regulation, and medium-to-small for language and preacademic literacy and math skills (Murray et al., 2016b, in Appendix C, p. 10). Through the CSRP, teachers also experienced both emotional and pedagogical support for establishing socio-emotionally supportive classrooms through, respectively, stress reduction workshops and mental health consultation with classroom coaching. Evidence from subsequent studies further indicated the efficacy of teacher mindfulness-based stress reduction (Blair & Raver, 2014; Solomon et al., 2018) and reflective consultation or embedded coaching (Gardner-Neblett et al., 2021; Kraft et al., 2018). These insights also supported an overarching premise of this paper that strengthened teacher self-regulation strengthens student self-regulation.

Similar to Fuhs et al. (2013) and Raver et al. (2011), Curby et al. (2013) in a mixed method correlational study found that the consistency of preschool teacher emotional support positively related to children's academic achievement in preschool and, longitudinally, with social competence and problem behaviors in kindergarten. The researchers built upon research about attachment theory (Bartholomew & Horowitz, 1991; Bowlby, 1988; Crain, 2011; Thomas, 2005) and likened the teacher-child relationship, especially when children are young, e.g., in preschool, to a parent-child relationship wherein children who are securely attached are able to expend more energy on learning, and thus, achieve more. Of note, measuring how teacher emotional support varied from one part of the school day to the next better predicted academic achievement and social competence than using an average for the day. This advance in the measurement method reflected the ecological microgenetic (Bronfenbrenner, 2005; Rogoff, 2003) effects of interactions within and across the daily schedule, as well as meshed with the moment-by-moment necessity to self-regulate.

While Curby et al. (2013) did not focus explicitly on self-regulation, their finding that preschool teacher emotional support was associated with kindergarten student social competence and problem behaviors intersected with Montroy et al. (2014). These latter researchers explicitly identified social competence and problem behaviors as mediators of the relationship between self-regulation and academic achievement. In an application of transitive law, I connected evidence across studies to further link teacher emotional support with children's self-regulation. Namely, both Curby et al. (2013) and Zinsser et

al. (2014) in mixed method studies found that a) teacher emotional support was associated with children's b) increased social competence and c) decreased problem behaviors. Montroy et al. (2014) through a structural equation modeling design found that children's b) increased social competence and c) decreased problem behaviors positively mediated d) children's self-regulation. Therefore, a) teacher emotional support is positively related to d) children's self-regulation (Denham et al., 2017). This insight affected my evolving theory of change described later in this paper wherein teacher empathy and compassion for self and others positively mediate their emotional and self-regulatory support for children.

Another intriguing aspect of the teacher-child relationship and teacher developmental responsiveness is how the temperaments of both parties interact. In a seminal article, Goldsmith et al. (1987; as cited in Shiner et al., 2012) integrated four theories of temperament into one construct explained as "basic dispositions inherent in the person that underlie and modulate the expression of activity, reactivity, emotionality, and sociability." Major elements of temperament are present early in life, and those elements are probably strongly influenced by biological factors. As development proceeds, the expression of temperament increasingly becomes more influenced by experience and context. (p. 524; as cited in Shiner et al., 2012, pp. 436-7). This description influenced how researchers, as well as practitioners in early care and education, viewed and supported young children's temperament for the next several

decades, i.e., as innate but malleable over time through nurturing environments and experiences.

Notably, the authors of one of the four theories of temperament, Chess and Thomas, delineated nine temperament traits in 1984 that, to this day, teachers find helpful in understanding young children's temperaments and supporting children's interactions with people, objects, and settings. The nine traits, each measured on a continuum, were activity level (highly to less), rhythmicity (regular in biological functioning or habits to irregular or more spontaneous), adaptability (highly to less), approachability (highly to less), physical sensitivity or threshold of responsiveness (highly to less), intensity of reaction (intense to mild or relaxed), distractibility (easily to less distracted, i.e., more focused), mood (positive to serious or negative), and persistence (highly to less or long to short attention span). Some traits tended to occur with other traits and, based on this observation, Chess and Thomas described three broad types of temperament or personality as "easy, difficult, and slow to warm" (Shiner et al., 2012, p. 438). For example, a child with an easy temperament may be more adaptable and happily excited by change, approachable and eager to participate, and generally in a positive mood. Conversely, a child with a slow-to-warm temperament may find change disconcerting or even distressing, need to observe quite a while before interacting, and often be in a serious or even wary mood. Children with a difficult temperament may be on the less optimal end of the continuum for some or most of the nine traits and frequently be in a negative mood.

More recently, researchers and practitioners referred to two of the three types of temperament as “easy-going” and “slow-to-warm” but the aforementioned “difficult” type as “high maintenance,” or “resistant to control.” Alternatively, they referred to all three types differently as respectively “resilient, undercontrolled, or overcontrolled” (Shiner et al., 2012, p. 438). Their terminology was meant to avoid negative labels of children and recognize potential differences in the goodness of fit between adults and children. For example, an adult who is “slow to warm” may perceive an “easy” child as too eager or uncomfortably different or even “difficult.” However, an adult who thrives on novelty and stimuli, may not perceive a temperamentally challenged child as “difficult” but intriguing or even fun. The point was that goodness of fit is not solely about adults modifying settings and scaffolding interactions to meet children’s temperament-based needs but also about adults becoming aware of and modulating their own temperament (Shiner et al., 2012; Vallotton et al., 2021). This insight not only kept the onus on adults to meet children’s needs and provide them with equitable opportunities but linked adult self-regulation to child self-regulation.

When adults strengthened their self-regulatory skills for better goodness of fit between their and children’s temperaments, they could better support children’s self-regulatory skills. They aimed to leverage children’s effective self-regulatory and temperament traits and mediate those approaches to learning that were less effective for children’s enhanced development and well-being. An example of a tool was the Infant Toddler Temperament Tool (IT3) which helped teachers by analyzing their and

children's individual temperaments then giving suggestions for teacher practices and activities to enhance goodness of fit (Georgetown University Center for Child and Human Development, n.d.).

Researchers found that self-regulatory skills were actionable and could temper temperament (Shiner et al., 2012). For example, Adult 1 learned and used the self-regulatory strategy of meditation to lessen anxiety and Adult 2 applied the self-regulatory strategy of using a checklist to stay on track with daily tasks. The adults in these examples may then have been more likely to extend emotional support to others, including children. Temperament researchers underlined that many environments that children experience, e.g., school, sports teams, places of worship, etc., cannot be fully customized to their temperaments, thus necessitating self-regulatory strategies (Shiner et al., 2012). This insight suggested implications for parents and teachers, as well as preservice teacher education programs and inservice professional learning to recognize and support the temperamental fit between children and environments, as well as children and adults.

In the development of temperament, nature and nurture are intertwined and interactive. While one's temperament traits and personality type are genetically based and fairly stable across one's lifespan, one can learn and use self-regulatory strategies to modulate temperament, as needed, to choose effective responses and actions. Indeed, "temperament individuality is descriptive not just of response tendencies but self-regulation" (National Research Council & Institute of Medicine, 2000, p. 106), especially

for traits like distractibility and persistence or attention. From a practical perspective, self-regulation manifests for young children as success or struggle with following rules and meeting behavioral expectations that is made easier or harder by their temperament. However, self-regulatory skills can be strengthened, and adults can support children in developing these strategies. Temperament and self-regulation are interrelated, and self-regulation is integral to temperament to varying degrees, depending on the temperament trait yet also the environment or circumstance. These connections led to the insight that the affective, cognitive, and behavioral components of temperament are supported by the affective, cognitive, and behavioral components of self-regulation.

Relatedly, early childhood teachers likely need a dual theory of mind about both the children and them. To develop theory of mind about children, a unifying question for teachers who worked with babies and toddlers was, “What about the baby?” (Fraiber et al., 2003; as cited in Vallotton et al., 2021). What might the baby be feeling, thinking, or needing? Taking the perspective of the child first required observing what the child was doing. Observing the child in turn required self-observation and self-regulation to be fully present, objective, and resist jumping to interpretation. The observer’s approach was grounded in open curiosity and sincere wondering about how the child was experiencing the world in those moments.

Only after having made objective observations should the observer move to being an analyst, interpreting what the child’s behavior is communicating and mentalizing underlying temperament, feelings, wants, and needs. As a professor in a teacher

education program, I have found observation to be a challenging skill for many of my students. They seem to struggle with giving themselves space to purely observe without interpretation, perhaps because they believe they must immediately know exactly how to support a child. They may not realize that deliberate observation would deepen their affective and cognitive empathy and understanding of the child for follow-up support even more attuned to the child. They may not realize that the skill of making objective observations safeguards against one's implicit (or explicit) bias creeping into instructional plans and interactions with the child. They may not realize that equitable opportunities for children are built upon a strong foundation of objective observations. I realized that my students need my support to develop dual theory of mind, first by observing themselves with self-compassion and acceptance of their feelings, then self-regulating as needed to be fully present to objectively observe children. I realized that developing dual theory of mind ultimately supports a teacher's developmental responsiveness for children.

Teacher Emotion Socialization Practices Support Child Self-Regulation

Emotional competence for children entails being able to identify emotions (their own and others') and increasingly self-regulate as appropriate for their age and social milieu or culture (Denham et al., 2017). While research about emotion socialization has predominantly been about parent emotion socialization (Denham et al., 2017; Zinsser et al., 2015), a developing area of research is early-childhood-teacher emotion socialization, especially as young children spend more time in early care and education outside of the

home (Brophy-Herb et al., 2019; Denham et al., 2017; Ornaghi et al., 2020). Young children are uniquely dependent on the “ever-present socializers” in their lives and when this includes teachers their emotional competence and self-regulatory well-being affects children’s emotional competence and self-regulatory well-being (Denham et al., 2017, p. 818).

Teacher emotion socialization practices that have been shown to positively affect children’s emotional competence and self-regulatory well-being fall into three broad categories. These were 1) modeling healthy emotion expression and regulation; 2) contingently responding to children’s emotional cues by accepting their emotions and allowing them to express emotions; and 3) belief in the importance of teaching children about emotions, including coaching them through emotional situations (Eisenberg et al., 1999; as cited in Denham et al., 2017). That teachers have an “emotion coaching” not “emotion dismissing” style is critical (Ornaghi et al., 2020, p. 47).

Next, I examined several studies about early childhood teacher use of picture books with children as an already existing means to engage children in identifying emotions and processing their own and character emotions for empathic perspective-taking, a self-regulatory skill. Indeed, shared book reading may be an underused opportunity (Bergman Deitcher et al., 2020; Denham et al., 2020; LaForge et al., 2018) for scaffolding emotion state talk, emotion understanding, emotion socialization, and, by extension, self-regulatory social-emotional competence. Picture books as tangible objects with photos or illustrations can help in making intangible emotions more visible and

understandable to children (Garner & Parker, 2018), contextualizing teacher emotion socialization.

In a qualitative study of preservice teachers in a university course about early childhood education, Garner and Parker (2018) found that shared book reading (SBR) using texts with emotion content was positively related to teachers' increased use of emotion language during the semester. Indeed, SBR elicited more teacher-child identification of emotions than during free play or other conversations throughout the day (Drummond et al., 2014; as cited in Garner & Parker, 2018). Further, Alvarenga et al. (2020) in a qualitative study of three cohorts of preschool and kindergarten classrooms over three years found that the emotion content of texts correlated with teacher support of emotion identification, suggesting the importance of thoughtful text selection. Yet, teachers should also move beyond identifying emotions with children to discussing feelings to develop children's emotion perspective-taking and causal understandings, as appropriate during daily experiences, including SBR (T. Wakabayashi, personal communication, July 12, 2022).

To this end, LaForge et al. (2018) created six picture books with emotion content for identifying emotions and causes thereof for use in a study with 18 Canadian preschoolers who were divided equally into experimental and control groups. The teachers of the former group did seven shared book readings with the children over an average of three weeks. Two paired-samples t-tests at pre- and post-intervention found significance at $p = .01$ for increased emotion comprehension of children in the

experimental group after the intervention. The control group showed no significant differences between pre- and post-tests. This straightforward intervention was modest in terms of time and cost, suggesting its utility.

This emphasis on teachers using regular parts of the school day rather than supplemental curricula or stand-alone less-contextualized lessons to foster children's emotion knowledge was echoed by researchers Zins et al. (2018) in a transitional journal article entitled, "Becoming a Social Emotional Teacher: The Heart of Good Guidance." The authors focused not only on children's social emotional learning but explicit though embedded social emotional teaching through enhanced regular daily interactions. Similarly, Israeli children, whose teachers used the Ellis ABC model in shared book reading to scaffold conversations about a) Activating events, b) related Beliefs, and c) emotional Consequences, gained in their expression of emotion words and connection of thoughts to emotions. They identified and described social-emotional concerns, and contributed ideas for resolution (Bergman Deitcher et al., 2020).

Though the generalizability of these studies in this section was limited by their small sample sizes and, in some cases, the possibility of cross-cultural differences, there was an overarching implication from their findings – that contextualized processes, e.g., through shared book reading, are critical to make abstract emotions real for young children in their emotion socialization. Moreover, the Ellis ABC protocol may have use with adult learners in preservice teacher education (addressed later in this paper) to

support them socio-emotionally and strengthen their empathy and compassion for healthy self-regulation for themselves and others.

Teacher Discourse Practices Support Child Emotion Socialization and Self-Regulation

Probing how to support children's self-regulatory development, Fuhs et al. (2013) suggested that, based on their study observations and results, children who engaged more often in dialectical exchanges (Vygotsky, 1978) made greater gains in self-regulation.

...teachers who asked more open-ended questions and included conversational turns had students who made more gains in self-regulation across the school year...Engaging in more inferential questions might facilitate more complex thinking on the part of the children (Zucker, Justice, Piasta, & Kaderavek, 2010). Multiword, inferential responses require more planning and draw on working memory as children engage in higher-level reasoning about recently acquired information. (Fuhs et al., 2013, p. 356)

Findings within the last decade supported these findings from Fuhs et al. (2013). Romeo et al. (2018) found that not the quantity of words children had heard but the number of conversational exchanges they had with their parents mattered. First, preschool-age children wore audio recorders during the day at home for several weeks to count utterances between them and their parents. Then in a laboratory setting, short stories were read aloud by researchers to the children while their brains were imaged using MRI technology. Children who had previously had more conversational turns with parents

showed more activity in an area of the brain for language processing. Furthermore, the quantity of conversational turns correlated directly with children's subsequent scores on standardized tests for vocabulary, grammar, and verbal reasoning.

These findings held even for children whose parents had low income and education levels, which was encouraging because the latter is difficult to change but increasing the number of conversational exchanges seems much more attainable. This research was an example of two lines of research converging, i.e., the science of child development and neuroscience, likely increasing the credibility of the results. The findings also have implications for more teacher-child conversational turn taking. Similar to the LaForge et al. (2018) study described previously, parent (and teacher) education for more back-and-forth conversations with children may also be a relatively modest but impactful intervention in terms of time and cost, suggesting its utility.

Romeo et al. (2018) built onto and nuanced findings, in particular, from the seminal Hart and Risley (1995) study and later research by Hirsh-Pasek et al. (2015). The former study found that the most economically marginalized children arrived at kindergarten having heard 33 million *fewer* spoken words than advantaged children, tripling their school success. The latter study found that not just the quantity but quality of words matters, especially as contextualized through back-and-forth conversations. Then Romeo et al. (2018) went a step farther, providing neurological evidence of the profound impact of more conversational turns.

These researchers also provided a form of proof through brain imaging of Vygotsky's grand theory of cognitive development that learning is maximized through dialectical exchanges and socio-cultural interactions with more knowledgeable others. Further progress from this epistemic lineage – in essence, a series of dialectical exchanges and conversational volleys among researchers – may materialize as actionable strategies. For example, the next step for early childhood educators, after knowing that increased serve-and-return interactions benefit children, is knowing how to co-construct conversations for self-regulated learning, e.g., “causal talk in the emotional experience” (Housman et al., 2018, p. 8). Pedagogy developed at the Michigan State University Child Development Laboratories (Kostelnik et al., 2019), explicitly connected preservice and inservice teachers' use of language to support children's equitable opportunities to develop self-regulation (McRoy, Gerde, & Linscott, 2022). Strategies included providing behavioral reflections, affective reflections (especially), paraphrases, and open-ended questions in interactions exemplified as empathic co-regulatory support, often through co-constructed conversation, not only for children's behavior but other learning.

The importance of implementing strategies like these ones with fidelity has implications for preservice teacher education and inservice professional learning. Applying insights from the human development research that has been discussed in this section, we should support adult learners through authentic conversations beyond the pedagogy to their beliefs about self-regulatory development, because beliefs drive practices. We should also support their self-regulatory well-being as individuals in their

own right, as well as helping professionals who face unique demands in the cognitively, emotionally, and often physically intense work of serving young children and their families.

Centrality of Teacher Empathy in Self-Regulatory Support

Building from these research insights, teacher empathy and compassion for themselves and others may enhance their self-regulatory modulation of emotion, thought, and action, as well as emotion socialization practices, to respond effectively for all involved. However, I have not yet found explicit research investigating preservice early childhood teacher empathy and compassion as mediators of their a) own self-regulation and b) developmental support for young children's growth in empathy, compassion, and self-regulation. This research gap became the focus of the present study. However, I did find several studies specific to providing such support for children. Their findings yielded clues for supporting the empathy, compassion, and self-regulatory well-being for adult learners in preservice teacher education and inservice professional learning forums.

In a Canadian, small, mixed-method study, Reimer (2019) examined the efficacy of using picture books to develop empathy for children of incarcerated parents. The theoretical framework included Ethic of Care (Noddings, 1998; as cited in Reimer, 2019), Reader Response (Rosenblatt, 1960; as cited in 2001 in Reimer, 2019), and Critical Literacy (Freire, 1970; Luke, 2012; both as cited in Reimer, 2019) dimensions in classrooms characterized by teacher and, ultimately, peer nurtured warmth and compassion with opportunities for children to develop critical thinking. The theory of

change was twofold: 1) If teachers and children, in shared book reading, sensitively discuss a child protagonist experiencing parental incarceration, then readers will develop more understanding and empathy for children they know in this circumstance. 2) Then children whose parents are incarcerated will feel more seen, understood, and less alone.

This brief intervention involved teachers reading and discussing a researcher-authored book with children. Quantitative results showed no statistically significant gain in children's empathy, perhaps because the development thereof takes more time to be numerically measured than the short duration of the intervention allowed. However, qualitative analysis of children's written reflections about the story yielded five themes: 1) children's life experiences impact empathy, including opportunities to read about the lived experiences of others; 2) children identified with sometimes having mixed emotions, like the main character; 3) children's perceptions shifted as fear turned to warmth; 4) an Ethic of Care developed as the story elicited empathy; and 5) the role of literary hooks enhance Critical Literacy.

Overall, children's expression of their thinking through writing suggested more awareness, understanding, and empathy for children whose parents were incarcerated and, more broadly, that "reading comprehension is related to empathy development" (C. Vallotton, personal communication, August 15, 2022). Readers who can imagine the emotions of characters in a fictional or nonfictional setting likely have a greater connection to that content, increasing their understanding of it. Additionally, I surmised that the benefits of using the practice of reflective writing with children were similar to

adults having opportunities to reflect in a journal which has implications for preservice teacher education and inservice professional learning. Moreover, Ethic of Care, Reader Response, and Critical Literacy pedagogies support anti-bias education goals (Derman-Sparks & Olsen Edwards, 2020) for identity, diversity, justice, and advocacy, as well as compassionate mindful self-regulation, likely advancing equity (NAEYC, 2019).

Similar to Reimer (2019), Su-Jeong et al. (2021) in a South Korean qualitative study of five-year-old children in a child care setting, delved into shared book reading processes around a specific and compelling societal problem – bullying. However, in addition to teachers reading and discussing books about the topic with children, they incorporated role-playing wherein children imagined and enacted how they would handle such situations. Role-playing functioned as a realistic zone of proximal development (Vygotsky, 1978; as cited in Su-Jeong et al., 2021) but with less intensity of emotion than in an actual incidence, making cognition easier. Results were that especially through the role-playing medium, children demonstrated empathic understanding, affective connection, and collaboration in developing strategies for compassionate responses to resolve bullying and alleviate suffering. Both studies applied Reader Response and Transactional Theories (from Rosenblatt, 1983; as cited in Reimer, 2019 & Su-Jeong et al., 2021), grounded in Dewey’s active learning-by-doing pedagogy (S. R. Leigh, personal communication, November 4, 2021) and Vygotsky’s (1978) socio-cultural language exchanges to heighten cognition.

Salay (2018), like Su-Jeong (2021) and Reimer (2019) also focused on teacher-child critical discourse during shared book reading to increase children's cognitive and affective perspective-taking and empathy. Like Reimer (2019), Salay (2018) also used writing to prompt student reflections. In this mixed-method dissertation study with first graders and their teachers, the researcher, though in a position of power as the principal that limited the generalizability of the study, sought to cultivate a "culture of kindness" (Salay, 2018, p. 2) throughout the school. She believed in the innate goodness and potential of children, i.e., that they can be "upstanders, take responsibility for their actions, and make their schools better, kinder places" (Salay, 2018, p. 117).

The principal-researcher also sought to embed social emotional learning in already existing instructional modes throughout the school day, both to address time restraints and developmentally provide such support in the most meaningful way for young children. Like Reimer (2019), the modest intervention did not show quantitative gain in children's empathy scores but, again, qualitative analysis of children's writing suggested they had grown in the skills of perspective-taking and empathy. Furthermore, writing seemed to make their thinking more tangible and complex, as role-playing did in the Su-Jeong et al. (2021) study. Moreover, the emphasis on co-constructing conversations in all three studies (Reimer, 2019; Salay, 2018; Su-Jeong 2021) meshed with evidence from neuroscience (Romeo et al., 2018) that these interactions light up the language, motivational, and processing regions of the brain.

Looking across the Reimer (2019), Salay (2018), and Su-Jeong et al. (2021) findings, combining their instructional strategies could leverage the empathy and compassion for oneself and others that are essential for healthy self-regulation. Also, providing varied evidence-based strategies like these would be more likely to differentiate and optimize the learning of individual learners, as well as cumulatively meet the needs of all learners. Pedagogical combinations to unlock affective and cognitive perspective-taking and learning could include the following for learners whether adults or children: shared book reading, critical literacy discourse, verbal and written reader responses or reflections, and discussion and role-playing for imagined and real dilemmas. These activities would also function as self-regulatory preparation and practice for modulating emotion with thought to decide and carry out plans that are effective, i.e., empathic, and compassionate, for self and others in real situations with ongoing reflection and adjustment. Those skills are ultimately the essence of self-regulated learning and self-determination.

Definition and Construct of Empathy

Sympathy is knowing one should feel sorry for a situation that another person is experiencing and is a precursor to empathy (Riess & Neporent, 2018). Empathy is “human fellow-feeling” (Sieghart, 2017, p. 86), i.e., being able to imagine and feel what another feels. Empathy is closely related to but different from compassion (Riess & Neporent, 2018). Compassion is enacted or behavioral empathy wherein one is compelled to alleviate another’s suffering or make that person’s situation better in some way. As

such, compassion is the highest form of empathy and represents the culmination of the sympathy-empathy-compassion circle.

Empathy is not a trait but a skill that can be strengthened. It is a “human capacity” that “requires specialized brains that allow us to perceive, process, and respond” (Riess & Neporent, 2018, p. 10) which begins with observation, a critical skill for people in general and teachers especially. Empathy, like self-regulation, has cognitive, affective, and behavioral dimensions for “fine-tuned responding” socio-culturally (Rogoff, 2018, p. 6). As mentioned earlier, both empathy and self-regulation are conceptualized with cognitive, affective, and behavioral dimensions, suggesting their synergy. Moreover, *because empathy requires mindfulness, contextualizing self-regulatory development with empathic mindfulness may be uniquely effective. This insight affected my conceptualization of a theory of change later in this chapter.*

Connection of Self-Regulation to Empathic Perspective-Taking

Logic suggests that empathy requires self-regulatory capacity and self-regulatory capacity requires empathy. What is unknown is if empathy may act on self-regulation more than self-regulation acts on empathy. What is known is that empathy, like self-regulation, while not expendable for healthy human development, is expandable.

Indeed, in a randomized controlled trial of empathy training for medical residents, Riess et al. (2012) found that those who had received training were rated as more empathic by patients shortly after the training concluded. The effect size was modest at .31 for the brief training of three modules of 60 minutes each over a period of one month

that taught the residents the following: a) the neuroscience of empathy as a hardwired capacity rather than a soft skill (Riess, 2017), b) the physiology of emotions during interactions, c) how to decode nonverbal facial expressions, and d) how to convey empathy nonverbally and behaviorally, using self-regulatory practices of deep breathing and mindfulness for empathic communication with patients and to experience empathy satisfaction not fatigue as helping professionals.

The training emphasized nonverbal communication, as these signals predominantly influence perceptions and are often overlooked (Riess & Kraft-Todd, 2014). To this end, videos of patient-resident interactions were used in combination with their respective skin conductance readings taken during the interaction to help residents identify and reflect upon shared-connecting versus discordant-distancing physiological reactions. The residents were also taught and practiced the skills of the mnemonic E.M.P.A.T.H.Y. for Eye contact, Muscles of facial expression, Posture, Affect, Tone of voice, Hearing the whole person, and Your response (Riess & Kraft-Todd, 2014). Touch was not included because of cultural variation.

Though most trainings focus on “what to say,” this professional learning experience focused on “how to be” for responsive culturally competent care (Riess & Kraft-Todd, 2014, p. 1108). Indeed, becoming more aware and skilled at taking the perspective of others and authentically conveying concern about their well-being may help counter bias towards people different than oneself (Riess, 2017). Moreover, developing this orientation towards others may also enhance helping professionals’

compassion for themselves and self-regulatory well-being. A follow-up study of the E.M.P.A.T.H.Y training one year afterward suggested that positive effects persisted, though a “booster” workshop may be needed (Phillips et al., 2013, p. 331). I described this study in detail, because the intervention was causal and may have applications for nonmedical helping professionals, e.g., through teacher education that focuses more intentionally on developing empathic nonverbal communication skills.

In a grounded theory qualitative-constructivist study of how preschool teachers convey empathy, Peck et al. (2015) posited that teachers can strengthen their empathic culturally responsive beliefs, practices, and relational strategies for children and parents. The researchers were compelled by the changing demographics of the United States with more racial diversity and income inequality. Meanwhile, most teachers are white and middle class but increasingly need to relate to, partner with, and serve families from marginalized groups. This study addressed the research gap about the influences of empathy, particularly in early childhood education.

Teachers who expressed empathic beliefs and practices were alike in four ways which suggested potential professional learning focuses. These similarities were a) inclusive and accepting, b) relaxed and balanced, e.g., listeners more than talkers, c) responsive to culture, e.g., joyful about inviting and having families share cultural traditions, and d) builders of relational two-way communication. Empathy differentiated the teachers who made comments critical of others and those who did not and instead expressed empathic perceptions.

These researchers, similar to Riess et al. (2012) with medical residents and Asayesh et al. (2024) with nurses, found that empathy can be taught and strengthened for adult learners who are helping professionals. Peck et al. (2015) and Asayesh et al. (2024) also emphasized that empathy and compassion for oneself and others has been shown to prevent burn-out and increase job satisfaction. In the Peck et al. (2015) and Riess et al. (2012) studies, the researchers focused on improving preservice education programs as the current study does, though Peck et al. (2015) also explicitly emphasized the need for job-embedded professional learning for inservice teachers. Moreover, the positive belief of Peck et al. (2015) about the importance of honoring and developing teacher beliefs along with their knowledge and practices connoted relational professional learning. Strategies thereof could include dialogue, embedded coaching (Kraft et al., 2018), practicums as belief changers (Lippard et al., 2024), and nurturing mindfulness and reflective practices for care of oneself and others through developmentally supportive responses (Brophy-Herb et al., 2019; Gardner-Neblett et al., 2021; Virmani et al., 2020).

These findings were consistent with the results of my preliminary qualitative study that investigated the relationship of preschool teacher beliefs, knowledge, and practices in supporting children's self-regulatory development. Through a grounded theory (Corbin & Strauss, 2015; Tie et al., 2019) approach, teacher empathic beliefs correlated with teacher self-reported compassionate practices (Wood, 2020). This insight came from iteratively coding (Anfara, 2002) 11 completed written surveys and transcripts of individual and focus group interviews. Though the small number of participants gave

disproportionate weight to any one participant's data, I was still able to detect broad patterns. There were 168 initial codes from the survey responses, and from these I identified two categories for 1) teacher expressed empathic beliefs and 2) teacher self-reported compassionate practices.

For example, teachers' empathic belief that children need to feel understood connected with their self-reported compassionate practices of a) checking-in with how children are feeling, b) seeking to understand children's intense emotions, and c) speaking kindly to children. Similarly, teachers' empathic belief that children need guidance was connected to their self-reported compassionate practice of giving children help to solve problems. From these categories, I distilled an overarching theme for what teacher readiness to provide children self-regulatory coaching looks and sounds like. These findings were central to the core story that developed from the words and survey responses of teachers about their self-regulatory beliefs, knowledge, and practices.

The main idea or theme from the core story was that when teachers expressed empathic beliefs and compassionate practices, they were also expressing readiness to provide self-regulatory coaching to children. Moreover, the root of teacher skill in providing children with self-regulatory coaching seemed to be teacher skills of observation, empathy, and compassion, and these were expandable skills not fixed traits. These realizations, grounded in teachers' responses, taught me that preservice teacher education and inservice professional learning should intentionally nurture the empathy and compassion for oneself and others that influence self-regulatory beliefs and practices.

These forums should provide teachers with information about the neuroscience and lifelong importance of self-regulation. These forums should also give teachers opportunities to role play, then implement plans to support children's self-regulatory development, in a relationship-based coaching dynamic for the child from the teacher, yet also the teacher from an early childhood specialist.

My major insight from this prior study was that concurrently developing teacher belief and knowledge systems can be expected to foster congruence in teacher beliefs and knowledge for strengthened developmentally-responsive practices. An analogy was just as curriculum, instruction, and assessment systems should overlap into concentric circles for coherence (Fullan & Quinn, 2016) and deep learning (Fullan et al., 2018), so should knowledge, belief, and practice systems. Indeed, preservice teacher education or inservice teacher professional learning forums should be thoughtfully designed, so that their curriculum, instruction, and assessment fully support participants' linked development of beliefs, knowledge, and practices.

Centrality of Whole Teacher Pedagogy in Teacher Education for Self-Regulatory Well-Being

In this final section of the literature review, I examined several studies that closely aligned with the current study's focus on supporting EC teachers' psychosocial characteristics, as well as their pedagogical skills. These other studies were either about preservice EC teacher education or inservice EC teacher professional learning. However, both were instructive for what was important to support for these adult learners in their

development as early childhood educators. As these studies markedly influenced the current research, they were introduced with their titles as subheadings and then described in detail.

“Preservice Students’ Dispositional Mindfulness and Developmentally Supportive Practices with Infants and Toddlers” (Brophy-Herb et al., 2019, p. 759)

Brophy-Herb et al. (2019) conducted a study with 618 participants who were preservice early childhood professionals (ECPs) from college courses in child development or early education from nine universities in the United States. The students took an online Qualtrics survey at the start and end of the semester or term. The researchers tested for relationships between ECPs’ dispositional mindfulness and their reflective practice beliefs, intentional kindness (interpersonal mindfulness), child development knowledge, and developmentally supportive practices. Mindfulness and dispositional mindfulness while similar were differentiated. The former was broadly defined as

the awareness that arises from paying attention on purpose and without judgment (Kabat-Zinn, 2003) and is taught through mindfulness meditation training, such as found in the well-studied Mindfulness-Based Stress Reduction Program (MBSR; Kabat-Zinn, 2005). (Brophy-Herb et al., 2019, p. 760)

In comparison, the latter, i.e., dispositional mindfulness, was described as an attitudinal intention to be present in the moment. I realized that someone with that intention or

attitude would likely be willing and, in that sense, ready to develop and strengthen these skills, given the motivational power of belief (Bandura, 2023) and emotion to drive behavior (Immordino-Yang et al., 2017, 2018).

Related to this orientation, two main aspects of mindfulness were investigated because of their influence on teacher practices. These elements were a) *self-regulation* of attention for greater awareness of situations, including the feelings and thoughts of oneself and others, and b) open-ended acceptance thereof, characterized by curiosity (Bishop et al., 2004; as cited in Brophy-Herb et al., 2019). The first element, in particular, connoted that self-regulation and observation are integral to mindfulness, *an insight that contributed to my research methodology*.

The measures used on the Qualtrics survey, as cited by Brophy-Herb et al. (2019), were as follows: Philadelphia Mindfulness Scale (Cardaciotto et al., 2008) for dispositional mindfulness; the Observe, Listen, Wonder, and Respond scale (Tomlin et al., 2009) for reflective practice beliefs; five items from an adaptation of the Mindfulness in Parent Scale (Duncan, 2007; Duncan et al., 2009) for intentional kindness interactions; the Knowledge of Infant/Toddler Development Inventory (MacPhee, 1981); and 12 vignettes that the researchers had developed and validated (Vallotton et al., 2016) to assess developmentally supportive responses. Of note, some of these vignettes were later adapted for use in the current study (to measure preservice EC teachers' developmental support for children's self-regulation). To analyze data, in addition to descriptive statistics, two-level linear mixed models were used. Four models were tested for

associations between dispositional mindfulness and, respectively, reflective practice beliefs, intentional kindness (mindfulness towards others), child development knowledge, and developmentally supportive practices.

Results were that dispositional mindfulness varied directly with reflective practice beliefs, intentional kindness (mindfulness towards others), child development knowledge, and developmentally responsive practices, as self-reported by ECPs. Effect sizes were small to somewhat strong, ranging from .10 to .42, similar to those from the few other studies about mindfulness in early childhood education. Of note, the *strongest correlation of .42 was for the association of “mindful practices in kind interactions” with “beliefs about the value of reflective practices”* (Brophy-Herb et al., 2019, p. 761).

The authors knew of no studies that included infant and toddler ECPs prior to their study. However, one study with early childhood teachers of preschool children (Jennings, 2015) found the following positive relationships: a) mindful observation with the self-regulatory skill of perspective-taking, b) mindful awareness with sensitive or more authoritative guidance and discipline, and c) teacher self-reported mindfulness with their emotional support of children. Overall, the results from Brophy-Herb et al. (2019) coincided with findings from early childhood and K-12 studies that mindfulness related to high quality teacher-child interactions. Limitations were that observational data were not gathered to confirm the self-reported practices and a convenience sample was used. The researchers recommended further consideration of mindfulness training for preservice and inservice ECPs. They encouraged future research about *how intentional*

mindfulness relates to intentional kindness and developmentally supportive responses. A related suggestion was to examine empathy and compassion for oneself and others as approaches to ECP learning that may contribute to mindful beliefs and practices for developmentally supportive responses. Probing the impact of empathy and compassion as the medium for intentional kindness was reflected in the theory of change and design of the present study.

“How Are Preservice Early Childhood Professionals’ Mindfulness, Reflective Practice Beliefs, and Individual Characteristics Associated with Their Developmentally Supportive Responses to Infants and Toddlers?” (Virmani et al., 2020, p. 1052)

Virmani et al. (2020), used the same data and many of the same measures, again in two-level linear mixed models for correlational analyses, building on findings from Brophy-Herb et al. (2019). Virmani et al. (2020) conceptualized preservice early childhood professional (ECP) mindfulness and reflective practice beliefs as key indicators of their social-emotional competence (which has implications for self-regulatory well-being). Their reasons were that a) mindfulness which increases situational awareness and b) belief in reflective practices c) suggest readiness for deepened understanding of the emotions and perspectives of self and others for d) developmentally supportive responses to children. As such, they focused on social-emotional competence, because other research linked this proficiency as key for high quality teaching, citing Hamre and Pianta (2004) and Jennings (2015). They also cited Ersay (2015) that preschool teachers’ self-reported awareness of their own emotions

positively related to their responses to children's emotions, i.e., self-awareness enhanced developmentally supportive responses. The researchers, Virmani et al. (2020), also sought to narrow the research gap about how preservice ECP social-emotional competence mediates interactions with children, parents, and families.

Of interest, an individual characteristic that the researchers examined, in addition to age, stressful life events, and depression, was ECP attachment style. They used the Attachment Style Questionnaire, citing Hofstra and Van Oudenhovon (2004), to test for associations with mindfulness, reflective practice beliefs, and developmentally supportive responses. The authors explained that results of prior studies suggested that attachment style relates to social-emotional competence with more secure attachment indicating greater competence (Waters & Sroufe 1983; Vallotton et al., 2016; both as cited in Virmani et al., 2020).

Results from Virmani et al. (2020) were that, as hypothesized, stronger reflective practice beliefs were positively related to developmentally supportive responses. This association with a small effect size of .15 held at .12 when ECP depression, stressful life events, and attachment style were added into the model. Somewhat surprisingly, these latter three covariates were not associated with developmentally supportive responses. Also, counter to their hypothesis, mindfulness was not associated with developmentally supportive responses, unlike Brophy-Herb et al. (2019) found. In both studies, the Philadelphia Mindfulness Scale (PMS) (Cardaciotto et al., 2008; as cited in Brophy-Herb et al., 2019 & Virmani et al., 2020) was used to measure two facets of mindfulness: 1)

awareness or regulation of attention and 2) acceptance or nonjudgmental curiosity about the present situation, including one's own and others' thoughts, feelings, and perspectives (Bishop et al., 2004, Bergami et al., 2013; both as cited in Brophy-Herb et al., 2019). The researchers, Virmani et al. (2020), wondered if other facets of mindfulness and corresponding PMS items, e.g., *attention to making observations*, may significantly relate to developmentally supportive responses.

I connected this possibility with other research findings that mindful observation was associated with the self-regulatory and social-competency skills of perspective-taking (Jennings, 2015; and as cited in Brophy-Herb et al., 2019). That possibility also connected with my anecdotal experiences as a professor in teacher education that most of my students had difficulty making objective observations of children, as mentioned earlier. In fact, they struggled so much that I sought to focus more in my teaching and research on the development of this crucial skill for reflective practices and sensitive support of children.

Indeed, Virmani et al. (2020) considered mindfulness, reflective practice beliefs, and attachment style as holistic whole-teacher processes related to developmentally supportive responses. However, ECP attachment style did not relate to developmentally supportive responses in this study but related to mindfulness and reflective practice beliefs which were related to developmentally supportive responses. Perhaps, attachment style, if a more distal influence, mediated but was not detectable when taking more proximal influences, e.g., mindfulness and reflective practice beliefs, into account.

However, Vallotton et al. (2016) had found that ECPs' secure attachment style positively related to their developmentally supportive responses.

“Attachment Predicts College Students’ Knowledge, Attitudes, and Skills for Working with Infants, Toddlers, and Families” (Vallotton et al., 2016, p. 275)

Vallotton et al. (2016) examined how preservice early childhood professionals' (ECPs) attitudes, i.e., their beliefs and values, child development knowledge, and developmentally-responsive interaction skills with children were related to their attachment styles. There were 207 college students from child development or early education courses in four universities in the United States who participated through an online Qualtrics survey that took them about 45 minutes. Data were analyzed descriptively and through correlational and regression analyses with the following main results.

This group of ECPs had a wide range of college majors and anticipated careers but those with more secure attachment were more likely to want to work with young children and were also more interested in working with children with special needs. These attitudes aligned with attachment theory in that individuals with secure attachment have more positive views of others and openness towards them. Similarly, more secure attachment was associated with more knowledge about child development.

Students with fearful or dismissive attachment styles were less likely to want to work with young children, perhaps believing that their dependence on adults was demanding rather than developmental. They were also more authoritarian in their

approach to discipline. These attitudes aligned with attachment theory; individuals with fearful or dismissive attachment have more negative views of others, often because of “early adverse experiences in the family” and what was originally an adaptive “aversion to strong feelings” (Bartholomew, 1990; as cited in Vallotton et al., 2016, pp. 291-2).

Students with a fearful attachment style were consistently most different from those with a secure attachment style in attitudes, knowledge, and interaction skills regarding child development. This pattern aligned with attachment theory wherein the two styles are opposite, i.e., an individual with secure attachment has a positive view of oneself and others and an individual with fearful attachment has a negative view of oneself and others. Again, in seeking not to judge but understand and respond with compassion:

According to George and Solomon (2008), adults have a biological drive to care for and protect children, called the *caregiving system*, which is activated by child distress. Adults with fearful attachment styles may experience anxiety and helplessness in response to children’s distress, which dysregulates their caregiving system and results in harsher discipline strategies. (Vallotton et al., 2016, p. 293)

Vallotton et al. (2016) suggested a mediation model with attachment-related attitudes influencing child development beliefs, knowledge, and interaction skills. In other words, attitudinal beliefs which carry more of an emotional charge drive behavior (Immordino-Yang, 2017, 2018; NRC, 2015; NRC & IOM, 2000), e.g., whether or not

one chooses to learn about child development or how to interact with young children. Also, because attachment style has been shown to be more difficult to change, Vallotton et al. (2016) suggested that focusing on beliefs, e.g., about reflective practices, may be a more effective way to improve ECP interaction skills with children. Then, in such a scenario, as the individual's reflective functioning improved, and they had more positive experiences interacting with others, that success would nurture a more positive view of oneself and others and, hence, more secure attachment.

The somewhat mixed results about secure attachment being directly associated with developmentally responsive interactions (Vallotton et al., 2016; Virmani et al., 2020), as well as the fact that there have been few studies about EC teachers' attachment styles (Hatton-Bowers et al., 2023, Vallotton et al., 2016) piqued my curiosity about the role attachment might play for preservice EC teachers in the present study. What also resonated was that "... a positive attachment relationship... being part of a protective community, and having healthy self-regulation skills contribute to positive adaptations" (Sciaraffa et al., 2018; as cited in Virmani et al., 2020, p. 1057). This quote connected individuals' secure attachment to their greater self-regulation and more adaptive responses, certainly benefiting themselves, yet also others, e.g., when as teachers they more sensitively support children. More broadly, these psychosocial characteristics for positive self-determination implied the importance of relationships in how we teach ECPs and what to nurture in them and, in turn, how they should teach and treat children, families, and one another.

“The Effects of a Relationship-Focused Professional Development Intervention on Infant and Toddler Teachers’ Mindfulness-Based Strategies for Coping” (Brophy-Herb et al., 2024, p. 243)

In a very recent study, Brophy-Herb et al. (2024) through multilevel regression analyses examined the impact of the Hearts and Minds on Babies (HMB) professional learning program on EC teachers’ stress and exhaustion, and coping skills. This relational intervention nurtured teachers’ mindfulness and reflective practices for their well-being and developmental responsiveness to children. Randomly selected participants included 41 infant and toddler teachers from Early Head Start and Head Start settings in the treatment group whose trajectories on these psychosocial skills were compared to those of 40 teachers in a control group from the same settings.

The treatment group’s professional learning totaled 20 hours across 13 weeks in group forums and coaching sessions. The latter included two classroom observations with coaching and an individual coaching session. The ten workshops for teachers featured content about children’s social emotional learning, sensitive caregiving to children and themselves through intentional mindfulness, kindness, self-compassion, and related strategies for teacher and child well-being.

Teachers learned how to use HMB concepts with children and how to share these concepts with parents. Concepts focused on recognizing and responding to children’s attachment needs, understanding the meaning behind behaviors, self-awareness and self-regulation of emotion and

attention, co-regulation of emotions, and the ways in which trauma can impact perceptions. During each of the training sessions, teachers learned about and practiced a variety of mindfulness-based strategies for coping including intentional breathing, container imagery meditation, progressive relaxation, and five senses exercises. (Brophy-Herb et al., 2024, p. 247)

A unique feature of the study's methods was "ecological momentary assessment" (Brophy-Herb et al., 2024, pp. 243 & 248) through the use of smartphones by teachers, twice a week for 40 weeks, through which they shared their perceived stress, exhaustion, coping strategies, and the effectiveness of the latter. Teachers made these self-reports before, during, and after the Hearts and Minds on Babies trainings ended.

The three main results of the study, while not as hypothesized, yielded insights about what may be required to sustain improvement in EC teacher stress, exhaustion, and coping skills. The first result was that the infant and toddlers' teachers' perceived stress and exhaustion were relatively stable over time and did not differ significantly for teachers in the treatment and control groups. The second result was that, though teachers who experienced the intervention initially reported increased use of mindfulness strategies, these practices were not maintained across the 40 weeks data were collected. Ultimately, there was no significant difference from teachers in the control group. Similarly, the third result was that, while more teachers in the treatment group initially rated mindfulness as their most helpful coping strategy, this perception decreased over time, and there was no significant difference from teachers in the control group. Also,

given the modest numbers of participants, i.e., 41 in the treatment group and 40 in the control group, there may not have been enough statistical power for overall trends in the data to signal strongly enough to detect at significance.

Another insight from the results was that improving depleted well-being that manifests as higher stress and exhaustion levels in EC teachers, may take longer than the duration of the Hearts and Minds on Babies program. This possibility suggested that one or more of the following strategies may be necessary for sustained increases in teachers' mindfulness-based practices to improve their stress and exhaustion levels. Provide a) the same or more hours of support spread over a longer period of time, b) additional support as a follow-up to the program, perhaps especially through relational coaching or c) both a and b. Given the unique intensity of teaching the youngest children and vulnerability to stress for these teachers (Berlin et al; as cited in Brophy-Herb et al., 2024; Hatton-Bowers, 2023), more time intensive professional learning may be required, beyond the 20 hours of this iteration of the HMB program.

“Long-Term Impacts of the CARE Program on Teachers' Self-Reported Social and Emotional Competence and Well-Being” (Jennings et al., 2019, p. 186)

Another mindfulness-based intervention (MBI), i.e., the Cultivating Awareness and Resilience in Education (CARE) program, provided 30 hours of professional learning to elementary school teachers. Jennings et al. (2019) did a longitudinal follow-up for the randomized control trial of the CARE program with, at onset, 224 diverse K-5 teachers in 36 public schools in New York City with diverse students of whom 75% or more were

economically disadvantaged. Teachers had participated in the CARE intervention in five 6-hour sessions in the late fall to early winter of a school year. These teachers also had three individual coaching phone calls during the program to help them develop self-care practices, apply what they were learning to challenging situations in their classrooms, and sustain their mindfulness-based practices.

Significant longitudinal results, primarily from three-level hierarchical linear modeling, were that CARE teachers increased in emotion regulation and two components of mindfulness compared to control group teachers, even 9.5 months after the program ended. The two components of mindfulness were observing and nonjudging acceptance of thoughts and emotions, two critical skills for teachers as previously discussed. The .26 effect size for emotion regulation was modest but suggested the utility of the intervention, given that it was a universal not targeted intervention (Greenberg & Abenavoli, 2017; as cited in Jennings et al., 2019). That said, within this universal professional learning program, teachers who at baseline had more psychological distress showed the most growth in emotion regulation.

The CARE program has been extensively studied (Doyle et al., 2018; Jennings, 2016; Jennings et al., 2017; all as cited in Jennings et al., 2019). Earlier studies with more information about the CARE curriculum may be of further interest after the current study, e.g., when planning an intervention for preservice EC teachers. However, the CARE program was designed for elementary teachers, meaning some of them were not EC teachers and none of them taught infants, toddlers, or preschoolers. Anecdotally but

importantly, my experiences, working in K-12 and birth to kindergarten education, were that elementary teachers, even in high-poverty under-resourced systems, often had more resources available to them than teachers in infant through preschool programs. Also, as previously mentioned, because young children are, by definition, more dependent on adults, their teachers may experience more intense working conditions. Thus, perhaps the CARE studies were not highly generalizable to teachers of infants, toddlers, and preschoolers. Overall, though, the unique feature of the CARE research was the longitudinal follow-up into the following school year and the findings that the positive outcomes largely persisted. Jennings et al. (2019) also emphasized the need for more longitudinal studies of teacher MBIs, not only about outcomes for teachers but their students.

“Promising Findings that the Cultivating Healthy Intentional Mindful Educators’ Program (CHIME) Strengthens Early Childhood Teachers’ Emotional Resources: An Iterative Study” (Hatton-Bowers et al., 2023, p. 1291)

Recent research by Hatton-Bowers et al. (2023) closely aligned with the aims of the current study, i.e., to investigate the effects of not only mindfulness but, particularly, self-compassion on EC teacher emotion self-regulation. In two pilot studies of the Cultivating Healthy Intentional Mindful Educators’ (CHIME) program, with cumulatively 99 teachers, Hatton-Bowers et al. (2023), through mixed methods and an iterative approach, finetuned CHIME’s design. For example, teachers in the first study felt it was difficult to remember content when they met biweekly, perhaps indicative of

the high intensity of their daily activities meeting the needs of young children. In response, the CHIME schedule was changed in the second study, and teachers met weekly for approximately eight weeks but still in small relational groups of 7-12 with their facilitators for the same 12 hours in total. Also, as suggested by teachers, more activities for mindfulness and emotion regulation were added that they could do with their young students. When teachers commented that they would like to practice their reflective listening skills with more than one colleague, that pedagogy was changed so that they practiced with several partners during the course of the program. Another improvement, resulting from teacher feedback, was that the handouts for each session were put in a notebook, so that these resources were organized and at their fingertips. As someone who has planned professional learning for many years, these tweaks and bigger changes seemed apt examples of tailoring the program to what teachers want and need, so that they feel their scarce resource of time was well spent. Further, providing practical support seems a concrete way to demonstrate respect and care for teaching colleagues, helping to build the autonomy (ownership) and relational trust (Deci & Ryan, 2000; Ryan & Deci, 2017) that motivate deep engagement in one's professional learning (PL).

The PL experience was guided by a facilitator with a master's degree in early childhood development who received three days of training in advance and ongoing support for fidelity of implementation, including strategies for authentically building relationships. The design and content of the PL included the following.

Each CHIME session focuses on specific mindfulness techniques, such as

mindful breathing, mindful body movements, mindful listening and bringing attention to current states and surroundings to support optimal responsiveness, emotion regulation, and compassion... Following each weekly CHIME session, participants complete “putting into practice” activities with the children in their care, providing opportunity for classroom practice and reflection... Practices and strategies are taught in a small group format with other EC teachers. As such, CHIME fosters a peer learning community. (Hatton-Bowers et al., 2023, p. 1293)

The results of the CHIME pilot studies were encouraging. Through a qualitative inductive coding process by the researchers, themes emerged from teacher responses about benefits from the PL, e.g., “improved communication,” “permission to express feelings,” “learning helpful ways to manage stress and emotions,” and “useful resources and tools” (Hatton-Bowers et al., 2023, p. 1296). Moreover, 73% of teachers reported that they meditated at post-intervention, a significant increase, and 20% reported that they were doing yoga which, while not a significant increase, was notable because the PL had not included instruction about yoga. As such, that teachers playfully elaborated on their experience to try yoga suggested an empowering sense of autonomy (choice and ownership), relatedness (trust and camaraderie), and growing competence (self-efficacy) (Bandura, 2023; Deci & Ryan, 2003; Ryan & Deci, 2017). Teachers were also eager to apply what they were learning about mindfulness and emotion regulation in their classrooms. This latter outcome was similar to other findings (Denham et al., 2019),

suggesting the synergy of focusing on applications for both teachers and their students. Significant quantitative results were that teachers had more mindfulness, lower levels of burnout (from less emotion exhaustion), and increased emotion regulation. This latter characteristic correlated with many components of the other measured characteristics, suggesting the profound influence of enhanced self-regulation. Overall, the outcomes of the CHIME studies signaled that teachers were open to and embraced this type of PL, benefited from it, and that the CHIME program should be further finetuned and studied.

“The What, How, and Who, of Early Childhood Professional Development (PD): Differential Associations of PD and Self-Reported Beliefs and Practices” (Gardner-Neblett et al., 2021, p. 53)

Gardner-Neblett et al. (2021) used data from the National Survey of Early Care and Education, Workforce Survey (NSECE, Project Team, 2011; as cited in Gardner-Neblett et al., 2021) for 4,0123 teachers to investigate how different types of professional learning predicted infant/toddler versus preschool teacher self-reported beliefs and practices. They examined these pathways through structural equation modeling. Results were that coaching of infant/toddler and preschool teachers predicted more progressive beliefs about educating young children. Two other forms of professional learning were found to be effective. Infant/toddler teachers who visited one another’s classrooms had more planned activities, and preschool teachers who had college coursework had more progressive beliefs. Just attending professional or staff meetings or trainings without

coaching were not effective. These last two formats connoted passive experiences while the formats that were effective were more interactive and relationship-based.

Cumulative Insights from the Preceding Studies

Overall, the message from these seven studies (Brophy-Herb et al., 2019; Brophy-Herb et al., 2024; Hatton-Bowers et al., 2023; Jennings et al., 2019; Garner-Neblett et al., 2021; Vallotton et al. 2016; Virmani et al., 2020) was about the need to grow beyond the traditional emphasis in EC teacher education on knowledge acquisition and embed substantive person-first processes. Indeed, a whole teacher approach would incorporate teacher belief systems, i.e., their developing attitudes and values about their own and children's learning and well-being, in tandem with their human-development knowledge and pedagogical practice systems. Given that there have been few studies at the early childhood level about whole teacher processes – with this research just beginning to increase in the last five to 10 years – the contributions of these seven studies seemed even more consequential.

Two Studies about the Kindness Curriculum

Finally, I considered two studies about a curriculum for preschool children that had implications for teacher professional learning, partly because of the component of a mindfulness-based intervention (MBI) for teachers. However, I also examined this research, because the curriculum emphasized kindness, which I suspected strongly influences not only teachers' mindful compassion and emotion self-regulation but their developmental support of children's self-regulation. Indeed, these two small but

randomized control studies (Flook et al., 2015; Poehlmann-Tynan et al., 2016) had promising results for the effectiveness of the mindfulness-based Kindness Curriculum for not only preschool children but, potentially, teacher self-regulatory well-being, too. This possible synergy from concurrently supporting and linking teacher and child social emotional learning aligned with findings from other studies (Denham et al., 2019; Hatton-Bowers et al., 2023).

Children from Kindness Curriculum classrooms made larger gains in self-regulation, executive function, and social competence than children in control classrooms. Effect sizes were more often small or medium than large. However, even small increments of more self-control have been found to compound benefits into adulthood (Moffitt et al., 2011). *Additionally, while Kindness Curriculum children at all levels of self-regulation made gains, children with the lowest baselines made the greatest gains.* This latter outcome was consistent with findings from studies about the Tools of the Mind early childhood curriculum that emphasized self-regulatory support (Blair & Raver, 2014; Solomon et al., 2018). Therein, children with the greatest self-regulatory needs benefited the most, and this result was also similar to children with the lowest self-control in the groundbreaking Moffitt et al. (2011) study.

These results, while not surprising, suggested that adult learners with less self-regulatory well-being may also show the most improvement, e.g., in the future intervention I will do with preservice EC teachers after the current study. Indeed, Jennings et al. (2019) found similar results for K-5 teachers who participated in the

Cultivating Awareness and Resilience in Education (CARE) program. Those with lower emotion regulation and more psychological distress at the beginning of the CARE intervention showed the most improvement at the end.

The positive impact of the Kindness Curriculum was also intriguing, because the dosage for teachers and children was modest with about 10 hours of preschool classroom instruction. The program was implemented over 12 weeks via two 20-30 minute lessons weekly done in an existing part of the daily schedule, e.g., large group time. From a practical standpoint, the cost in time and materials for this free supplemental curriculum from the University of Wisconsin-Madison would probably not be prohibitive for most preschool programs.

The eight themes of the Kindness Curriculum yielded clues about what content and instructional strategies were most effective for teaching children about self-regulation, and may also suggest applications that could be calibrated for adult learners. The themes were Mindful Bodies and Planting Seeds of Kindness, I Feel Emotions on the Inside, How I Feel on the Inside Shows on the Outside, Taking Care of Strong Emotions on the Inside and Outside, Calming and Working Out Problems, Gratitude, All People Depend Upon Each Other and the Earth, and Caring for Our World. Providing more clues for how to effectively teach self-regulation and, again, perhaps suggest adaptations for adults, the lessons were interactive, featuring role-plays and re-enactments with props, songs and music with movement, teacher-child and peer conversations, and movement-based yoga, as opposed to seated yoga or meditation. Through these lively interactive

experiences, there was likely a sense of playfulness, a quality that, too often, is missing in forums not only for children but adult learners.

Indeed, Poehlmann-Tynan et al. (2016) speculated that a main lever for the large effect size from the Kindness Curriculum on children's attentional focus was contemplative yet playful movement-based yoga. For example, children pretended, with a sense of fun but also purpose, to lull a stuffed animal to sleep on their stomachs with deep belly breathing. The researchers also noticed that lessons with less movement, e.g., reading a book while remaining seated, were not as engaging as when teachers interwove movement. Not surprisingly, difficulty paying attention, participating, and self-regulating were highest when lesson content was more abstract, suggesting the need to make concepts even more concrete and pre-plan meaningful movement to aid children's comprehension. A connection to adult learning may be that teachers want concrete applications of theory and research to pedagogical practices to enhance their instruction and interactions with children. Indeed, learners of all ages likely appreciate and value authentic activities that reflect their real lives.

Despite the popularity of supplemental "school-based mindfulness programs" (Rashedi & Schonert-Reichl, 2019, p. 726), e.g., the Kindness Curriculum and other programs with similar yoga or meditative components, there have been few other evaluative studies for early childhood settings. However, the results of the preschool Kindness Curriculum were consistent with benefits of contemplative practices for older children and adults. Effective implementation of the Kindness Curriculum also included

chances for “willful embodiment” wherein children could use their bodies as “learning agents” to construct conceptual understandings (Rashedi & Schonert-Reichl, 2019, p. 730). In an example from a different program, the teacher invited children doing yoga to consider why a child playing the bird pose (i.e., balancing on one foot) feels scared to fly away from its nest. The teacher invites children to think about the resources that the child playing the bird pose has, such as its strong wings. The child takes the bird’s wings, which in this case are the child’s arms, and gives a self-hug. A teacher asks children to give themselves a hug to teach them how to use their body to access an inner sense of safety. (Rashedi & Schonert-Reichl, 2019 p. 730)

I also perceived this example as being about a “shared mind empathic experience” (Riess, 2018, p. 5) and the elaborative nature of play. The children in their portrayals exercised affective, cognitive, and behavioral self-regulation, and all six developmental domains were integrated through their activity, i.e., social, emotional, cognitive, language, physical, and even aesthetic in dramatizing the scared bird. Such experiences are the epitome of holistic whole-child development and may have something to teach us about holistic whole-person development for adult learners, as well. This idea resonated with me because of the wider ethic in our field to follow the lead of the child. I was also drawn to the connection with intentional kindness (Brophy-Herb et al., 2019) both for children and teachers, believing that deliberately practicing taking the perspective of others and acting kindly is how we become more empathetic and kind. In other words, we

need not wait to feel a strong impulse of compassion but can cognitively then emotionally act our way into it.

Prior to the implementation of the Kindness Curriculum, preschool teachers participated in a modified 26-hour Mindfulness-Based Stress Reduction course that had originally been adapted for elementary school educators. The intent of this mindfulness-based intervention (MBI) was primarily to help teachers reduce stress and burnout, as well as become more aware and present in their interactions with children for enhanced learning. By extension, teachers whose classrooms later participated in the Kindness Curriculum may have been better prepared to connect that content across the school day for their students. Relatedly, the small random-control study about an early attempt to support teacher well-being through an MBI that has been cited nearly 400 times (Flook et al., 2013) found positive results for treatment group teachers, who at baseline had not differed from control group teachers. These benefits included reduced stress and cortisol levels, higher CLASS scores for emotional support, and more self-compassion. Of note, self-compassion was a focus in the present study, as a potential predictor of teacher self-regulatory well-being and their support for children's self-regulatory development.

I closely reviewed the preschool Kindness Curriculum and the MBI for teachers (Flook et al., 2013; Flook et al., 2015; Poehlmann-Tynan et al., 2016) for potential applications for preservice EC teachers, in particular. For example, how might an MBI be similar or different for these novices and reflect their professional, individual, and cultural contexts? More broadly: What if a design principle for preservice EC teacher

education was that these foundational curricula are epitomized by a culture and climate of intentional kindness (Brophy-Herb et al., 2019), because that relational essence is central to optimal human development for learners of any age? What if elements of play were incorporated, e.g., opportunities to explore, choose, imagine, collaborate, and innovate, because play actively engages learners of any age, encourages them to apply their highest levels of skills (Vygotsky, 1978) and is integral to adaptive learning (Piaget & Inhelder, 1969, 2000)? How might this look, sound, and feel different from traditional teacher education and professional learning? These questions animated the present study, and I ultimately attempted to answer them in the last chapter of this paper.

Implications: Summary and Further Insights

Supporting children's self-regulation and self-determination requires not only time but empathy and compassion to effectively scaffold what is a long-term developmental process. Inherent in teacher support of child self-regulation is adult self-regulation, necessitating empathy and compassion for not only the child but oneself. Since many people who go into the helping professions, e.g., teaching and nursing, are relatively high in empathy, they may so viscerally feel another's pain that, ironically, they experience secondary trauma and are less able to help or will eventually burnout (Riess & Neporent, 2018). Given these occupational hazards, empowering the self-regulatory agency of early childhood professionals (ECPs) should include empathy and compassion for oneself as individuals who matter and, also, so that they can extend the same support to children. Yet, finding this balance for optimal care of oneself and others can be

difficult, even for seasoned professionals. Thus, preservice ECPs may especially benefit from help to develop dual self-regulatory support for children and themselves, as a protective factor for their long-term empathy satisfaction and to avoid empathy fatigue.

This strikes me as a critical time in the United States, in particular, to focus on empathy. Konrath et al. (2011) found that college students in America over a 30-year period from 1979-2009 had declining rates of empathic concern and perspective-taking beyond oneself, key precursors for acting with compassion. Worrisomely, the most rapid decline in empathy has been since 2000, indicating increasingly self-focused perspectives and at least some fraying of the social fabric.

There may be a connection between empathy and attachment style. A meta-analysis, also by Konrath et al. (2014), about the attachment styles of college students in the United States found that those with secure attachment had dropped 15% between 1988-2011 from 48% to 41 percent. Moreover, those with dismissive attachment – a positive view of oneself but negative view of others – had increased relative to the other two insecure attachment styles, preoccupied or fearful. Likewise, the findings in a study of college students in a sociology course in one U.S. midwestern university between 1997-2019 showed a 24% decline in secure attachment from 38% to 29% with, again, the greatest percentage increase in the dismissive style (Sprecher, 2022).

Moreover, Akanbi (2024) found that undergraduate students' adjustment to college, including the need to be more self-regulated, was predicted by their attachment styles. Students with secure attachment showed the highest academic, institutional,

personal-emotional, and, in particular, social adjustment. An implication was that “secure attachment should be incorporated, supported, and sustained by the support services department in universities for improvement of adjustment to college life” (Akanbi, 2024, p. 50). However, attachment style has been shown to be fairly immutable which was why Vallotton et al. (2016) suggested that developing beliefs that positively mediate attachment may be more tangible and effective. Also, from an ecological perspective, there is likely some ebb and flow in attachment, depending on one’s ongoing experiences. If so, there may be actionable opportunities to nurture more secure attachment or relative improvement through timely, practical, relational support. Perhaps as Moffit et al. (2011) found for self-regulatory control, even a small gradient increase in trust of oneself and others would yield compounded benefits across time. Further, Asayesh et al. (2024) found that nurses with more self-compassion were more likely to have a secure attachment style, so perhaps developing this belief in the worth of oneself is a tangible way to nurture secure attachment. This finding was a clue that both self-empathy and empathy for others are important for self-regulatory well-being and attachment security.

The reasons for declining empathy and attachment are complex and likely interwoven. However, one factor may be the increase in the use of cell phones, other similar devices, and the internet (Konrath et al., 2014). Even when those interactions are through what was not meant to be an oxymoron – social media – there seems a qualitative difference in two-dimensional interactions via screens versus three-

dimensional in-person interactions. If so, this influence that was meant to connect people may be separating them through opportunistic algorithms that curate online feeds with often provoking content meant to keep people online. In turn, people may feel more isolated or lonely as those around them are less available because they are also online, which then may negatively affect mental health and well-being.

Perhaps the worst symptom of this apparent fraying of empathy and secure attachment is that adults collectively tolerate mass shootings of America's school children, unlike in any other developed nation (Silva, 2002). When enough adults do not empathize enough to reasonably self-regulate to work together and put children first, adults fail children from an ecological (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006) and moral perspective. Regarding the underlying belief and value systems for adults individually and collectively, Bandura (2016) may have guidance for us in *Moral Disengagement: How People Do Harm and Live with Themselves*, e.g., how a dearth of empathy can lead to dehumanization. While untangling all the reasons for diminished empathy and attachment are beyond the scope of this paper, seeking to strengthen these skills and other influences for adults and children in early education led to the theory of change for the current study.

Theory of Change: Empathy and Compassion Influence Self-Regulation

Within a context of self-regulation as self-determination, my reflections on the parallel cognitive-affective-behavioral dimensions of empathy and self-regulation led to the realization that empathy may be a uniquely effective means for developing self-

regulation. This emphasis on empathy would include a focus on compassion, as the latter is the enactment of the former, and both are skills that can be developed and measured. Intentional or mindful empathy and compassion, I hypothesized, exceptionally contextualize and mediate successful self-regulation. They help one observe and interpret – modulate emotions with thought – for sound perspectives about what is happening and how to respond, as shown in the theoretical model in Figure 2.3.

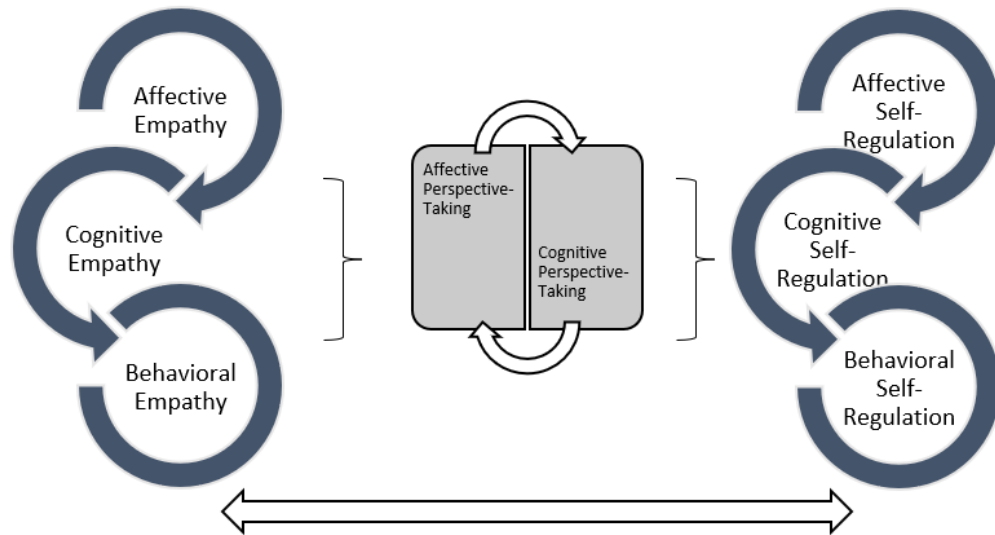
Specifically, early childhood teacher empathy and compassion for oneself and others positively influence their perspectives, self-regulation, and developmentally supportive responses for children’s self-regulatory growth. Throughout the process of a teacher self-regulating and supporting a child’s self-regulation, the teacher’s ongoing observational skills and resulting perspectives, both affectively and cognitively, are key to providing the most sensitive scaffolding for the child. Then in accordance with the ecological principle (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006) that all affects and is affected by all else, self-determination was next added to the theoretical model, as shown in Figure 2.4. Self-regulatory well-being was hypothesized as the primary means to actualizing self-determinative well-being.

Lastly, systemic influences were added for a comprehensive theoretical model, as shown in Figure 2.5. Facilitative (helpful) or non-facilitative (counterproductive) conditions include governmental and local educational policies, processes, materials and other resources, as well as the culture, climate, and leadership of the center or school (Vallotton et al., 2021). Cumulatively, these systemic conditions for teaching and

learning profoundly affect the educational environment and self-regulatory well-being of all inhabitants, whether children or adults. Of note, Denham et al. (2017) found that early childhood teachers' "greater feelings of job resources and job control significantly related to positive emotional expressiveness, contingent reactions, and attitudes towards teaching children about emotions" (p. 296). Their greater emotional self-regulatory well-being likely enhanced their support of children's emotional self-regulatory development. Also, while the systemic influences in the model are ecologically bidirectional, the institutional and larger, more powerful systems likely affect individuals and their self-determinative well-being more than individuals can affect these systems, at least for some duration.

Figure 2.3

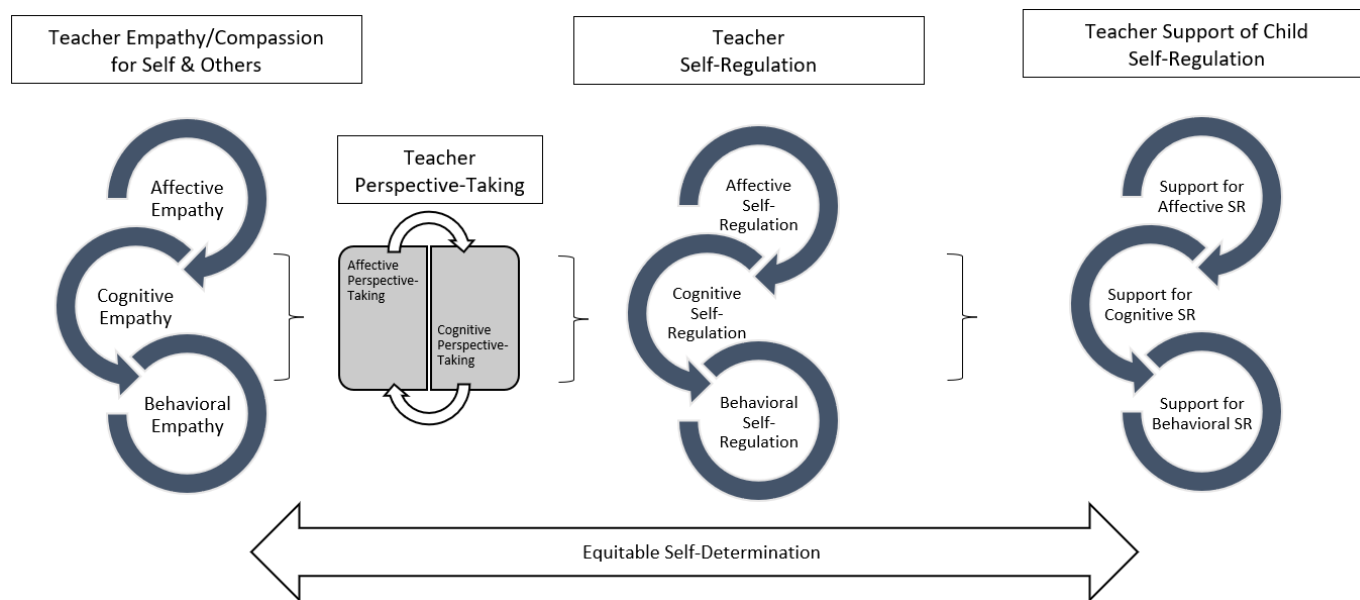
Empathy and Compassion Mediate Perspective-Taking and Successful Self-Regulation



Note. Enacted or behavioral empathy arises from cognitive and affective empathy elevated through empathic concern, i.e., compassion, (Riess & Neporent, 2018) to motivate responding with helpful actions. Focusing on empathy and compassion for self and others may be an ultra-contextualized uniquely synergistic means for supporting self-regulatory growth and, ultimately, self-determination.

Figure 2.4

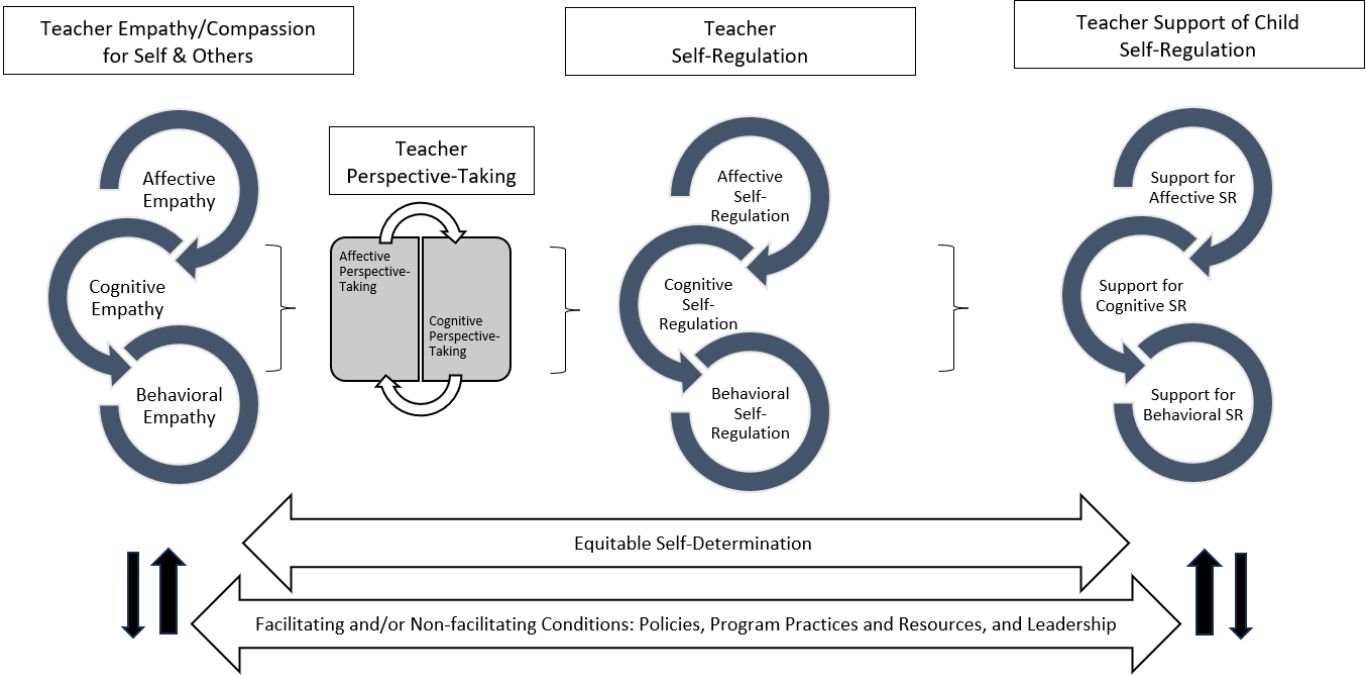
Theoretical Model of Relationships between Teacher Empathy/Compassion, Self-Regulation, and Support for Child Self-Regulation



Note. Teacher empathy and compassion for self and others influence teacher self-regulation and these factors influence teacher support of child development of self-regulation and self-determinative well-being for both teacher and child.

Figure 2.5

Comprehensive Theoretical Model for Self-Regulatory Support and Equitable Self-Determination within Facilitating or Non-Facilitating Ecological Systems



Conclusion

People-centered holistic systems of care and education for teachers and children are a fundamental pre-condition for their optimal self-regulatory well-being and robust self-determination as lifelong learners. Without that foundation reasonably in place, efforts to support teacher and child self-regulatory well-being will likely not endure, because the burden will have been put on individuals to overcome less than healthy systems. Thus, the rationale for my theoretical model is contingent on successful efforts to build these strong systems and foundations, as depicted in Figure 2.5.

Through this literature review, I organized more than 150 research articles and primary sources, first by broad topic then results, to help illuminate trends across findings. Then, from these trends, I extracted main findings as overarching themes which became subheadings within the literature review. As depicted earlier in Figure 2.1, these were as follows.

- Definition and Construct of Self-Regulation
- Centrality of Self-Regulation in Human Development
- Centrality of Self-Regulation for Self-Determination
- Centrality of Teacher Emotional Support for Child Self-Regulation
- Teacher Emotion Socialization Practices Support Child Self-Regulation

- Teacher Discourse Practices Support Child Emotion Socialization and Self-Regulation
- Centrality of Teacher Empathy in Self-Regulatory Support
- Centrality of Whole Teacher Pedagogy in Teacher Education for Self-Regulatory Well-Being

Through a methodical process, I distilled insights about essential components for self-regulatory development and well-being for adults and children, and how to support early childhood teachers in preservice teacher education and inservice professional learning.

These insights informed my development of a theory of change to conclude this chapter that teacher empathy and compassion influence teacher self-regulation which, in turn, influences teacher support of child self-regulation. These hypothesized relationships became integral to the conceptual models with eight research questions that were developed in the next chapter to answer this overarching research question.

- *In what ways, do preservice early childhood teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and attachment style predict their self-regulatory well-being and developmental support of child self-regulation for the self-determinative well-being of both teacher and child?*

CHAPTER THREE

Methods

My study's conceptual design and methods arose from a two-pronged premise. These postulates were that 1) supporting children's development of self-regulation is central to their human right of self-determination across their lifespan and 2) prioritizing the self-regulatory well-being of both children and adults is key to unlocking self-determinative equity for all human beings. Through the present mixed method study, I built onto my previous qualitative research (Wood, 2020). That study investigated how early childhood teachers' pedagogical knowledge and beliefs about the development of child self-regulation impacted their self-reported classroom practices. Two main findings were that

- 1) teachers' beliefs influenced their practices more than pedagogical knowledge had, consistent with other research (Vallotton et al., 2016; Virmani et al., 2020), and
- 2) teachers whose beliefs and practices aligned with knowledge about child development demonstrated readiness to coach and be coached about children's self-regulatory development.

Yet, I wanted to know much more about what might mediate teacher beliefs, so that those influences could be intentionally supported in teacher education. I also believed that whole teacher person-first development was important for teachers' personal and professional well-being. These motivations led to my conceptualization of influences on

preservice early childhood (EC) teacher beliefs, knowledge, and practices for the current study and its overarching research question: *In what ways do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and attachment style predict their self-regulatory well-being and developmental support of child self-regulation for the self-determinative well-being of both teacher and child?* To help answer that question, eight research sub questions were developed and reported later in this chapter.

Setting

The setting was a large midwestern university in the United States, located a few hours away by vehicle from a major metropolitan area, with students in seven child development and early childhood education courses taught by six instructors, including me. I chose this location for the study because I am an assistant professor there with access to hundreds of preservice teachers in these courses. I also have relationships with most of the other instructors and believed that this professional connection would increase their dissemination of information to students about the option to participate in the study.

Participants

Participants were traditional college students in child development and early childhood education courses. Most were preparing to become early childhood teachers for children birth through age eight. A small number of these preservice early childhood professionals may have planned to work in other roles, e.g., as speech and language

pathologists, early care and education administrators, hospital child life specialists, or pediatric nurses.

The participants were a subset of the 300 college students enrolled in the following seven child development and early childhood education courses during the semester of the study.

- 1) Introduction to child development
- 2) Developmentally supportive interactions with young children in group settings,
- 3) Infant/toddler development, curricula, and lesson planning
- 4) Preschool child development, curricula, and lesson planning
- 5) Assessment of children birth through age eight
- 6) Inclusion of children with special needs
- 7) Part-time practicums or full-time student teaching in early childhood classrooms at the university and in the wider community

All these courses required observations of young children. Additionally, all but one of the first six listed courses were combined with a practicum or student teaching course.

Approximately 146 (49%) of the 300 students participated in the study by taking a survey. However, how many of the five instructors chose to provide information about the study to their students was unknown, other than for the two courses I taught with 108 students. Ultimately, 92 or 63% of the 146 participants' data were used in the study. Of the initial 146 participants, 15 or 10.3% did not finish the survey (with most of them only answering the first questions) and 17 (11.6%) finished the survey but had missing

responses across measures. The data for these 32 participants (21.9%) were removed, leaving 114 potential participants. The reasons that more than one in five participants did not fully respond to the survey were unknown. These may have been related to the procedures of not collecting identifying information nor requiring that students finish the survey or give proof that they had done so to receive extra credit points, e.g., by submitting a photo of the post-survey thank-you message. These procedures were to ensure the fully voluntary participation of students who held less positional power than their professors. Perhaps, too, for participants that finished the survey but had missing responses, survey fatigue was a factor.

Of the remaining 114 participants, 10 (8.8%) did not give consent the two times they were asked at the beginning and end of the survey, and 12 (10.5%) gave consent pre-survey but not post-survey. The data for these 22 participants (19.3%) were removed for lack of consent, leaving the 92 final participants. The reasons that 12 of the 92 participants had changed their consent from yes to no were unknown. Perhaps participants who had previously taken surveys were confused by the unusual procedure of being asked twice for consent, experienced survey fatigue which contributed to cursorily answering the post-survey consent question, or purposely changed their minds. Regarding this latter possibility, some participants may have felt that, cumulatively, the questions were too personal. Conversely, three students who did not give consent pre-survey gave consent post-survey. Again, their reasons were unknown, but may have been related to confusion, survey fatigue, or a genuine desire to participate in the study after all.

However, the possibility also exists that by being asked twice, some students felt pressured to change their no to a yes, the opposite of the reason that the IRB had required double consent which was to guarantee that there was no coercion. Interestingly, a cross-university collaboration of early childhood faculty also reported differences in how their IRBs viewed the science of teaching and learning (SoTL) and their related research proposals. Some of the IRBs contextualized the Collaborative for Understanding the Pedagogy of Infant/Toddler Development (CUPID) research as common evaluation of educational programs and, thus, categorized these studies as exempt or did not require elaborate review processes. Yet, other IRBs were concerned that SoTL research takes advantage of students and required full reviews (Vallotton et al., 2019). As a principal investigator for the current study, I decided that the most ethical procedure for all participants was to go by their final consent as a definitive signal of a participant's ultimate decision.

Recruitment

Participation was invited through the instructors of the child development or early childhood courses who opted to disseminate to their students the written information I had provided as approved by the Oakland University Institutional Review Board (IRB) (Appendix A). Those materials were an initial email to instructors asking that they consider disseminating information (Appendix B) via a student recruitment letter (Appendix C) and information sheet about the study (Appendix D). For the two courses that I taught, before disseminating the information sheet, I provided students with a

written announcement (Appendix E) posted on the online course site and read aloud by me from a slide in that class session's PowerPoint slide deck.

Descriptive Statistics for the Demographic Data

The gender and race/ethnicity of participants was similar to students from prior semesters. Ninety (98%) of the 92 participants reported their gender as female. While a few participants reported two races/ethnicities, 78 (85%) identified as white, 9 (9%) identified as Hispanic or Latino, 6 (7%) identified as Black, 3 (3%) identified as Asian, and 1 (1%) student identified as American Indian, as shown in Table 3.1. There was minimal diversity in the study sample.

Table 3.1

Gender and Race/Ethnicity of Participants

Variable	<i>n</i>	%
Gender		
Female	90	97.8
Male	2	2.2
Nonbinary	0	0
Prefer not to answer	0	0
Other	0	0
Total	92	100
Race/Ethnicity		
White	78	84.8
Hispanic or Latino	9	8.7
Black or African American	6	6.5
Asian, Pacific Islander	3	3.3
American Indian, Alaskan Native	1	1.1
Arab	1	1.1
Other	0	0
Total	98*	NA

Note. *Six participants indicated two races/ethnicities.

In class standing, the majority of participants, i.e., 48 (52%) were sophomores. Twenty-three (25%) were juniors, and 12 (13%) were seniors. Thus, 35 (38%) were upper level students, i.e., juniors or seniors. Seven (8%) were first-year students.

Regarding prior child development or early childhood education coursework, 42 (46%) of participants had taken three or more courses, and 21 (23%) had two courses. Thus, 63 (69%) of the students had taken two or more courses that are part of the required sequence for early childhood teachers. Twenty-six (28%) of participants had taken only one, likely introductory, course. Only three (3%) of the students reported no prior child development or early childhood education coursework. Table 3.2 summarizes these data.

Table 3.2

College Class Standing and Prior Child Development/Early Childhood Courses of Participants

Variable	<i>n</i>	%
Current Class Standing		
First-year student	7	7.6
Sophomore	48	52.2
Junior	23	25
Senior	12	13
Graduate student	1	1.1
Other*	1	1.1
Total	92	100
Prior CD/ECE Courses		
0 courses	3	3.3
1 course	26	28.3
2 courses	21	22.8
3 or more courses	42	45.7
Total	92	100

Note. *Participant was a transfer student and unsure of class standing.

The 92 students who participated in the study indicated the following college majors, as shown in Table 3.3: elementary education was chosen by 70 students (76%) who were most likely pursuing the preschool to third grade and/or a special education endorsement for teacher certification, child development 20 (22%), special education 17 (19%), education six (7%), psychology two (2%), other three (3%), human development and family studies 1 (1%), or social work 0 (0%). The three students who chose the descriptor “other” wrote that their majors were communication sciences and disorders, kinesiology, and the birth to kindergarten endorsement for teacher certification. These percentages added to more than 100, because the 92 participants chose a total of 117 descriptors of their majors. Since at least 113 (97%) of the descriptors applied to students in early childhood teacher required courses, most likely nearly all of them were preservice early childhood EC teachers.

Table 3.3*College Majors of Participants*

Variable	<i>n</i>	%
College Majors		
Elementary education	70	76
Child development	20	22
Special education	17	19
Education	6	7
Psychology	2	2
Other*	3	3
Social work	0	0
HDFS	1	1
Total descriptors**	117	
Total participants	92	

Note. *Other majors reported by participants were communication sciences and disorders, kinesiology, and birth to kindergarten. ** Some of the 92 students chose more than one descriptor.

Researcher Role and Description

In addition to being the researcher, I was the instructor for two of the seven courses with 108 of the approximately 300 potential participants. As such, I had positional power over students, and this imbalance could make them feel pressured to participate in the study. To counter this possibility, I emphasized verbally and in writing (Appendices 1b-d) that participating was wholly optional.

My dual role of participant and researcher had advantages and disadvantages. Two advantages were that I had convenient access to potential participants and knowledge of the university's teacher education curricula which will be helpful in later applying insights from the study results to plan curricular improvements. Conversely, a

chief disadvantage was that my involvement as a course instructor may have compromised my objectivity when interpreting survey responses and the results of the study. I considered my positionality as a white cisgender female who has been an early childhood teacher, principal, and director in rural, suburban, and urban settings for decades. As the same race and gender as the vast majority of potential participants, I may have related more to their backgrounds or assumed I understood them more than I actually did. For the small number of students of color, I may have assumed their homes were in urban not rural areas, because of residing mostly in rural areas where there was little or no diversity. I may have thought I could relate to participants from urban areas, because of working in an urban area for several years.

However, as a privileged white person with an upper middle-class income, I cannot fully realize the barriers to equitable participation that exist for students whose families have low incomes or are from historically marginalized groups. I may not have understood cultural differences related to parenting, discipline, and guidance of young children for participants with backgrounds and experiences other than mine. As someone who has worked in the early childhood field for a long time, I have strong positions about what constitutes developmentally-appropriate practices, which may have caused me to score participants' narrative responses to preschool scenarios subjectively or more negatively. All of these potential biases may have reduced my objectivity and skewed my interpretations. These possibilities, along with my dual role of researcher-participant, meant that I needed to plan and follow deliberate protocols for scoring responses and

interpreting study results. It was important to intentionally seek to act with full transparency for trustworthiness as a researcher and the credibility of study findings.

Data Sources

There were 11 measures used in the study. These measures were summarized in Table 3.4, including their alignment with research sub questions and estimated time for participants to complete each measure. After Table 3.4, the measures and their psychometric properties were described.

Table 3.4

Qualtrics Survey Measures with Estimated Time per Participant and Alignment to Research Sub Questions

Survey Items and Measures (in the order that they appear in the Qualtrics survey)	Description	Time	Research Sub Question
Summary and Link to Information Sheet	Preliminary information for participants before taking survey	.33 min.	
Initial Consent	Authorization from participants to use their data for the study	.13 min.	
Confirmation of Age 18 or Older	To ensure that participants are adults	.13 min.	
Demographic Data Meditation Data	Gender, race/ethnicity, number of prior early childhood courses, college major, class standing (year of college); Meditate yes/no; if yes, #times in last week and # of minutes each time	1.5 min.	All
Developmentally Supportive Responses for Child Self-Regulatory Well-Being: Part I	4 scenarios with narrative responses* and 4 Likert scale items** for perceived effectiveness	12.53 min.	3, 6, 7, 8
Developmentally Supportive Responses for Child Self-Regulatory Well-Being: Part II	4 scenarios with multiple-choice responses*** and 4 Likert scales for perceived effectiveness	1.86 min.	3, 6, 7, 8
Emotion Regulation Skills Questionnaire (Used for self-regulatory well-being)	Awareness, sensations, clarity, understanding, accepting, tolerance, readiness to confront, self-support, and modification (9 components); Likert scale, 27 items	3.59 min.	2, 3, 5, 7, 8

Table 3.4 - Continued

Survey Items and Measures (in the order that they appear in the Qualtrics survey)	Description	Time	Research Sub Question
Attachment Style Questionnaire	Baseline security; Likert scale, 22 items	2.93 min.	All
State Self-Compassion Scale Long Form	Self-Compassion: Kindness, common humanity, and mindfulness (3 positively related components); Self-Coldness: Self-judgment, isolation, and over-identification (3 negatively related components); Likert scale, 18 items	2.39 min.	1, 2, 7, 8
Compassion (for others) Scale	Kindness, common humanity, and mindfulness (3 positively related); Indifference (1 negatively related); Likert scale, 16 items	2.13 min.	1, 2, 7, 8
Mindfulness in Teaching Scale	Subscale for interpersonal mindfulness; Likert scale, 5 items	.67 min.	1, 2, 7, 8
Five-Facet Mindfulness Questionnaire	Observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience (5 intrapersonal components); Likert scale, 39 items	5.19 min.	1, 2, 7, 8
Basic Psychological Need Satisfaction Scale (Used for self-determinative well- being)	Competence, autonomy, and relatedness (3 components); Likert scale, 21 items	2.79 min.	4, 5, 6, 7, 8
Diener Flourishing Scale – Psychological Well-Being	Likert scale, 8 items	1.06 min.	4, 5, 6, 7, 8
Final Consent	Authorization from participants to use their data for the study	.13 min.	
	Total Estimated Time per Participant	34.97 min.	
*4 narrative responses @ 3 min. = 12 min.; **164 Likert items @ 8 seconds = 22 minutes; ***4 multiple-choice items @ 20 seconds = 1.33 minutes			

Measures

Self-Compassion and Self-Coldness. The State Self-Compassion Scale Long Form (SSCS-L) (Neff et al., 2021) was used to measure self-compassion as a construct with six components and, in my theoretical model, as an affective component of empathy

(shown prior in Figures 2.3 and 2.4). The three SSCS-L components positively associated with self-compassion were *self-kindness*, *common humanity*, and *mindfulness*. The three components inversely associated with self-compassion were *self-judgment*, *isolation*, and *over-identification*, collectively referred to as *self-coldness* (Neff et al., 2021). Of note, self-kindness and self-judgement were opposites, as were common humanity and isolation, and mindfulness and over-identification (Neff, 2013; as cited in Pommier et al., 2019). There were three items for each of the six components, 18 in total (shown in Appendix G), for which respondents chose from a Likert scale of 1 for *not at all true for me* to 5 for *very true for me*. Examples of items were

- *I'm giving myself the caring and tenderness I need* (self-kindness),
- *I'm being pretty tough on myself* (self-judgment, reverse scored),
- *I see my difficulties as part of life that everyone goes through* (common humanity),
- *I feel separate and cut off from the rest of the world* (isolation, reverse scored),
- *I'm keeping my emotions in balanced perspective* (mindfulness), and
- *I'm obsessing and fixating on everything that's wrong* (over-identification, reverse scored).

Each component or subscale score was an average of its three items, and the overall self-compassion score was an average of all the scores. Scores reflected general levels of self-compassion with no explicit cutoff determining high and low or enough and not enough compassion. However, one may use a rough rule of thumb that scores below

2.49 suggest low compassion; above 2.5 but below 3.5, moderate compassion; and 3.6 to 5, high compassion. Alternatively, one may use median scores as a demarcation of low and high compassion (Pommier et al., 2019) or contrast subgroup scores, e.g., how self-compassion may differ for participants with secure versus insecure attachment. I used the former method of Likert scale thresholds, because many of the present study's measures use 5-point Likert scales, and the ranges for low, moderate, and high scores more readily allow comparisons and tests for correlation and predictive relationships.

The SSCS-L has sound validity and reliability. Through bifactor exploratory structural equation modeling, the validity of measuring self-compassion as a multifactor construct was confirmed, supporting the conceptualization that “a compassionate mindstate is the system-level balance of the six self-compassion components” (Phillips, 2019; as cited in Neff et al., 2021, p. 124). Cronbach's alpha for the total self-compassion score was high at .94 and supported the conceptualization that while the components were closely related, they were distinct and not redundant or identical which would have indicated there should be fewer than six factors. Cronbach's alphas for the individual factors or components showed adequate to high reliability from .73 for overidentification to between .80 and .85 for the other components except for self-kindness at .90. (Neff et al., 2021).

Compassion. The Compassion Scale (CS) (Pommier et al., 2019) was used to measure compassion for others as a construct with four components and, in my theoretical model, as an affective component of empathy (shown prior in Figure 2.3 and

4). The three components of the Compassion Scale positively associated with compassion for others were *kindness*, *common humanity*, and *mindfulness*. The component inversely associated with compassion for others (and reverse scored) was *indifference*. There were four items for each of the four components or a total of 16 items (shown in Appendix H) for which respondents chose from a Likert scale of 1 for *almost never* to 5 for *almost always*. Examples of items were

- *If I see someone going through a difficult time, I try to be caring toward that person* (kindness),
- *I realize everyone feels down sometimes, it is part of being human* (common humanity),
- *I pay careful attention when other people talk to me about their troubles* (mindfulness), and
- *I am unconcerned with other people's problems* (indifference, reverse scored).

Each component was scored as an average from its four items, and the overall compassion score was an average of all the scores. Much like interpreting scores for the self-compassion measure that was previously described, there was no absolute cutoff of enough or not enough compassion for others. Rather, one may interpret Compassion Scale scores using the rough rule of thumb that below 2.49 suggests low compassion; above 2.5 but below 3.5, moderate compassion; and 3.6 to 5, high compassion. Alternatively, one may use median scores as a demarcation of low and high compassion (Pommier et al., 2019) or contrast subgroup scores, e.g., how compassion for others may

differ for respondents with secure versus insecure attachment. Again, I used the former method of Likert thresholds for comparisons across measures in analyzing variables for correlation and predictive relationships.

The Compassion Scale has sound validity and acceptable-to-strong reliability. Primarily through bifactor exploratory structural equation modeling and, secondarily, confirmatory factor analysis, the validity of measuring compassion as an interactive system with an overarching factor and multiple subfactors was confirmed. Regarding reliability, Cronbach's alpha for the total compassion score was .87 and the subfactors varied from .77 and .73 for kindness and common humanity to .67 and .69 for indifference and mindfulness, respectively. The latter two alphas were below the standard cutoffs for reliability of .70 and .80, but this exception is acceptable when a factor has few items like the Compassion Scale (Hair et al., 2014; as cited in Pommier et al., 2019). Reassuringly, given that the focus of my study was college students in education courses, two of the five studies that established the validity and reliability of the CS had large samples of college students from psychology and education courses (Pommier et al., 2019).

Also, the Compassion Scale and prior described State Self-Compassion Scale Long Form share lineage in researchers and methods with the original Self-Compassion Scale that has been widely used (Neff, 2003; as cited in Pommier et al., 2019). Of note, the validity and reliability of the Self-Compassion Scale has been replicated with 20 samples that were international (Neff et al., 2019; as cited in Pommier et al., 2019). The

resulting advances in conceptualizations, development of scales, and psychometrics were helpful in my research study, especially as I sought to measure empathy and its theorized components or precipitating conditions, e.g., self-compassion and compassion for others.

Mindfulness. The Five-Facet Mindfulness Questionnaire (FFMQ) (Baer et al., 2006; as cited in Baer et al., 2008) was used to measure mindfulness as an overarching construct with five components or factors, i.e., *observing*, *describing*, *acting with awareness*, *nonjudging of inner experience*, and *nonreactivity to inner experience*. Each component had eight items except for *nonreactivity to inner experience* with seven items for a total of 39 items (shown in Appendix I). All items in *acting with awareness* and *nonjudging of inner experience* were reverse scored and three of the eight items in *describing*. Respondents chose from a Likert scale of 1 for *never or very rarely true* to 5 for *very often or always true*. Examples of items were

- *When I'm walking, I deliberately notice the sensations of my body moving* (observing),
- *I'm good at finding words to describe my feelings* (describing),
- *When I do things, my mind wanders off and I'm easily distracting* (acting with awareness, reverse scored),
- *I criticize myself for having irrational or inappropriate emotions* (nonjudging of inner experience, reverse scored), and
- *I perceive my feelings and emotions without having to react to them* (nonreactivity to inner experience).

Each factor was scored as an average of its item scores. It would not have been a balanced representation to average these sub scores for an overall mindfulness average, because one factor had one less item than the other factors. Instead, an overall average was computed by dividing the total score by the total number of items. However, in analyzing the results of the FFMQ, more emphasis should be placed on the factors rather than an overall average, because while the factors correlated moderately to highly with one another, they were also unique (Baer et al., 2008). The FFMQ, like the CS and SSCS-L, used a 5-point Likert scale, so again I initially interpreted the scores in the context of the general thresholds for low, moderate, and high scores.

Primarily through exploratory factor analysis of five different mindfulness instruments with varying constructs, whose factors and data were combined, Baer et al. (2006; as cited in Baer et al., 2008) established the construct validity of the FFMQ and reliability with Cronbach's alphas from .75 to .91 for the subfactors. In a subsequent study with different participants, Baer et al. (2008) found almost identical alpha coefficients from .72 to .92. Reliability was again confirmed in several studies of the FFMQ (Jennings et al., 2019) with alphas coefficients from .73 to .93. The FFMQ is a valid and reliable measure that has been frequently used by researchers (Frank et al., 2016).

Mindfulness in Teaching Scale. A subscale from the Mindfulness in Teaching Scale (MTS) (Frank et al., 2016) was used to augment the Five-Facet Mindfulness Questionnaire (Baer et al., 2006; as cited in Baer et al., 2008) as a sixth component of

mindfulness. This MTS subscale is specific to teacher *interpersonal* mindfulness with students, as in a Jennings et al. (2019) study. Adding this subscale of five items served as a bridge from individual or *intra-* mindfulness as assessed in the FFMQ (Baer et al., 2008) to the relational or *inter-*mindfulness essential for responsive teaching. Cronbach's alphas for the individual items of this subscale were acceptable to good at .66 to .75 (Jennings et al., 2019) and, in the original MTS validation study, the alpha coefficient was .71 for the entire subscale (Frank et al., 2016). Respondents chose from a Likert scale from 1 for *never true* to 5 for *always true* for five items (shown in Appendix J), e.g., *Even when it makes me uncomfortable, I allow my students to express their feelings* (Frank et al., 2016). However, instead of the word students, I substituted the word children, e.g., *...I allow the children in my class...* because that is consistent with language early childhood educators use and, hence, should be more understandable to survey respondents.

In the original validation study, the MTS showed good validity and reliability in its two-factor structure of *intrapersonal* mindfulness (nine items) and *interpersonal* mindfulness (five items and the subscale used in my study) (Frank et al., 2016). Analyses included exploratory factor analysis and confirmatory factor analysis with Cronbach's alphas at .87 for the intrapersonal factor and, as previously shared, .71 for the interpersonal factor, as well as test-retest reliability that showed medium to large correlations between six month timepoints. The MTS samples in the validation study

were elementary teachers, including early childhood teachers from kindergarten through third grade.

Self-Regulation. The Emotion Regulation Skills Questionnaire (ERSQ) (Berking et al., 2008; as cited in Grant et al., 2018) was used to measure emotion self-regulation as a construct with nine components. These components were *awareness, sensations, clarity, understanding, accepting, tolerance, readiness to confront, self-support, and modification*. There were three items for each of the nine components for a total of 27 items (shown in Appendix K). Respondents chose from a Likert scale from 1 for *not at all* to 5 for *almost always* as experienced by them in the last week. Examples of items were

- *I paid attention to my feelings* (awareness),
- *I had a clear physical perception of my feelings* (sensations),
- *I could have labelled my feelings* (clarity),
- *I understand my emotional reactions* (understanding),
- *I was able to accept my negative feelings* (accepting),
- *I could endure my negative feelings* (tolerance),
- *I did what I wanted to do, even if I had to face negative feelings on the way*
(readiness to confront),
- *I tried to reassure myself during distressing situations* (self-support), and
- *I was able to influence my negative feelings* (modification).

Each component was scored as an average of item scores, and the overall emotion regulation score was an average of all the item scores. I chose this measure of emotion regulation rather than a more general measure of regulation because emotion affects self-regulation more than cognition does (Montroy et al., 2016; Immordino-Yang et al., 2018). This nuance also aligned with a premise of my study that teachers' emotional regulatory consistency is important for their own and children's well-being (Fuhs et al., 2013; Raver et al. 2011; Curby et al., 2013; Jennings, 2015; Jennings et al., 2019), as well as for their support of children's long-term and sometimes uneven self-regulatory development.

The original ERSQ was in German and showed validity via exploratory and confirmatory factor analyses as a multi-factor construct. Reliability was described as adequate to good with Cronbach's alphas from .68 to .81 for subscale factors (Berking et al., 2008, Berking & Znoj; as cited in Berking et al., 2010) and .90 for the total score (Berking et al., 2008, Berking & Znoj; as cited in Berking et al., 2010) (Grant et al., 2018) as an overarching construct. While the standard cutoff for reliability is .70, lower levels may be acceptable when factors have only a few items like the ERSQ does and, as previously mentioned, like the Compassion Scale does (Hair et al., 2014; as cited in Pommier et al., 2019). The ERSQ was also positively related to measures of psychological well-being (Berking et al., 2008, Berking and Znoj; as cited in Berking et al., 2010). That finding supported one of my hypotheses that self-regulatory well-being predicts psychological well-being. Moreover, self-regulatory well-being supports social-

emotional competence (Jennings et al., 2019) which was defined as reflective practice beliefs and mindfulness (Virmani et al., 2020), further connecting to my path analysis.

For the validated English version of the ERSQ, Cronbach's alphas for subscales were good to excellent at .73 to .88 and .96 overall. This latter high reliability was consistent with expected relationships among the nine components. However, each component was distinct enough that the nine-factor model was a better fit than a three-factor model (Grant et al., 2018).

Psychological Well-Being and Self-Determinative Well-Being. I chose to measure these two constructs, because they are understood to be directly related (Diener et al., 2010), and I suspected that self-determinative well-being (Deci & Ryan, 2000) may shape psychological well-being. My reasoning was that an individual's degree of psychological well-being depends upon how well the individual's innate self-determinative needs of autonomy, relatedness, and competence are met. Indeed, psychological health and life satisfaction arise from self-determinative well-being (Deci & Ryan, 2000).

To help in analyzing how other variables and constructs in the study were associated with overall psychological well-being, I used the Diener Flourishing Scale – Psychological Well-Being (American College Health Association, 2019) (PWB). For the measure's eight items (shown in Appendix L), respondents chose on a Likert scale from 1 for *strongly disagree* to 7 for *strongly agree*. The items were averaged to indicate psychological well-being. Examples of items were *I lead a purposeful and meaningful*

life and I am optimistic about my future. I used the PWB measure for two reasons. First, these data allowed comparisons to other characteristics of preservice teachers in the study that may be associated with or predict psychological well-being, e.g., empathy and compassion for self and others, emotion self-regulation, mindfulness, attachment style, self-efficacy, and meditation experience. Second, the word flourishing in the title of this measure connoted a connection with positive or humanistic psychology and ultimately self-determinism, a focal point of the study.

The Diener Flourishing Scale (Diener et al., 2010) as a measure of psychological well-being was originally validated and found reliable on a fairly large sample ($n = 689$) of college students which aligns with the college student population for my study. The Flourishing Scale had high internal consistency (Cronbach's $\alpha = .87$) as well as reliability across time in test-retest (.71), and its one-factor structure was confirmed. Of special note, the Flourishing Scale was also highly compatible and showed external convergent validity ($r = .62, p < .001$) with the self-determinative well-being measure for my study, i.e., the Basic Psychological Need Satisfaction Scale (Deci & Ryan, 2000; Gagne, 2003).

Moreover, the Flourishing Scale showed good external reliability cross-culturally in psychometric testing using two Portuguese samples, again finding that its internal consistency (Cronbach's $\alpha = .83$) and one-factor construct were evident (Silva & Caetano, 2011; as cited in Hone et al., 2013). In another cross-cultural comparison using an exceedingly large New Zealand sample that was nationally representative ($n = 10,009$)

Hone et al. (2013) similarly found that the one-factor construct was valid through exploratory and confirmatory factor analyses. They also found that the Flourishing Scale, which was one of several measures in their survey of well-being, had excellent internal consistency (Cronbach's $\alpha = .91$) and was valid and reliable to use with many age groups and populations.

As a second measure, I used the Basic Psychological Need Satisfaction Scale (Deci & Ryan, 2000; Gagne, 2003) (BPNSS) to measure autonomy, relatedness, and competence, the three components of self-determination. The BPNSS measure originated from Self-Determination Theory as developed primarily by Deci and Ryan (1985; as cited in Ryan & Deci, 2017; Deci & Ryan, 2000; Ryan & Deci, 2017), and for that reason I used it as a measure of self-determinative well-being in the present study. For the 21 items (shown in Appendix M), respondents chose on a Likert scale from 1 for *not at all true* to 7 for *very true*. Examples of items were *I feel like I am free to decide for myself how to live my life* (autonomy), *I get along with people I come into contact with* (relatedness), and *People I know tell me I am good at what I do* (competence). Subscale items were averaged for the three components.

The scale reliability of the BPNSS (Gagne, 2003) was acceptable to strong. Cronbach's alphas for the components were .69 for autonomy, .86 for relatedness, and .71 for competence. Also, since the correlations among the three components were strong, ranging from .61 to .66, the components were averaged for an overall signal about general need satisfaction. The internal consistency of this latter index was .89 (Gagne,

2003). Also, like the Diener Flourishing Scale (Diener et al., 2010) measure of psychological well-being, the BPNSS was originally used and tested with college students (Deci & Ryan, 2000; Gagne, 2003) which aligns with the college student population for my study.

However, unlike the Diener Flourishing Scale (Diener et al., 2010), I could not find additional confirmatory research about the psychometric properties of the BPNSS. Notably, Johnston and Finney (2010) emphasized that although the BPNSS was used in many studies, the measure itself had not been rigorously evaluated. They thought that researchers may have confused or conflated the psychometrics of an earlier measure of basic psychological needs satisfaction specific to people's workplaces from which the BPNSS was adapted to gauge general satisfaction with one's life. Johnston and Finney (2010) further evaluated the BPNSS with these results: a) through Confirmatory Factor Analysis, the three components of autonomy, relatedness, and competence were supported, b) from model-fit analyses, a version of the BPNSS with 16 of the original 21 items was stronger, and c) there was evidence of external validity. However, they cautioned that more research with replicated results, especially for the 16-item version, was needed. They also recommended caution in drawing inferences from BPNSS results in the interim. Overall, I assessed that the BPNSS had less psychometric validation..

Of note, the data for the current study were for 16 not 21 items, similar to Johnston and Finney's (2010) abbreviated scale but not using all the same items as they had and different from my plan, due to missing data. To check the internal consistency of

the current study's 16-item scale, Cronbach's alpha tests were done. The cohesiveness of the relatedness component's sub scale items was Cronbach's alpha = .72, and that of the competence component's sub scale items was Cronbach's alpha = .63. To increase the autonomy component's sub scale items from Cronbach's alpha = .55 to .60, one item (#11) was removed. The reliability of the total 15-item scale was Cronbach's alpha = .83 when rounded, the same as for when there were 16 items, but I used the 15-item scale to increase the autonomy component from Cronbach's alpha = .55 to .60

These reliability coefficients of the current study were adequate to acceptable based on thresholds from other studies cited in this paper (Diener et al., 2010; Frank et al., 2016; Hair et al., 2014; as cited in Pommier et al., 2019; Hofstra & Van Oudenhoven, 2003; Jennings et al., 2019; Neff et al., 2021). However, they were lower than the reliability coefficients in Gagne's (2003) study of the BPNSS. Those measures of internal consistency ranged from acceptable to very good, i.e., Cronbach's alpha = .69 for the autonomy sub scale, Cronbach's alpha = .71 for the competence sub scale, Cronbach's alpha = .86 for the relatedness sub scale, and Cronbach's alpha = .89 for the entire scale.

The current study's BPNSS correlations for the three components ranged from somewhat strong to strong ($r = .46$ for autonomy and competence, $.51$ for relatedness and competence, and $.72$ for autonomy and competence, $p < .001$). While these relationships also supported overall reliability and validity, I interpreted the BPNSS results with caution for the following two reasons. One, the current scale's Cronbach's alphas ranged from adequate to acceptable which was lower than the acceptable to very

good range from the original BPNSS study (Gagne, 2003). Two, there have been fewer psychometric studies of the original BPNSS (Johnston & Finney, 2010). For those reasons, I relied more on the psychological well-being (PWB) measure as a general indication of self-determinative well-being. Reassuringly, the two measures, the PWB and BPNSS, were highly correlated in the current study ($r = .80, p < .001$).

Developmental Responsiveness for Child Self-Regulatory Well-Being. To my knowledge, there is not a self-report measure for preservice early childhood teachers that probes how they would support the self-regulatory needs of preschool-age children and has been found valid and reliable beyond one setting. However, there is such a measure about infant and toddler development, as part of an expanding collaboration by early childhood faculty across more than nine universities in the United States, i.e., the Collaborative for Understanding the Pedagogy of Infant/Toddler Development (CUPID). That survey measure for preservice early childhood professionals in university courses assessed not only their child development knowledge and beliefs through Likert and true-false items but self-reported practices for 12 vignettes (Vallotton et al., 2016). For the vignettes, the developers

used a multiple-choice format in which one response was more developmentally supportive whereas alternatives reflected low warmth/sensitivity, over/undercontrol by the teacher, or inappropriately high or low developmental expectations. Stems and response options were piloted among a group of 15 infant/toddler and early education scholars

and modified until at least 70% of these expert respondents chose the option designed as developmentally supportive. On average 82% of student respondents chose the developmentally supportive option (range = 70%-92%) for the vignettes in their final versions. Students' total interaction skill scores were calculated as the percentage of developmentally supportive responses selected ($M = 57.7\%$, $SD = 17.7\%$) (Vallotton et al., 2016, p. 284).

After obtaining a copy of the survey from one of the developers (C. Vallotton, personal communication, December 2, 2023), I adapted six of the infant/toddler vignettes to be about preschool children having self-regulatory difficulties.

Qualitative Analysis of Survey Items. To analyze the vignettes from Vallotton et al. (2016) about children who needed self-regulatory behavioral guidance, I first qualitatively coded and categorized these by the component of self-regulation that a child struggled with the most, in my estimation. The three self-regulatory components or themes were affective, cognitive, and behavioral which were consistent with prior Figures 2.3, 2.4, and 2.5. Indeed, individuals, to self-regulate, must modulate emotion with thought in a circumstance, then respond behaviorally in a way that is effective for themselves and others. In this process, affective and cognitive self-regulation interact and manifest as behavioral self-regulation, and the cycle continues as the circumstance evolves. Within this dynamic, the child's self-regulatory need for support may be mainly affective or cognitive. For example, the child in the vignette who cried when their parent

left was likely struggling the most with affective self-regulation. Whereas the child who hurried across the classroom and bumped into another child's block tower, knocking it down, likely most needed cognitive self-regulatory support to realize that this upset the other child and to walk carefully around block structures. After categorizing vignettes by the main self-regulatory need, I chose three vignettes to adapt about children who most needed affective self-regulatory support and three for which they most needed cognitive self-regulatory support.

Next, I designated three of these vignettes to use in multiple-choice items and the other three vignettes for narrative response items. My reason for multiple-choice items was that Vallotton et al. (2016) had used that format to assess developmental responsiveness (in part) and established the validity and reliability of the items and scoring. Moreover, these vignettes and multiple-choice items were used in subsequent studies, further confirming their validity and reliability (Brophy-Herb et al., 2019; Virmani et al., 2020). My two reasons for having narrative response items were to probe developmental responsiveness and remove the element of chance inherent in multiple-choice questions, perhaps as evidenced by 82% of respondents answering these correctly in the Vallotton et al. (2016) study. For an overall score, I combined and averaged the scores from the two item types (the method will be detailed in the next section) for a more robust measure of preservice teacher developmentally responsive skills.

Two of the three vignettes I chose for narrative response items were mainly about children's affective self-regulatory struggles, because these difficulties are generally the

most challenging for teachers to support. The other vignette featured a cognitive self-regulatory need. Additionally, participants generated their own narrative vignette about a time a child experienced self-regulatory difficulty and how they handled it.

For the four multiple-choice items, two of them were vignettes about cognitive self-regulation and one was about affective self-regulation. In the fourth item, participants chose the teacher interaction style they believed was generally most effective for supporting child self-regulation. These styles mirrored authoritarian, authoritative, and permissive parenting styles (Baumrind, 1971), as the role of early childhood teachers has been found to be similar to that of parents, and many studies have adapted parenting measures for use with early childhood teachers (Gardner et al., 2021). This similar adult-child dynamic for parents and teachers made sense, because young children are uniquely dependent on their relationships, interactions with, and guidance from the grown-ups in their lives. After this last multiple-choice item, participants were invited to narratively explain their answer.

After each narrative response or multiple-choice item, participants expressed how confident they were, as a measure of self-efficacy, that their strategy for supporting the child's self-regulation was effective. To do so, they chose from 1 for *Not at all* to 5 for *Completely confident* on a Likert scale. Table 3.5 provided a summary of the survey design for the narrative and multiple-choice sections. The first column had the name of the vignette. The next three columns denoted if the vignette primarily addressed an affective or cognitive self-regulatory need and that these needs manifested in behavior.

The last column specified for the respective vignette if it was assessed in a narrative or multiple-choice item.

Table 3.5

Design of the Narrative Response and Multiple-Choice Sections of the Survey

	Main Component of Self-Regulation (SR) in Need of Support in the Vignette			
Survey Item:	Affective Self- Regulation	Cognitive Self- Regulation	Behavioral Self- Regulation	Item Format (type of response)
Part I:				
Child throws a toy	X		All manifest in children's behavioral actions	Narrative
Child knocks down another child's block tower		X		Narrative
Child cries when parent leaves	X			Narrative
Participant's scenario and how they handled it				Narrative
Part II:				
Child runs and trips into other child		X		Multiple Choice
Children fight over toys	X			Multiple Choice
Child stands on a chair		X		Multiple Choice
Participant's approach to child self-regulation	Authoritarian, authoritative, or permissive style			Multiple Choice
Comment re approach to child self-regulation	Why participant believes their approach is effective			Narrative
Note. After each item, ask <i>How confident are you that this would be an effective response?</i> to be answered on a Likert scale from 1 for <i>Not at all confident</i> to 5 for <i>Completely confident</i> .				

Qualitative Adaptation of Vignettes. I adapted the six chosen vignettes from Vallotton et al. (2016) for scenarios about preschool children rather than infants or toddlers. These scenes were modestly revised to reflect common situations that occur in preschool classrooms. Moreover, while seeking to maximize the clarity of each tweaked vignette, I also reduced their length, when possible, if the meaning would not be

impeded. Given that my total survey was estimated to take about 35 minutes to do, I was deliberate about using an economy of words. Vignette word counts were reduced by at least 10 percent to help prevent participant fatigue. Children in the vignettes were referred to by initials not first names to avoid the potential for implicit bias from participant perceptions of the race, ethnicity, or gender of the children.

The wording of the adapted vignettes was reviewed by several advanced Ph.D. students, with at least three years of experience in the early childhood field, at approximately four different times in doctoral seminars across two semesters for readability, validity, and reliability. An example of my resulting finalized adaptation of a CUPID multiple-choice item was shown in Table 3.6. As some of my survey items elicited narrative not multiple-choice responses, Table 3.7 provided an example of that adaptation. Also, as mentioned previously, participants were asked after each vignette question how confident they were of their response. The 5-point Likert scale of the CUPID scale was retained for this item, but the wording was slightly adapted (S. Oden, personal communication, September 17, 2024), as shown in Table 3.8, for an economy of words and clarity as a gauge for self-efficacy.

Table 3.6

Adaptation of CUPID Survey Multiple-Choice Item into Preschool Survey Multiple-Choice Item

CUPID Item Vignettes feature children in infant and toddler classrooms.	Adaptation of CUPID Item Vignettes feature children in preschool classrooms who are four years old.
Maria Runs and Falls on the Playground Maria who just turned 2 years old, is very active. During outdoor play today, you are helping three other children take turns on the tricycles. Meanwhile, Maria is running around in circles in the middle of the tricycle path. Suddenly, Maria trips on the sidewalk and falls onto Gabe, who was riding a tricycle. After a moment, Maria starts to scream. [61 words] Which of the following responses would you most likely choose in this situation? 1. You kneel down next to Maria as you look to see if she has a cut or scrape. Not seeing anything, you wait a moment until she calms a bit, then say, “Maria, are you hurt? You were running really fast, and fell down hard. It looked like that might have hurt. When we run in a busy place like this, someone can get hurt.” [66 words] 2. You kneel down to see if Maria is injured. After making sure that she is ok, you help her stand up, then say, “Maria, you were running and weren’t looking where you were going. You could have hurt your friend, Gabe. You need to be careful and watch where you’re going.” [51 words] 3. You quickly pick Maria up and hold her, saying, “You’re ok, you’ll be fine. If you want to run around, you can play in the grassy area.” Then you say to Gabe, “Maria will be ok in a minute. You can keep riding now.” [44 words] [237 total words]	<u>Active Child Trips into Another Child</u> JN is a very active child. On the playground, you are helping 4 other children take turns on tricycles. JN is running in circles, often crossing the tricycle track. JN trips into a child riding a tricycle and JN falls down. JN starts to cry. [39 words] Which response would you <i>most likely</i> choose? 1. You kneel down next to JN. You look but do not see a cut or scrape. You wait a moment until JN calms a bit, then say, “JN, are you hurt? You were running fast and fell down hard. That might have hurt. When we run in a busy place like this, someone can get hurt.” [56 words] 2. You kneel down to see if JN is injured. You make sure that JN is ok, help JN stand up, then say, “JN, you were running and not looking where you were going. You could have hurt your friend. You need to be careful and watch where you’re going.” [49 words] 3. You help JN up and hold JN, saying, “You’re o.k., you’ll be fine. If you want to run around, you can play in the grassy area.” Then you say to the other child, “JN will be o.k. in a minute. You can keep riding now.” [45 words] [205 total words; 32 or 14% fewer words] [Note re rationale for main component of self-regulatory need: JN does not understand to run where there are fewer people. JN needs this information and guidance from the teacher to <i>cognitively</i>-behaviorally self-regulate.]

Table 3.7

Adaptation of CUPID Survey Multiple-Choice Item into Preschool Survey Narrative

Response Item

CUPID Item Vignettes feature children in infant and toddler classrooms.	Adaptation of CUPID Item Vignettes feature children in preschool classrooms who are four years old.
Thomas Throws a Toy Thomas, 9 months, has begun throwing toys rather forcefully, and sometimes the toys hit other people. When asked by another child or an adult to give them the toy he is holding, he often throws the toy at the person's face with a big smile on his face. The caregivers discuss the situation and decide they need to change this behavior somehow so that others do not get hurt. [69 words] Which of the following responses would you most likely choose in this situation? 1. When Thomas wants to play with the small "throwable" toys, you allow him only to play with soft toys so that he doesn't hurt the other children. 2. You take some time with him each morning and each afternoon, when Thomas is most relaxed and playful, to sit and model how to give someone a toy gently. You encourage Thomas whenever he passes a toy in a "gentle" way. 3. You watch Thomas carefully, and each time he throws a toy, say "No, no, Thomas, throwing toys hurts other people." Then take him to a quiet corner for a brief timeout.	<u>Child Throws a Toy</u> KC is trying to make a wooden puzzle piece fit into the frame by pushing it harder and harder. Suddenly, KC throws the piece with force, just missing another child's head. KC folds her arms across her chest, frowns, and scrunches her eyebrows. [43 words; 26 or 38% fewer words] <u>Describe in detail what you might do or say first, next, etc. and why:</u> [Note re rationale for main component of self-regulatory need: Heightened emotions drive KC's actions. KC especially needs teacher support to self-regulate <i>affectively</i>-behaviorally.]

Table 3.8

Adaptation of CUPID Survey Post-Vignette Item into Preschool Survey Post-Vignette

Item to Measure Self-Efficacy

CUPID Item	Adaptation of CUPID Item
How effectively do you think you would respond in this situation? 1 = I <u>would not</u> respond effectively to this situation 2 3 = I am <u>not sure whether I would</u> respond effectively to this situation 4 5 = I <u>would</u> respond effectively to this situation [46 words]	How confident are you that this would be an effective response? 1 = Not at all confident 2 = Slightly confident 3 = Somewhat confident 4 = Fairly confident 5 = Completely confident [33 words; 13 or 28% fewer words]

Qualitative Analysis of Vignette Narrative Responses. Building on the empirical literature about self-regulatory development and my theory of change from chapter two, I designed a process for qualitatively analyzing preservice EC teachers' narratives about supporting children's self-regulatory needs. The following excerpts were from the first part of the resource I developed for this analysis, as shown in Appendix N.

- The framework for evaluating teacher narrative responses to scenarios where children experience self-regulatory difficulties is teacher empathy and developmental support for children to self-regulate.
- To empathize, a teacher must both cognitively understand and emotionally be able to imagine how children feel. When teacher empathy motivates their positive actions to help children self-regulate, this enacted empathy indicates compassion at a high level.
- Building children's self-regulatory capacity and skills is a long-term developmental process that requires not only teachers' developmentally appropriate responses but, explicitly, their developmentally *supportive* responses.

Teachers' developmentally supportive responses boost children's self-regulatory growth, as teachers deliberately *co-regulate* with children in the moment – the short term – so that children can increasingly *self-regulate* in the long term.

- To self-regulate, children must
 1. become situationally aware of their emotions and actions,
 2. modulate emotion with thought, and
 3. choose a response or next action that is effective for them and, if applicable, others.

This 3-part process can be challenging for children, especially when they have “big feelings,” whether these emotions carry a positive or negative charge for them. Children often need support from teachers to navigate the three overlapping parts or steps in the self-regulatory process.

- Corresponding to these three self-regulatory steps, teachers need to be able to
 1. empathize to positively help children become aware of their emotions and actions,
 2. assist children to cognitively connect their emotions with antecedents, and
 3. help children to generate an effective response or next action.

These are the three indicators of the quality of teacher support for which each teacher response to a scenario will be evaluated... [additional explanation].

Indicator 1	Empathize with Child
Indicator 2	Connect Emotion and Antecedent for Child
Indicator 3	Generate Response with Child

Indicator 1: Empathize with Child

Ideally, the teacher began the interaction by demonstrating recognition of the child's physical or emotional cues about how the child feels and acceptance of the child's emotion. For example, the teacher observed that “Your arms are folded and you're frowning,” “Your tears tell me you're sad” or “You're upset.” In this way, the teacher connected with the child as an initial support by demonstrating cognitive and emotional understanding of the child's perspective, even if in subsequent support the teacher will need to guide the child to a more effective way to respond to their emotions.

- This Indicator coincides with the start of the self-regulatory process and challenge for children of *becoming more situationally aware of their emotions and actions...* [additional explanation].

Indicator 2: Connect Emotion and Antecedent for Child

Ideally, the teacher positively scaffolded the child in regulating their emotions, i.e., by helping the child not only become more aware of and identify feelings but *explicitly linking these to their cause or precipitating factor*. For example, the teacher not only named the child's feeling, e.g., "You're mad," "You're sad," or "You're upset" but *connected it to the reason*, e.g., feeling angry because the puzzle piece did not fit, upset because a classmate ran into your block tower and it fell over, or sad because it is hard to say goodbye when a parent leaves.

Note:

- This Indicator coincides with the need for children to *modulate their emotions with thought* in the self-regulatory process... [additional explanation].

Indicator 3: Generate Response with Child

Ideally, the teacher problem solves with the child to generate and choose an emotionally satisfying and situationally effective next step or action for the child and, if applicable, others. Examples of effective solutions are:

- KC turns the puzzle piece this way and that way to fit it into the frame or asks a classmate or teacher for help rather than throwing the piece... [additional explanation].
- MH makes a card to give their parent later upon return or MH holds their family photo or keeps it with them while playing... [additional explanation].
- This Indicator coincides with an optimal outcome and desired result of the self-regulatory process, i.e., *a next step or response that is positive and meaningful to the child, and if applicable, others...* [additional explanation].

Scoring the Vignette Narrative Responses. In the second part of the resource, as shown in Appendix N, I linked the qualitative analysis of responses to a scoring protocol. Then, in addition to insights from analyzing the data qualitatively, I could also quantitatively test it for associations and relationships with other quantitative data. To

check the validity and reliability of the vignette items and evaluation of them, child development and education experts from two settings, i.e., my doctoral seminar and a university child development laboratory, used the entire resource, resulting in my additional finetuning of it. The detailed final resource as shown in Appendix N, provided a rationale and method for analyzing then scoring each response on the three indicators of teacher self-regulatory support. Table 3.9 provided excerpts from this rationale and the scoring instructions for one of the vignettes.

Table 3.9

Excerpts from Scoring Protocol for Developmental Support

Background Information for Raters	How to Score Sample Vignette
To self-regulate, children must 1. become situationally aware of their emotions and actions, 2. modulate emotion with thought, and 3. choose a response or next action that is effective for them and, if applicable, others. This 3-part process can be challenging for children, especially when they have “big feelings,” whether these emotions carry a positive or negative charge for them. Children often need support from teachers to navigate the three overlapping parts or steps in the self-regulatory process. Corresponding to these three self-regulatory steps, teachers need to be able to 1. empathize to positively help children become aware of their emotions and actions, 2. assist children to cognitively connect their emotions with antecedents, and 3. help children to generate an effective response or next action.	Vignette: During playtime, EM hurries to a center across the room. EM cuts through the block area and bumps into LR's tower, knocking it down. LR yells, “No!” and thrusts a fist out at EM who has not stopped moving. LR cries loudly as EM begins to play elsewhere. <u>Indicator 1: Empathize with Child</u> Ideally, the teacher began the interaction by demonstrating recognition of the child’s physical or emotional cues about how the child feels and acceptance of the child’s emotion. The teacher should respond first to LR who was upset and started crying. If instead the teacher interacted first with EM, score this empathy indicator as a 1. <i>However</i>, if the teacher then responded to LR by recognizing or naming LR’s emotion, score this indicator as a 2 for an attempt at empathizing. The teacher must focus first on LR’s emotion to score a 3 or higher, based on your assessment of how well the teacher did this based on the evidence. <u>Indicator 2: Connect Emotion and Antecedent for Child</u> If the teacher did <u>not</u> respond first to LR who was most in distress <i>but</i> then interacts with LR and not only names <i>but connects LR’s emotion with the antecedent</i>, score this indicator as a 2 or 3, depending on your assessment of how well the teacher did this based on the evidence. If the teacher responded <u>first</u> to LR and not only names <i>but connects LR’s emotion with the antecedent</i>, score this indicator as a 4 or 5, depending on your assessment of how well the teacher did this based on the evidence.

Table 3.9 - Continued

Background Information for Raters	How to Score Sample Vignette
<i>These are the three indicators of the quality of teacher support for which each teacher's response to a scenario will be scored:</i> <u>Indicator 1</u>: Empathize with Child <u>Indicator 2</u>: Connect Emotion and Antecedent for Child <u>Indicator 3</u>: Generate Response with Child Raters will score each response on the three indicators of the teacher's developmentally supportive responses for child self-regulation. Each indicator will be scored on a Likert scale from 1 to 5 with 1 for "very weak or no evidence" to 5 for "very strong evidence."	<u>Indicator 3</u>: Generate Response with Child If the teacher directed or told the child what to do without any discussion with the child to generate a solution, and it was likely <u>not</u> an emotionally satisfying and situationally effective "solution" for the child and others (if applicable), score this indicator as a 1. If the teacher directed or told the child what to do without any discussion with the child, but that idea or choice of ideas was likely an emotionally satisfying and situationally effective solution for the child, and others (if applicable), score this indicator as a 2 or 3, depending on your assessment of how well the teacher did this based on the evidence If the teacher engaged the child in discussion to generate <i>a solution</i> that was likely emotionally satisfying and situationally effective for the child and others (if applicable), score this indicator as a 4. If the teacher engaged the child in discussion to generate at least <i>two potential solutions</i>, i.e., <i>choices</i>, that were likely emotionally satisfying and situationally effective for the child and others (if applicable), score this indicator as a 5.

In addition to the background information and scoring directions, the protocol also provided at least one anchor score for each vignette from the narrative responses of preservice EC teachers. This feature of the protocol was critical for testing interrater reliability and the validity of the item. An example of an anchor score for one of the vignettes was provided in Table 3.10.

Table 3.10*Example of an Anchor Score for a Vignette Response*

Scenario	Low Quality (e.g., a 1 or 2 on average)	Medium Quality (e.g., a 3 on average)	High Quality (e.g., a 4 or 5 on average)
New Child Cries: New child MH started preschool 3 weeks ago. Many mornings, after MH's parent leaves, MH cries a long time and does not want to join into class activities. Today, as MH's parent walks out the door, MH again begins to cry.	Response: I would do what other teachers have taught me: to ignore the child and not coddle them too much. Just say "mom will be back soon" and redirect attention. Scores: <u>Indicator 1</u> Empathize with Child: score of 1 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: score of 1 <u>Indicator 3</u> Generate Solution with Child: score of 1	Response: "You're upset that your parents left. I know that can be hard, but they will be back later today. Would you like to look at photos of you and your parents?" Scores: <u>Indicator 1</u> Empathize with Child: 5 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: 3 <u>Indicator 3</u> Generate Solution with Child: 2	Response: "MH, you are upset because your parents have left. I wonder if you would like to come with me to build a tower together, or work on some artwork to make for your parents when they come back to pick you up after school." Scores: <u>Indicator 1</u> Empathize with Child: 5 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: 5 <u>Indicator 3</u> Generate Solution with Child: 3

For a final checkpoint on the validity and reliability of the narrative response scoring plan, I first randomly selected every 18th response until there were five responses for each of the four vignettes, representing 20 of the 92 participants (22%). Then the child development and education experts that were previously described scored these responses, following the directions from the scoring protocol and, for which, I had provided a brief training to most of the raters. After each rater scored five responses and entered their scores on the interrater reliability worksheet, I revealed a hidden column

with my scores so that we could discuss the extent to which our scores aligned. An excerpt from this worksheet was shown below in Table 3.11. While many of our scores matched or did so when rounded, some varied more widely. I explained to the group that I would further analyze the discrepancies, as shown in Table 3.12, more as a check on my own thinking than theirs. Indeed, I identified a few instances where my scoring was based on an earlier version of the protocol and corrected those scores.

Table 3.11

Example from Interrater Reliability Worksheet

Rater scores:		Preservice EC Teacher Response
Indicator 1	4	“You’re frustrated and threw a puzzle piece. I’m wondering if you can tell me why you are upset and how can I help you?” Seeing a child upset is going to be common in the classroom, I think it’s important to talk about why the child is feeling this way rather than scolding them.
Indicator 2	3	
Indicator 3	3	
Average	3.33	
Rater initials	tw	
KW rating average	3.33	
Difference in scores	0	

Table 3.12

Example from Analyses of Scoring Discrepancies

Analyzing Scoring Discrepancy
Preservice EC Teacher's Response: "I see that you are upset. Being away from people you love is hard, especially when starting a new school. Let's take some time to calm our mind and body and try joining the class." I would maybe also ask if they wanted a hug, in order to help comfort them.
AA scores for Indicators 1, 2, & 3: 5, 4, 5 = 4.66
KW scores for Indicators 1, 2, & 3: 5, 5, 2 = 4.00
Comments: For Indicator 3, I should have scored this a 4, because the teacher gave two ideas and asked if the child wanted to do the second one, so rating should be between 4 and 5 – go with the lower one.
KW updated scores: 5, 5, 4 = $14/3 = 4.66$

The final results of the reliability checking, wherein my scores were compared with other raters' scores on randomly chosen responses that represented 18.5% of the preservice EC teachers and 24% of all their responses, were as follows. Of 22 scores, 10 or 45.5% were exact matches with mine. Five or 23.9% of the scores matched when rounded (e.g., 2.67 and 3.33 round to 3.0), and four or 18.2% were no more than 1 point different (20% on the Likert rating scale from one to five). Thus, 19 of the 22 scores or 86.4% aligned in these ways, and that percentage was above the standard for acceptable reliability of 80% (McHugh, 2012). For the three scores that differed by more than a point from mine, I decided to use my score as the person most familiar with the scoring protocol and who was responsible for scoring the responses. After the reliability checking, I scored all of the narrative responses.

Computing Final Scores for the Multiple-Choice Responses to the Vignettes. I recoded the answers for the multiple-choice questions. A correct response was scored as a “1” and an incorrect response as a zero. That score divided by the total number of multiple-choice items yielded the mean or percentage of correct responses.

Computing Final Scores for the Narrative Responses to the Vignettes. I conceptualized three qualitative indications of developmental responsiveness to score for each response. These indicators were that the teacher 1) empathizes with the child's perspective, 2) helps connect the child's emotion to its antecedent for the child, and 3) generates a response with the child. The three steps aligned to the affective, cognitive, and behavioral components of the self-regulatory process, i.e., what any individual (e.g.,

the child in a vignette) needs to do to self-regulate satisfactorily. I tested the correlation of these indicators via IBM SPSS (Version 30), using participant sub scores. The results were used to determine how appropriate averaging the three sub scores was as a signal of developmental responsiveness or if a holistic rubric should be used for the overall score. The final Likert score for a response was converted to a percentage. For example, an overall score of three on the 5-point Likert scale was a score of 60 percent.

Computing the Mean of Narrative Response and Multiple-Choice Scores. By averaging all the vignette scores for a participant, an overall percentage score of developmental responsiveness was obtained. However, the scores for narrative and multiple-choice responses were weighted differently. The narrative response scores were more heavily weighted than the multiple-choice scores, because participants had a one in three chance of answering a multiple-choice question correctly, just by guessing. After comparing the unweighted averages for narrative scores and multiple choice scores, the narrative response scores were weighted twice as heavily to reflect their relative level of difficulty. I then combined and averaged all the vignette scores into one score for a concentrated signal of developmental responsiveness to use in multiple regression analyses as the dependent variable at the end of the path analysis, as shown in Figures 3.1 and 3.2.

Attachment Style. The Attachment Style Questionnaire (ASQ) (Polek, 2008; Hofstra & Van Oudenhoven, 2003) (Van Oudenhoven, Hofstra, & Bakker, 2003; as cited in Mosterman & Hofstra, 2015) was used to measure attachment as a construct with four

styles, i.e., *secure*, *fearful*, *preoccupied*, and *dismissive* (Bartholomew & Horowitz, 1991). There were 22 items (shown in Appendix F) among secure attachment (eight items), fearful (four items), preoccupied (six items), and dismissive (four items).

Respondents chose from a Likert scale from 1 *strongly disagree* to 5 *strongly agree*.

Examples of items were

- *I feel at ease in emotional relationships* (secure),
- *I would like to be open to others but I feel that I can't trust people* (fearful),
- *I often wonder whether people like me* (preoccupied), and
- *It is important to me to be independent* (dismissive).

I chose the ASQ because it is a measure of general rather than romantic attachment with the former more relevant in my study of individuals in their professional roles as preservice teachers. Of note, while an earlier version of the ASQ had 24 items (Hofstra & Van Oudenhoven, 2003) (Van Oudenhoven, Hofstra, & Bakker, 2003; as cited in Mosterman & Hofstra, 2015), Polek (2008) validated the 22-item scale in a dissertation study supervised by Van Oudenhoven, an author of the ASQ. This more recent version of the ASQ was used in studies closely aligned with my research focus, i.e., Vallotton et al. (2016) and Virmani et al. (2020), as summarized in the preceding literature review. What also resonated for the present study was attachment emphasized as not only a lifelong phenomenon “existing from the cradle to the grave” (Bowlby, 1969/1982, 1973, 1980; Hazan & Zeifman, 1999, p. 336; as cited in Polek, 2018, p. 16)

but “behavioral regulatory system” (Polek, 2008, p. 50) which also describes the self-regulatory process.

The development of the ASQ (Polek, 2008; Hofstra & Van Oudenhoven, 2003) (Van Oudenhoven, Hofstra, & Bakker, 2003; as cited in Mosterman & Hofstra, 2015) was rooted in Bowlby’s attachment theory (1969) and Bartholomew and Horowitz’ profiles of secure, fearful, preoccupied, and dismissive attachment (1991) (1994; as cited in Hofstra & Van Oudenhoven, 2003) (shown in Appendix F). These attachment styles were conceptualized as a dual construct of two dimensions, i.e., one’s perception of self and one’s perception of others. As such, the combinations for the four styles in the ASQ were: 1) secure attachment with a positive perception of oneself (self-image) and positive perception of others (other-image); 2) fearful attachment with a negative self-image and negative other-image; 3) preoccupied attachment with a negative self-image and positive other-image; and 4) dismissive attachment with a positive self-image and negative other-image. Correspondingly, the secure and fearful attachment styles were seen as opposites, as were the preoccupied and dismissive attachment styles. However, in subsequent research, only the secure and fearful attachment styles were consistently polar opposite (Polek, 2008). Despite that nuance, the dimensions of self-image and other-image mirrored a phenomenon explored in my study, i.e., how empathy, consisting of warm compassion or coldness for self and others (Watson-Singleton, 2021), relates to self-regulatory well-being. Moreover, the ASQ was positively associated with measures of psychological well-being (Mosterman & Hofstra, 2015), another focus of my study.

The ASQ is a well validated and often used instrument (Mosterman & Hofstra, 2015). In developing the ASQ, the four-factor structure of attachment was validated through exploratory factor analysis and comparisons with other measures of attachment and constructs associated with attachment, e.g., personality traits and, as mentioned prior, psychological well-being. More than half of the samples psychometrically analyzed were college students in social science courses, primarily psychology (1,960 of 3,533 total respondents) with a mean age of 20.55 years, and most of these respondents, female. As such, I reviewed Cronbach's alphas for this subgroup that was like the sample for my study, i.e., young adults in the social sciences (early childhood education) with a large majority of females. These reliability coefficients for the four attachment styles were sound at .77 secure, .81 fearful, .81 preoccupied, and .60 dismissive (Hofstra & Van Oudenhoven, 2003). Widening the psychometric lens to the foundational study of five international samples (Dutch, Polish, Russian, Moroccan, Hungarian) that established the validity and reliability of the 22-item ASQ, Polek (2008) reported sound reliability coefficients overall. This evidence ranged from .68 to .78 for the secure attachment style; .64 to .79 for fearful attachment; .62 to .81 for preoccupied attachment; and .41 to .65 for dismissive attachment. Within these ranges, the Dutch sample had the highest internal consistency for three of the four attachment styles, except the dismissive style (.58). Moreover, the Dutch sample, as the only one from a Western country, aligned most closely with the sample for the present study.

Meditation Data. The reason for collecting meditation experience was that research found that being a meditator was positively related to mindful observation (Baer et al., 2008), and making objective observations is a critical skill for teachers. Sixteen (17%) of the 92 participants reported that they meditate. Of those who meditate, 12 (75%) reported meditating between one and three times in the last seven days. However, 3 (19%) of meditators reported that they had not meditated in the last week. Only 1 (6%) of the students had meditated each of the last seven days. The majority of meditators, 7 (54%), reported that they meditated for 1-5 minutes each time, and 4 (31%) meditated 6-10 minutes at a time. No one reported meditating 11-15 minutes and only 2 (15%) meditated for 16-30 minutes at a time. The majority of students, 76 (83%) did not meditate, as shown in Table 3.13.

Table 3.13*Meditation Frequencies of Participants*

Variable	<i>n</i>	%	%
Do you meditate?			
Yes	16	17.4	17.4
No	76	82.6	100.0
Total	92		
If yes, how many times did you meditate in the last seven days?			
None in last seven days	3	18.8	18.8
Once in last seven days	6	37.5	56.3
Two or three of last seven days	6	37.5	93.8
Every day of last seven days	1	6.3	100.0
Total	16	100.0	
About how long did you meditate each time?			
1-5 minutes	7	53.8	53.8
6-10 minutes*	4	30.8	84.6
16-30 minutes	2	15.4	100.0
Total	13	100.0	
Missing	3		

Note. *There were no responses to the interval of 11-15 minutes.

Self-Efficacy Data. The reason for collecting self-efficacy data was that research found that confident self-efficacy relates to one's agency, motivation, competence, and self-regulatory behavior (Bandura, 2023), as well as self-determination (Bandura, 2023; Ryan & Deci, 2017). The average across all vignettes was high at nearly a 4.00 in self-confidence on the 5-point Likert scale ($M = 3.98$, $SD = .55$) as shown in Table 3.14. However, the size of the standard deviation meant that some of the 68% of preservice EC teachers' scores in this approximately normal distribution (median = 4.02) were moderate not high. This pattern of two levels of skill, i.e., high and moderate, within one standard deviation of a high mean was the case for six of the eight vignettes. Only in one vignette,

i.e., Child Stands on a Chair, were the scores uniformly high. That was the scenario with a guidance sequence that closely matched content emphasized in many preservice EC teachers' child development or early childhood education courses. The only vignette that the average score was not high was the New Child Cries scenario wherein scores within one standard deviation of the mean were uniformly moderate. Preservice EC teachers were also on average more highly confident of their responses to the simpler multiple-choice than narrative-response questions. As scores were not uniformly high in most of the vignettes, preservice EC teacher self-efficacy, though overall, high on average, was not robust. Later, preservice EC teacher self-efficacy was juxtaposed with other variables in the context of answering specific research sub questions.

Table 3.14

Descriptive Statistics for Responses to "How confident are you that this would be an effective response?"

	<i>n</i>	Minimum	Maximum	<i>Mean</i>	<i>SD</i>
All Responses	90	2.01	4.90	3.98	0.55
Narrative Response Vignettes	90	1.95	4.77	3.71	0.60
Child throws a toy	90	2.00	5.00	3.94	0.68
Child knocks down other child's block tower	89	1.50	5.00	3.61	0.74
New child cries	89	1.00	5.00	3.44	0.90
Your choice of a scenario	63	1.40	5.00	3.87	0.91
Multiple-Choice Response Vignettes	89	2.03	5.00	4.25	0.60
Active child trips into other child	89	1.90	5.00	4.11	0.76
Children want to play with the cars	89	1.40	5.00	4.20	0.73
Child stands on a chair	88	2.00	5.00	4.44	0.72
When children's behavior needs to change	81	2.20	5.00	4.25	0.74

Note. The histogram of these data showed a ~normal distribution (median = 4.02).

Data Collection Procedures

I collected data through the online Qualtrics survey that participants could complete in one time period or leave and return to later, if they desired. The survey was open for eight weeks. So that students had time to acclimate to the new semester, data collection did not begin until approximately the eighth week of the 15-week semester. For the two courses for which I was the instructor with 108 students, the survey was one of the ungraded in-class exercises that were offered each lecture session to develop students' knowledge, dispositions, and skills as reflective practitioners. In my courses, a small number of points was automatically assigned after each session for class participation, as long as students were not obviously using their devices for unrelated activities. The instructors of the other five courses with approximately 192 students may or may not have provided their students with information about the survey or offered bonus points if students did the survey. The estimated times to complete the sections of the survey (Table 3.4) were based on the response times of approximately six volunteers whose employment or graduate work was in early childhood, except for one person who worked in another helping profession. To help ensure no coercion, I purposefully had no way of knowing which of the five other instructors participated, which students gave or did not give consent for their responses to be used in the study, or who finished or did not finish the survey. Also, as previously mentioned, another feature of the survey to ensure voluntary participation in the study was to ask students for their consent before and after taking the survey.

Research Design

My non-experimental study employed parallel mixed methods (Greene et al., 1989). Eight measures elicited quantitative data, and three measures generated both qualitative and quantitative data for 11 measures overall. The study was designed as an exploration of a path analysis and, as such, cast a somewhat wider net to catch relative influences on self-regulatory development. The study's design was organized around an overarching research question and eight research sub questions that were developed. The conceptualized pathway featured five segments aligned with five research sub questions. The other three research sub questions were not part of the path analysis but provided additional context and results that deepened insights about variables on the pathway. The design of the study was cross-sectional to closely examine present phenomena and identify key influences for future longitudinal and intervention research.

Research Sub Questions

There was an overarching research question and eight research sub questions in the current study. The overarching research question was, *In what ways, do preservice early childhood (EC) teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and attachment style predict their self-regulatory well-being and developmental support of child self-regulation for the self-determinative well-being of both teacher and child?* The following eight research sub questions (RSQs) were designed to guide data analyses and ultimately answer the overarching research question.

1. Are preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness associated?
2. Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness predict their self-regulatory well-being?
3. Does preservice EC teacher self-regulatory well-being predict their developmental support of child self-regulatory well-being?
4. Are preservice EC teacher psychological well-being and self-determinative well-being associated?
5. Does preservice EC teacher self-regulatory well-being predict their psychological and self-determinative well-being?
6. Do preservice EC teacher psychological and self-determinative well-being predict their developmental support of child self-regulatory well-being?
7. Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, self-regulatory well-being, psychological well-being, and self-determinative well-being predict their developmental support of child self-regulatory well-being?
8. How does preservice EC teacher attachment style relate to self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, self-regulatory well-being, psychological well-being, self-determinative well-being, and developmental support of child self-regulatory well-being?

Conceptual Models

I built a conceptual framework that included a path analysis, as shown in Figure 3.1, wherein preservice EC teachers' psychosocial characteristics ultimately predicted their developmental support for children's self-regulatory well-being. These characteristics contextualized the study's whole teacher person-first approach. Indeed, I first hypothesized that four precipitating characteristics of preservice EC teachers were related (research sub question 1, **RSQ1**), i.e., their self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness.

Then, for the first part of the path analysis – segment A – I reasoned that these characteristics of preservice EC teachers predicted their emotional self-regulatory well-being (**RSQ2**). In turn, for Segment B of the path analysis, I expected that their emotion self-regulation predicted their developmental support of children's self-regulatory well-being (**RSQ3**). Before testing the next segment of the pathway, I posited that psychological well-being and self-determinative well-being were related (**RSQ4**). Next, for Segment C of the path analysis, I conceptualized that preservice EC teachers' emotional self-regulatory well-being predicted their psychological and self-determinative well-being (**RSQ5**).

Thereafter, for Segment D of the path analysis, I postulated that preservice EC teachers' psychological and self-determinative well-being predicted their developmental support of children's self-regulatory well-being (**RSQ6**). Finally, for the last part of the path analysis, i.e., Segment E, I hypothesized that each of the preceding characteristics of

preservice EC teachers predicted their developmental support of children's self-regulatory well-beings, after taking all the other characteristics into account (**RSQ7**). I also believed that preservice EC teachers' attachment styles related to their psychosocial characteristics and developmental support for children's self-regulation (**RSQ8**).

The comprehensive conceptual model – showing all associations and predictive relationships – was depicted in Figure 3.2 with stronger predictive influences denoted by thicker lines. The pathway within the conceptual model was iteratively evaluated in layered segments (A-E) and, collectively, the findings for the research sub questions (RSQs 1-8) answered the overarching research question. I believed that the study results would largely support the two conceptual models from Figures 3.1 and 3.2, and, hence, act to convert them to a similar empirical model, as shown in Figure 4.1 in the next chapter.

Figure 3.1

Conceptual Model: Main Psychosocial Influences on Teacher Self-Regulation and Developmental Support of Child Self-Regulation

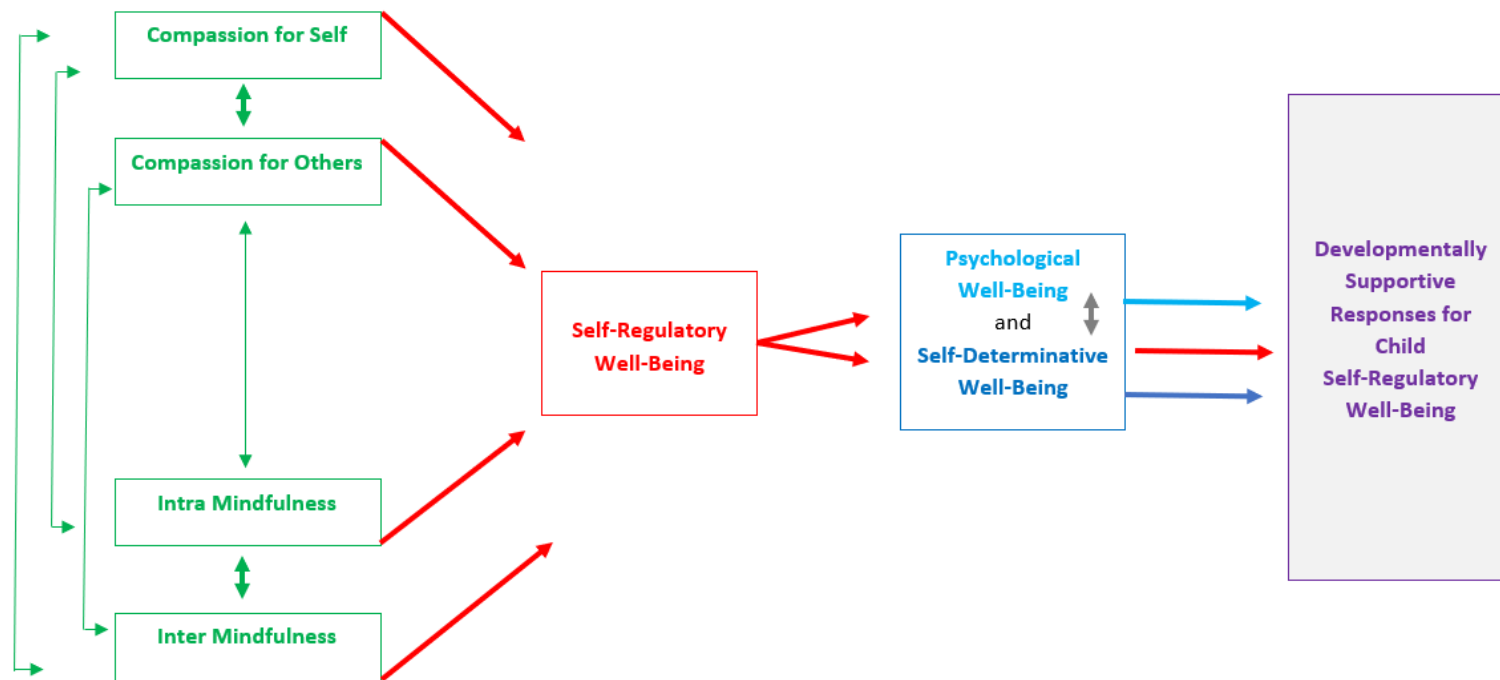
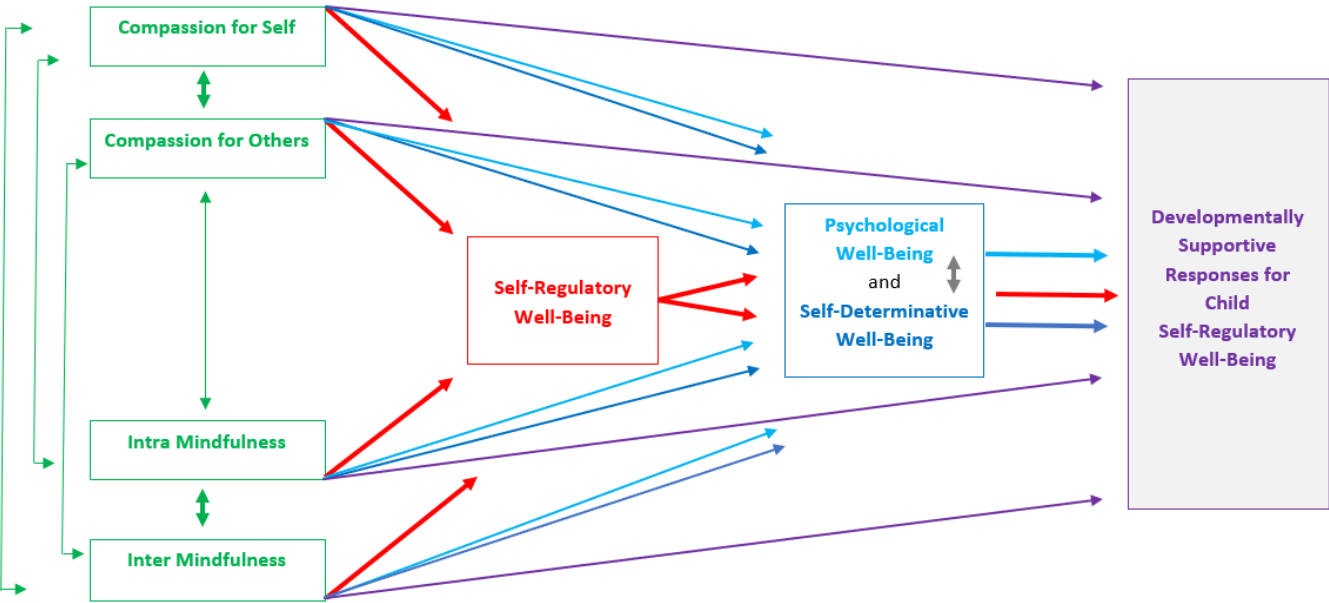


Figure 3.2

Comprehensive Conceptual Model: All Psychosocial Influences on Teacher Self-Regulation and Developmental Support of Child Self-Regulation



Data Analysis Plan: Exploring Preservice Early Childhood Teacher Characteristics and Their Developmental Support for Child Self-Regulatory Well-Being

The pathways of the conceptual models, as shown in the red, blue, and purple arrows of Figures 3.1 and 3.2, informed the research sub questions and were central to the qualitative and quantitative methods used in the study. The qualitative methods involved both the design of vignettes about children having self-regulatory difficulty and analysis of narrative responses from preservice EC teachers about what they would do in those circumstances. Thereafter, the qualitative results from evaluating the narrative responses were assigned quantitative scores, using a detailed protocol for reliability. The study's quantitative analyses, using IBM SPSS Version 30, included data description, correlation, one-way analysis of variance, simple linear regression, and multiple linear regression with these latter two layered to progressively test the pathways. The resulting evidence either confirmed or changed the hypothesized relationships and, ultimately, was used to convert the conceptual models from Figures 3.1 and 3.2 to an empirical model in Figure 4.1 in the next chapter.

The Data Analysis Plan for exploring preservice EC teacher characteristics and their developmental support for child self-regulation had eight major steps, one for each research sub question (RSQ). For RSQ1 and RSQ4, the Data Analysis Plan specified correlation analyses to provide more information about the psychosocial characteristics of preservice EC teachers that were studied in the path analysis. The conceptualized

pathway had five segments (A-E) that were tested in steps for RSQs 2, 3, 5, 6, and 7. Like RSQs 1 and 4, RSQ8 was not part of the path analysis but provided additional insight about potential influences on the characteristics of preservice EC teachers. These eight steps for the research sub questions were explained in detail below and summarized thereafter in Table 3.15. The first column of the table provided the step, research sub question, and, when applicable, the segment of the pathway tested. The second column listed the type of analysis to answer the respective research sub question. The color coding in the table aligned with the conceptual models in Figures 3.1 and 3.2 and the empirical model in Figure 4.1 in the next chapter.

Data Analysis Plan: RSQ1 – Correlation of the Initial Four Characteristics

Research sub question 1 (RSQ1) asked, *Are preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness associated?* To investigate these relationships, I first conducted a correlation analysis of the four variables measured respectively by the SSCS-L (Neff et al., 2021), CS (Pommier et al., 2019), FFMQ (Baer et al., 2006; as cited in Baer et al., 2008), and MTS sub scale (Frank et al., 2016). Second, I conducted a correlation analysis of the four variables 16 components, i.e., the SSCS-L with six components, CS with four components, FFMQ with five components, and MTS with one component.

The correlation analysis provided an estimate of the relationship between two variables, testing whether on average a unit change in one variable is consistently related to a change in the other variable. This determination was made by comparing the

covariance shared between the two variables in the analysis, as measured by the cross-product of the sum of the distance of each data point to its mean, to the combined sample variances of each variable in the analysis. As such, the correlation could theoretically range from negative one (a perfect inverse relationship) to positive one (a perfect relationship). The test of significance tested the likelihood of observing the given correlation when the actual relationship is zero.

Data Analysis Plan: RSQ2 – Path Analysis Segment A – Relationship of the Four Initial Characteristics to Self-Regulation

Research sub question 2 (RSQ2) asked, *Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness predict their self-regulatory well-being?* To investigate these relationships, I conducted a multiple linear regression test. The data for the independent predictor variables were respectively from the SSCS-L (Neff et al., 2021), CS (Pommier et al., 2019), FFMQ (Baer et al., 2006; as cited in Baer et al., 2008), an MTS sub scale (Frank et al., 2016). The data for the dependent outcome variable was from the ERSQ (Berking et al., 2008; as cited in Grant et al., 2018).

The multiple linear regression analysis built on the correlational association between the dependent and independent variables. The test used calculus to solve the least-squares-distance estimation to find the best fitting line minimizing the distance between all observed points. As such, this analysis provided 1) the strength of association (R) and its related amount of variance explained by the four predictors in the model (R²)

and 2) the estimated linear relationship between preservice EC teacher self-regulatory well-being and each predictor after taking the other predictors into account.

Multiple regression analysis supplied each estimate with an associated significance, to determine the extent to which the observed estimate could have occurred by chance. By comparing the standardized coefficients among the four regression analyses, I determined the relative percent change in relationship, using 10% or more to argue for mediation. For this analysis, I used the standard alpha level of .05 to determine significance.

Data Analysis Plan: RSQ3 – Path Analysis Segment B – Relationship of Self-Regulation to Developmental Support

Research sub question 3 (RSQ3) asked, *Does preservice EC teacher self-regulatory well-being predict their developmental support of child self-regulatory well-being?* To address this research sub question, I conducted a simple linear regression. The data for the independent variable were from the ERSQ (Berking et al., 2008; as cited in Grant et al., 2018). The data for the dependent variable were from the narrative and multiple-choice responses to vignettes about children having self-regulatory difficulty and how the preservice EC teacher would address these challenges.

The Ordinary Least Squares (OLS) regression analysis built on the correlational association between two continuous variables. The test used calculus to solve the least-squares-distance estimation to find the best fitting line minimizing the distance between all observed points. As such, this analysis provided 1) the strength of association (R) and

its related amount of variance explained by the predictor (R^2) and 2) the amount of estimated linear relationship between predictor and outcome. Regression analysis also supplied each estimate with an associated significance, to determine the extent to which the observed estimate could have occurred by chance. For this analysis, I used the standard alpha level of .05 to determine significance.

Since preservice EC teacher self-regulatory well-being (SRWB) predicted their developmental support of child self-regulatory well-being, I next conducted a multiple linear regression test to answer the following question. *Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, **and self-regulatory well-being** predict their developmental support of child self-regulatory well-being?* That inquiry, with the latter as the dependent variable and the former as the independent variables, aligned with Step 3b on the Data Analysis Plan, as shown in Table 3.15.

The multiple linear regression analysis built on the correlational association between the dependent and independent variables. The test used calculus to solve the least-squares-distance estimation to find the best fitting line minimizing the distance between all observed points. As such, this analysis provided 1) the strength of association (R) and its related amount of variance explained by the five predictors in the model (R^2) and 2) the estimated linear relationship between preservice EC teacher developmental support of child self-regulatory well-being and each predictor after taking the other predictors into account.

Multiple regression analysis supplied each estimate with an associated significance, to determine the extent to which the observed estimate could have occurred by chance. By comparing the standardized coefficients among the five regression analyses, I was able to determine the percent change in relationship, using 10% or more to argue for mediation. For this analysis, I used the standard alpha level of .05 to determine significance.

Data Analysis Plan: RSQ4 – Correlation of Psychological and Self-Determinative Well-Being

Research sub question 4 (RSQ4) asked, *Are preservice EC teacher psychological well-being (PWB) and self-determinative well-being (SDWB) associated?* To investigate their relationship, I conducted a correlation analysis. The data were respectively from the Diener Flourishing Scale – Psychological Well-Being (PWB) (Diener et al., 2010) and Basic Psychological Need Satisfaction Scale (BPNSS) (Deci & Ryan, 2000; Gagne, 2003) results.

The correlation analysis provided an estimate of the relationship between two variables, testing whether on average a unit change in one variable is consistently related to a change in the other variable. This determination was made by comparing the covariance shared between the two variables in the analysis, as measured by the cross-product of the sum of the distance of each data point to its mean, to the combined sample variances of each variable in the analysis. As such, the correlation could range, theoretically, from negative one (a perfect inverse relationship) to positive one (a perfect

relationship). The test of significance tested the likelihood of observing the given correlation when the actual relationship is zero.

Data Analysis Plan: RSQ5 – Path Analysis Segment C – Relationship of Emotion Self-Regulation to Psychological and Self-Determinative Well-Being

Research sub question 5 (RSQ5) asked, *Does preservice EC teacher self-regulatory well-being predict their psychological and self-determinative well-being?* To address this question, I first conducted two simple linear regressions. The data for the independent variable were from the ERSQ (Berking et al., 2008; as cited in Grant et al., 2018) and the data for the dependent variables were respectively from the Diener Flourishing Scale – Psychological Well-Being (PWB) (Diener et al., 2010) and Basic Psychological Need Satisfaction Scale (BPNSS) (Deci & Ryan, 2000; Gagne, 2003).

The Ordinary Least Squares (OLS) regression analysis built on the correlational association between two continuous variables. The test used calculus to solve the least-squares-distance estimation to find the best fitting line minimizing the distance between all observed points. As such, this analysis provided 1) the strength of association (R) and its related amount of variance explained by the predictor (R^2) and 2) the amount of estimated linear relationship between predictor and outcome. Regression analysis also supplied each estimate with an associated significance, to determine the extent to which the observed estimate could have occurred by chance. For this analysis, I used the standard alpha level of .05 to determine significance.

Since preservice EC teacher self-regulatory well-being (SRWB) predicted their psychological well-being (PWB), I next conducted a multiple linear regression test to answer the following question. *Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, **and self-regulatory well-being** predict their psychological well-being?* That inquiry, with the latter as the dependent variable and the former as the independent variables, aligned with Step 5a.2 on the Data Analysis Plan, as shown in Table 3.15.

Since preservice EC teacher self-regulatory well-being (SRWB) predicted their self-determinative well-being (SDWB), I next conducted a multiple linear regression test to answer the following question. *Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, **and self-regulatory well-being** predict their self-determinative well-being?* That inquiry, with the latter as the dependent variable and the former as the independent variables, aligned with Step 5b.2 on the Data Analysis Plan, as shown in Table 3.15.

Data Analysis Plan: RSQ6 – Path Analysis Segment D – Relationship of Psychological and Self-Determinative Well-Being to Developmental Support

Research sub question 6 (RSQ6) asked, *Do preservice EC teacher psychological and self-determinative well-being predict their developmental support of child self-regulatory well-being?* To address this research sub question, I conducted a multiple regression with data for the independent variables from, respectively, the Diener Flourishing Scale – Psychological Well-Being (PWB) (Diener et al., 2010) and Basic

Psychological Need Satisfaction Scale (BPNSS) (Deci & Ryan, 2000; Gagne, 2003).

Data for the dependent variable were from the narrative and multiple-choice responses to the vignettes about children having self-regulatory difficulty.

The multiple linear regression analysis built on the correlational association between the dependent and independent variables. The test used calculus to solve the least-squares-distance estimation to find the best fitting line minimizing the distance between all observed points. As such, this analysis provided 1) the strength of association (R) and its related amount of variance explained by the two predictors in the model (R^2) and 2) the estimated linear relationship between EC teacher developmental support of child self-regulatory well-being and each independent variable after taking the other independent variable into account.

Multiple regression analysis supplied each estimate with an associated significance, to determine the extent to which the observed estimate could have occurred by chance. By comparing the standardized coefficients among the five regression analyses, I was able to determine the percent change in relationship, using 10% or more to argue for mediation. For this analysis, I used the standard alpha level of .05 to determine significance.

Data Analysis Plan: RSQ7 – Path Analysis Segment E – Relationship of All Characteristics to Developmental Support

Research sub question 7 (RSQ7) asked, *Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal*

mindfulness, self-regulatory well-being, psychological well-being, and self-determinative well-being predict their developmental support of child self-regulatory well-being? To address this research sub question, I conducted a multiple regression using the data from the measures named in prior research sub questions.

The multiple linear regression analysis built on the correlational association between the dependent and independent variables. The test used calculus to solve the least-squares-distance estimation to find the best fitting line minimizing the distance between all observed points. As such, this analysis provided 1) the strength of association (R) and its related amount of variance explained by the seven predictors in the model (R^2) and 2) the estimated linear relationship between EC teacher developmental support of child self-regulatory well-being and each independent variable after taking the other independent variables into account.

Multiple regression analysis supplied each estimate with an associated significance, to determine the extent to which the observed estimate could have occurred by chance. By comparing the standardized coefficients among the five regression analyses, I was able to determine the percent change in relationship, using 10% or more to argue for mediation. For this analysis, I used the standard alpha level of .05 to determine significance.

Data Analysis Plan: RSQ8 – Relationship of Attachment Style to Other Characteristics

Research sub question 8 (RSQ8) asked, *Does preservice EC teacher attachment style predict their self-compassion, compassion for others, intrapersonal mindfulness,*

interpersonal mindfulness, self-regulatory well-being, psychological well-being, self-determinative well-being, and developmental support of child self-regulatory well-being?

To address this research sub question, I conducted one-way analysis of variance (ANOVA) and multiple linear regression tests. Attachment style data were from the ASQ (Polek, 2008; Hofstra & Van Oudenhoven, 2003) (Van Oudenhoven, Hofstra, & Bakker, 2003; as cited in Mosterman & Hofstra, 2015). For clinical applications, an individual's attachment style may be primarily qualitatively analyzed, but for research purposes I initially identified a predominant style from the highest of the means for each style to use as an independent variable in statistical analyses.

First, I repeated prior multiple linear regression tests but **with attachment style added** as an independent variable. To conduct these tests, I converted the categorical attachment style variable to a dichotomous variable for compatibility with the other variables which were continuous. To do so, I recoded the categorical variable for attachment style into three dichotomous variables for dismissive, preoccupied, and fearful attachment that in the multiple linear regressions were compared to the referent variable of secure attachment.

The multiple linear regression tests indicated a dilution of the signal from some of the other independent variables to low or no significance, as may happen with more predictors, collinearity, or that attachment style was a confounding variable. Therefore, I next conducted a series of one-way ANOVA tests with attachment style as the

independent variable to further investigate its relationships to other characteristics of preservice EC teachers.

The one-way ANOVA analyses compared the size of differences observed among means between groups (the mean square distance between groups) with the difference of each observation from its group mean observed within each group (the mean square distance within groups). As such, this analysis determined whether at least one group differs significantly from any of the others. If the *F*-test identified significant differences overall, I further examined the individual contrasts between groups in a post-hoc comparison, using the Fisher Least Square Distance (LSD) test.

Table 3.15

Data Analysis Plan: Exploring Preservice EC Teacher Characteristics and Developmental Support for Child Self-Regulatory Well-Being

Steps and Paths to Test Aligned to Research Sub Questions (RSQ 1-8) and Path Analysis Segments (A-E) Font colors correspond to Figures 3.1 and 3.2.	Data Analyses Quantitative and Qualitative Includes descriptive statistics for the 11 measures
Step 1. Are preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness associated? RSQ1	Correlation – information for the next step of the path analysis
Step 2. Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness predict their self-regulatory well-being? RSQ2 & Path Analysis A	Multiple linear regression test 1

Table 3.15 – Continued

Steps and Paths to Test Aligned to Research Sub Questions (RSQ 1-8) and Path Analysis Segments (A-E) Font colors correspond to Figures 3.1 and 3.2.	Data Analyses Quantitative and Qualitative Includes descriptive statistics for the 11 measures
Step 3. Does preservice EC teacher self-regulatory well-being predict their developmental support of child self-regulatory well-being? RSQ3 & Path Analysis B	Simple linear regression test 1 Narrative response coding
Step 3a. Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness predict their developmental support of child self-regulatory well-being? RSQ3 & Path Analysis B	<i>If teacher self-regulation is not related to developmental support:</i> Multiple linear regression test 2A
Step 3b. Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and self-regulatory well-being predict their developmental support of child self-regulatory well-being? RSQ3 & Path Analysis B	<i>If teacher self-regulation is related to developmental support:</i> Multiple linear regression test 2B Narrative response coding
Step 4. Are preservice EC teacher psychological well-being and self-determinative well-being associated? RSQ4	Correlation – information for the next step of the path analysis
Step 5a. Does preservice EC teacher self-regulatory well-being predict their psychological well-being? RSQ5a & Path Analysis C	Simple linear regression test 2
Step 5b. Does preservice EC teacher self-regulatory well-being predict their self-determinative well-being? RSQ5b & Path Analysis C	Simple linear regression test 3
Step 5a.1. Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness predict their psychological well-being? RSQ5a.1 & Path Analysis C	<i>If simple linear regression test 2 is not significant:</i> Multiple linear regression test 3A

Table 3.15 – Continued

Steps and Paths to Test Aligned to Research Sub Questions (RSQ 1-8) and Path Analysis Segments (A-E) Font colors correspond to Figures 3.1 and 3.2.	Data Analyses Quantitative and Qualitative Includes descriptive statistics for the 11 measures
Step 5a.2. Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and self-regulatory well-being predict their psychological well-being? RSQ5a.2 & Path Analysis C	<i>If</i> simple linear regression test 2 is significant: Multiple linear regression test 3B
Step 5b.1. Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness predict their self-determinative well-being? RSQ5b.1 & Path Analysis C	<i>If</i> simple linear regression test 3 is <i>not</i> significant: Multiple linear regression test 4A
Step 5b.2. Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and self-regulatory well-being predict their self-determinative well-being? RSQ5b.2 & Path Analysis C	<i>If</i> simple linear regression test 3 is significant: Multiple linear regression test 4B
Step 6. Do preservice EC teacher psychological well-being and self-determinative well-being predict their developmental support of child self-regulatory well-being? RSQ6 & Path Analysis D	Multiple linear regression test 5 Narrative response coding

Table 3.15 – Continued

Steps and Paths to Test Aligned to Research Sub Questions (RSQ 1-8) and Path Analysis Segments (A-E) Font colors correspond to Figures 3.1 and 3.2.	Data Analyses Quantitative and Qualitative Includes descriptive statistics for the 11 measures
Step 7. Do <i>all</i> the variables – preservice EC teacher <i>self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, self-regulatory well-being, psychological well-being, and self-determinative well-being</i> – predict their <i>developmental support of child self-regulatory well-being</i> ? RSQ7 & Path Analysis E	Multiple linear regression test 6 Narrative response coding
Step 8. Does preservice EC teacher attachment style predict their <i>self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, self-regulatory well-being, psychological well-being, self-determinative well-being, and developmental support of child self-regulatory well-being</i> ? RSQ8	Multiple linear regression tests with attachment style added One-way ANOVAs

Conclusion

In this chapter, I explained the study’s methods that were designed to explore the overarching research question: *In what ways, do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and attachment style predict their self-regulatory well-being and developmental support of child self-regulation for the self-determinative well-being of both teacher and child?* Eight research sub questions, a path analysis, and plan for analyzing the data were developed to explore these psychosocial characteristics of preservice EC teachers and their support of children’s development of self-regulation. After earning Oakland

University Institutional Review Board approval of the study, I conducted this research following the methods delineated in this chapter.

CHAPTER FOUR

Results

In this chapter, I explored preservice EC teachers' self-reported compassion and mindfulness, as well as their self-regulatory, psychological, and self-determinative well-being, and developmentally appropriate support for children's self-regulatory well-being. I began by describing the results for the measures listed in Table 3.15. Then I reported the results of the quantitative and qualitative analyses for the overarching research question, eight research sub questions, and, within those, the path analysis as shown by the conceptual models' red, blue, and purple arrows in Figures 3.1 and 3.2. I followed the order of the Data Analysis Plan for this research, as summarized in Table 3.15, and progressively converted the conceptual models to an empirical model, as shown in Figure 4.1 at the end of this chapter. Lastly, I explored how preservice EC teachers' attachment style, self-efficacy, and meditation related to their other characteristics. These efforts were meant to answer the following overarching research question and, in the future, use insights from this research to deepen person-first pedagogy for whole-teacher preservice education.

- *In what ways do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and attachment style predict their self-regulatory well-being and developmental support of child self-regulation for the self-determinative well-being of both teacher and child?*

Description of the Results for the 10 Measures

The descriptive statistics for the demographic questions on the survey were reported in chapter three. The description of the results for the meditation and self-efficacy questions were also reported in chapter three. Thus, what follows below were the descriptive statistics for the remaining 10 measures on the survey.

State Self-Compassion Scale Long Form (SSCS-L)

The SSCS-L (Neff et al., 2021) measured preservice EC teachers' compassion for themselves on a 5-point Likert scale from low to high self-empathy. **On average, their overall self-compassion was moderate ($M = 3.33$, $SD = .75$),** applying the general thresholds of 3.6 for high, 2.5-3.5 for moderate, and 2.49 or less for low, as shown in Table 4.1. Preservice EC teachers had more self-compassion in the warm components ($M = 3.42$, $SD = .75$) of kindness, common humanity, and mindfulness than in the cold components ($M = 3.25$, $SD = .90$) of self-judgment, isolation, and over-identification. Correspondingly, for each pair of opposite warm-cold components, they had more warm than cold self-compassion. These opposites were kindness ($M = 3.43$, $SD = .95$) versus self-judgment ($M = 3.10$, $SD = .99$), common humanity ($M = 3.56$, $SD = .91$) versus isolation ($M = 3.45$, $SD = 1.10$), and mindfulness ($M = 3.29$, $SD = .79$) versus over-identification ($M = 3.21$, $SD = .97$). **All components were at a moderate level in self-compassion on average, except for common humanity where the rounded mean score of 3.6 ($SD = .91$) was at the threshold for high self-compassion.** Be that as it may, for these normally distributed scores, the large standard deviations (SDs) meant that

the range of scores for 68% of preservice EC teachers within one SD for total self-compassion, warm compassion, and its components began at the low end of moderate. Moreover, the range of scores for cold self-compassion and its components began at a low level of self-compassion. Thus, **self-compassion, though moderate on average, was not robust for this group of preservice EC teachers, i.e., with all scores at a moderate level or higher.**

Table 4.1

Descriptive Statistics for State Self-Compassion Scale Long Form Scores

Variable	<i>n</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
Total Self-Compassion	83	1.96	4.90	3.33	0.75
Components					
Warm Self-Compassion	85	1.39	5.00	3.42	0.75
Kindness	85	1.00	5.00	3.43	0.95
Common humanity	85	1.37	5.00	3.56	0.91
Mindfulness	85	1.47	5.00	3.29	0.79
Cold Self-Compassion	85	1.43	4.83	3.25	0.90
Self-Judgment	85	1.00	4.80	3.10	0.99
Isolation	83	1.00	5.00	3.45	1.10
Over-Identification	85	1.53	5.00	3.21	0.97

Note. Preservice EC teachers chose from 1 for “not at all true for me” to 5 for “very true for me.” Cold self-compassion components were reverse scored. The histogram of scores showed a normal distribution and that the median (3.30) aligned with the mean (3.33).

Compassion Scale (CS)

The CS (Pommier et al., 2019) measured preservice EC teachers’ compassion for others on a 5-point Likert scale from low to high empathy. **On average, their overall compassion for others was very high ($M = 4.27$, $SD = .38$),** as shown in Table 4.2. For

the three components that are positively or warmly related to compassion for others, i.e., kindness, common humanity, and mindfulness, preservice EC teachers consistently scored high on average. For the fourth component, i.e., indifference, which is negatively or coldly related to compassion for others, they showed relatively low indifference and high compassion, on average. **Preservice EC teachers scored highest in the component of kindness ($M = 4.51$, $SD = .44$) and second highest in the component of mindfulness ($M = 4.32$, $SD = .43$).** Also, the smaller spread of scores ($SD = .38$) around the high mean (4.27) in this normal distribution, signaled that the 68% of preservice EC teachers within one standard deviation of the mean, all scored high. Expanding to two standard deviations from the mean, at least 84% of preservice EC teachers scored high in compassion for others. Thus, **compassion for others was robustly high for this group of preservice EC teachers.**

Table 4.2

Descriptive Statistics for Compassion Scale Scores

Variable	<i>n</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
Total Compassion	85	3.42	4.97	4.27	0.38
Components					
Kindness	85	3.28	5.00	4.51	0.44
Common humanity	85	1.85	5.00	4.07	0.60
Mindfulness	85	3.34	5.00	4.32	0.43
Indifference	85	2.13	5.00	4.17	0.67

Note. Preservice EC teachers chose from 1 for “almost never” to 5 for “almost always.”

Indifference items were reverse scored. The histogram of scores showed a normal distribution and that the median (4.27) aligned with the mean (4.27).

Five-Facet Mindfulness Questionnaire (FFMQ)

The FFMQ (Baer et al., 2006; as cited in Baer et al., 2008) measured preservice EC teachers' intrapersonal mindfulness on a 5-point Likert scale from low to high. **On average, their overall mindfulness was moderate (M = 3.14, SD = .45).** Preservice EC teachers also scored moderate in each of the five components of mindfulness, reported from **highest** to *lowest* means in Table 4.3 for **observing (M = 3.43, SD = .81)**, describing (M = 3.28, SD = .77), nonjudging of inner experience (M = 3.03, SD = .89), acting with awareness (M = 3.0, SD = .81), and *nonreactivity (M = 2.97, SD = .57)*. Within the normal distribution of scores, the larger standard deviations for some of the components (i.e., nonjudging, acting with awareness, and nonreactivity) meant that their scores were not uniformly moderate and some were low for the 34% of preservice EC teachers within one standard deviation below the mean. Thus, **mindfulness though moderate on average was not robust for this group of preservice EC teachers.**

Table 4.3*Descriptive Statistics for Five-Facet Mindfulness Questionnaire Scores*

	<i>n</i>	Minimum	Maximum	<i>Mean</i>	<i>SD</i>
Total Mindfulness	80	1.74	4.26	3.14	0.45
Components					
Observing	82	1.49	4.93	3.43	0.81
Describing	82	1.11	5.00	3.28	0.77
Nonreactivity	82	1.14	4.74	2.97	0.57
Nonjudging	80	1.00	4.98	3.03	0.89
Acting with awareness	82	1.45	5.00	3.00	0.81

Note. Preservice EC teachers chose from 1 for "never or very rarely true" to 5 for "very often or always true." The components of nonjudging of inner experience and acting with awareness, and three items in the describing component were reverse scored. The histogram of scores showed a normal distribution and that the median (3.11) aligned with the mean (3.14).

Mindfulness in Teaching Scale (MTS)

The MTS (Frank et al., 2016) sub scale with five items measured preservice EC teachers' intrapersonal mindfulness on a 5-point Likert scale from low to high. The 84 preservice EC teachers' scores ranged from 3.48 (close to the 3.6 threshold for high) to 5.0 (extremely high). **On average, they showed a robust high level of interpersonal mindfulness ($M = 4.45$, $SD = .46$).** Scores were somewhat skewed to the high end of the scale with a median score of 4.58.

Emotion Regulation Skills Questionnaire (ERSQ)

The ERSQ (Berking et al., 2008; as cited in Grant et al., 2018) measured preservice EC teachers' emotional self-regulatory well-being on a 5-point Likert scale

from low to high. **On average, their overall emotion regulation was high ($M = 3.83$, $SD = .57$).** Given this spread of scores ($SD = .57$) around the mean (3.83) in this normal distribution, the 68% of preservice EC teachers within one standard deviation of the mean scored between a moderate (3.26) to high (4.4) level of emotion regulation on the 5-point scale. This pattern of high to moderate scores in the spread of scores also held for the nine components of emotion regulation, as shown in Table 4.4 from the **highest** to *lowest* means, i.e., from **understanding ($M = 4.01$, $SD = .71$)** to **acceptance ($M = 3.58$, $SD = .75$)**. **As the scores were not uniformly high, emotional self-regulatory well-being, though high on average, was not robust for this group of preservice EC teachers.**

Table 4.4

Descriptive Statistics for Emotion Regulation Skills Questionnaire Scores

	<i>n</i>	Minimum	Maximum	<i>Mean</i>	<i>SD</i>
Total Emotion Regulation	84	1.20	4.87	3.83	0.57
Components					
Understanding	87	1.00	5.00	4.01	0.71
Clarity	87	1.00	5.00	3.97	0.73
Self-support	86	1.50	5.00	3.94	0.70
Awareness	87	1.00	5.00	3.92	0.67
Sensations	87	1.67	5.00	3.82	0.67
Tolerance	86	1.17	5.00	3.76	0.74
Ready to confront	86	1.33	5.00	3.74	0.74
Modification	87	1.00	5.00	3.68	0.71
Acceptance	87	1.00	5.00	3.58	0.75

Note: Preservice EC teachers chose from 1 for “Not at all” to 5 for “Almost always” as experienced by them in the last week. The histogram of scores showed a normal distribution and that the median (3.85) aligned with the mean (3.83).

Diener Flourishing Scale – Psychological Well-Being (PWB)

The PWB scale (Diener et al., 2010) measured eight items on a 7-point Likert scale from low to high. The 83 preservice EC teachers' scores ranged from 3.10 to 7.0 with a mean of 5.9 and standard deviation of .86. Just as the general threshold for high is 72% or 3.6 on a 5-point scale, the threshold for high on a 7-point scale is 72% or 5.0. Thus, **on average, preservice EC teachers scored high in psychological well-being.** Given the spread of scores ($SD = .86$) around the mean (5.9) of this normal distribution (median = 5.9), the 68% of preservice EC teachers who scored within one standard deviation of the mean, had scores from the threshold for high ($5.9 - .86 = 5.04$) to very high ($5.9 + .86 = 6.76$) in psychological well-being. Indeed, **the finding of high psychological well-being was robust for this group of preservice EC teachers.** Also, because the original PWB measure correlated strongly ($r = .62, p < .001$) (Diener et al., 2010) to the Basic Psychological Need Satisfaction Scale (as mentioned in chapter three), the PWB results also suggested self-determinative well-being.

Basic Psychological Need Satisfaction Scale (BPNSS)

The BPNSS (Deci & Ryan, 2000; Gagne, 2003) measured preservice EC teachers' self-determinative well-being on a 7-point Likert scale from low to high. **On average, for the three components of self-determination, they had moderate autonomy ($M = 5.0, SD = .92$), high relatedness ($M = 5.66, SD = .86$), and high competence ($M = 5.00, SD = .97$).** To decide if averaging the components for an overall

score was appropriate, I used the same method as Gagne (2003) and tested their correlation.

The result of this correlation test was that all components strongly correlated at significance, as shown in Table 4.5, which supported averaging all the item scores, **revealing high self-determinative well-being overall ($M = 5.2$, $SD = .76$)**. However, for the 68% of preservice EC teachers scoring within one standard deviation of the mean in this normal distribution, their individual scores ranged from moderate to high. Specifically, some of the 34% of preservice EC teachers within one standard deviation who were below the mean scored at a moderate not high level. Thus, **self-determinative well-being, though high on average, was not robust for this group of preservice EC teachers**. Also, because of the aforementioned strong correlation ($r = .62$, $p < .001$) of the original PWB measure with the BPNSS (Diener et al., 2010), the BPNSS results also suggested psychological well-being.

Table 4.5

Descriptive Statistics for Basic Psychological Need Satisfaction Scale Scores and Component Correlations

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3
Total BPNN	84	5.2	.76			
Components						
1. Autonomy	84	5.00	0.92	-	.46**	.71**
2. Relatedness	84	5.66	0.86	.46**	-	.51*
3. Competence	84	5.00	0.97	.71**	.51*	-

Note. These results are based on the 15-item scale. The histogram of scores showed a normal distribution and that the median (5.28) aligned with the mean (5.2).

* $p < .05$, ** $p < .01$.

Multiple-Choice Responses – Developmental Support

Preservice EC teachers scored extremely high in developmental support or responsiveness for children’s self-regulatory well-being, **as measured by the four multiple-choice items**. Fifty-six preservice EC teachers or 64% answered all four items correctly, 28 (32%) answered correctly three out of four times, and 4 (5%) answered correctly two out of four times. No one answered only one item correctly. Correct responses out of approximately 88 responses per item were 63 or 71% of the responses for item 1, 86 (97%) for item 2, 85 (97%) for item 3, and 84 (95%) for item 4. Hence, **90% of preservice EC teachers chose the correct response on average** ($SD = .145$). These results were similar to but somewhat higher than the CUPID results for the larger set of 12 vignettes (from which four vignettes were adapted for the current study)

wherein 82% of the college students chose the correct response on average (Vallotton et al., 2016).

One contributing factor to the low percentage of accuracy for the first response may have been that initially preservice EC teachers were not sure how to analyze the vignettes. A second contributing factor may have been related to most of these students having two or three prior courses in child development or early childhood education in which they were taught a very specific sequence for what to say to redirect behavior. However, the correct answer for multiple-choice item 1 was a more nuanced version of this sequence that they, as preservice and novice teachers, may not have realized, even though it was the authoritative option. Instead, those who answered incorrectly chose the authoritarian option, except for one preservice EC teacher who chose the permissive option. This second potential contributing factor may have had more impact, since the third multiple-choice item, for which the correct answer was a more obvious example of the verbal sequence for redirecting behavior, was chosen by 97% of preservice EC teachers.

Narrative Responses – Developmental Support

There were up to 92 written responses for each of the four vignettes. Examples of preservice EC teachers' narrative responses were provided in Table 4.6. These responses were first qualitatively analyzed then scored per the detailed protocol (Appendix N), as explained in chapter three.

Table 4.6*Preservice EC Teacher Narrative Responses to Vignettes: Examples*

Vignettes	Narrative Responses
Child Throws a Toy: KC is trying to make a wooden puzzle piece fit into the frame by pushing it harder and harder. Suddenly, KC throws the piece with force, just missing another child's head. KC folds her arms across her chest, frowns, and scrunches her eyebrows.	I would say "I can see that you are getting frustrated, when you threw that toy you almost hit another child. When you throw toys, I'm worried that someone could get hurt. If you need help with your puzzle, you can ask for help. Next time you are feeling frustrated, stop and take a deep breath." Then keep an eye on KC and make sure she isn't getting mad.
Child Knocks Down Another Child's Block Tower: During playtime, EM hurries to a center across the room. EM cuts through the block area and bumps into LR's tower, knocking it down. LR yells, "No!" and thrusts a fist out at EM who has not stopped moving. LR cries loudly as EM begins to play elsewhere.	I would call over and talk to EM while also ensuring that LR is okay. I would talk to EM about running in the class and how it isn't right to run in the classroom.
New Child Cries: New child MH started preschool 3 weeks ago. Many mornings, after MH's parent leaves, MH cries a long time and does not want to join into class activities. Today, as MH's parent walks out the door, MH again begins to cry.	I would get on MH's level and have an open body language. I would say, "I have noticed that when you're parents leave you seem to be very sad and cry." I would then listen to their response, if any and possibly ask why they cry when their parents leave. I would then invite the child over to a calming activity or something I would assume they would enjoy.
Vignette Generated by Preservice EC Teacher	At my job a child got very upset that they couldn't read a book another student was reading and started crying. I approached the child and asked what was wrong and he expressed how he wanted to read the book the other child was reading. I told him that he could read it after him and that we are going outside very soon anyways so when we get back inside he will be able to read it. I also explained that I understand how it is upsetting that he couldn't read the book at the time but that it will be okay and he will be able to read it eventually. He was still upset but after time he calmed down and ended up being able to read the book later that afternoon.

To determine if averaging the item sub scores for the three indicators for each response was the most appropriate scoring method or if the vignette responses should be

holistically scored, I tested the correlation of each vignette's three indicators. These results, as summarized in Table 4.7, were: *For Vignette 1*, Indicator 1 (Empathy) was significantly strongly related to Indicator 2 (Connect Emotion to Antecedent) and significantly moderately related to Indicator 3 (Generate Response with Child). Indicators 2 and 3 were significantly related to Indicator 1 but not to each other. *For Vignettes 2, 3, and 4*, all indicators were significantly related. Indicator 1 was significantly strongly related to Indicator 2 and moderately related to Indicator 3 in Vignettes 2 and 3; and significantly strongly related to both Indicators 2 and 3 in Vignette 4. Indicators 2 and 3 were significantly strongly related in Vignette 2; and moderately related in Vignettes 3 and 4. *Thus, across the four vignettes, the indicators were significantly related either moderately or strongly, except in the one case (Vignette 1 between Indicators 2 and 3).*

Given the dominant pattern of correlation not just at the $p < .05$ level but $p < .01$ level, I determined that averaging the sub scores for the three indicators in each response for a final score was the most appropriate scoring protocol.

The vignette descriptive statistics, as shown in Table 4.7, revealed that there were approximately one third fewer preservice EC teachers' responses for Vignette 4, perhaps because of preservice EC teacher uncertainty or fatigue when invited to share their own vignette. Across the four vignettes, preservice EC teachers on average scored highest on Indicator 1 and lowest on Indicator 3, as expected, given the progression in difficulty from Indicator 1 to Indicator 3 skills. Therein, empathy for the child's perspective (Indicator 1) would make it more likely that one could connect the child's emotion to its

antecedent (Indicator 2), and, in time, with much practice, become skilled at generating responses with the child (Indicator 3).

The extremely large standard deviations, as reported in Table 4.7, meant that the means were not very representative of individuals' scores and skill levels, as shown in Table 4.8, for the four vignettes with three indicators each and 12 indicators overall. Seven of these 12 indicators with scores that were on average either low, moderate, or high for the respective indicator, in actuality had scores that ranged from low to high within one standard deviation of the mean. Another three of the 12 indicators that were on average at a low level of skill, ranged in preservice EC teacher scores from low to moderate levels of skill. The remaining two of the 12 indicators had means low enough that even with large standard deviations, preservice EC teacher skill level scores were uniformly low. The distribution of scores was slightly skewed with more scores grouped just below the mean of 2.56 on the scale with a median score of 2.43. Overall, these results indicated the widely different developmental levels of preservice EC teachers in acquiring and effectively implementing the complex skills of supporting children's self-regulation. This phenomenon of preservice teachers' skills largely being under construction with developmental timing variations was not surprising.

Table 4.7*Vignette Descriptive Statistics and Correlations of Indicators for Narrative Responses*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3
All Vignettes	90	2.57	0.69			
Vignette 1	90	2.51	0.97			
1. Empathize with child		3.60	1.73	-	.41**	.22*
2. Connect emotion to antecedent for child		2.00	1.37	.41**	-	0.03
3. Generate response with child		1.94	0.90	.22*	0.03	-
Vignette 2	89	2.22	1.01			
1. Empathize with child		2.39	1.44	-	.75**	.39**
2. Connect emotion to antecedent for child		2.26	1.28	.75**	-	.41**
3. Generate response with child		2.01	0.87	.39**	.41**	-
Vignette 3	89	2.99	1.01			
1. Empathize with child		3.66	1.43	-	.72**	.26*
2. Connect emotion to antecedent for child		2.71	1.44	.72**	-	.25*
3. Generate response with child		2.60	0.90	.26*	.25*	-
Vignette 4	62	2.59	1.24			
1. Empathize with child		3.11	1.78	-	.71**	.41**
2. Connect emotion to antecedent for child		2.58	1.73	.71**	-	.27*
3. Generate response with child		2.06	0.96	.41**	.27*	-

Note: The histogram of scores showed a slightly skewed distribution with more scores on the low end of the scale (median = 2.43).

* $p < .05$, ** $p < .01$.

Table 4.8

Vignette Responses: Comparison of Mean Level and Range of Score Levels within One Standard Deviation

Mean Level	Range of Score Levels w/in 1 SD			
All Vignettes				
Moderate	1.88	to	3.26	Low to moderate
Vignette 1				
Overall	1.55	to	3.48	Low to moderate
Indicators				
1. High	1.87	to	5.33	Low to high
2. Low	0.63	to	3.37	Low to moderate
3. Low	1.04	to	2.84	Low
Vignette 2				
Overall	1.21	to	3.23	Low to moderate
Indicators				
1. Low	0.95	to	3.84	Low to high
2. Low	0.97	to	3.54	Low to moderate
3. Low	1.14	to	2.88	Low
Vignette 3				
Overall	1.98	to	4.00	Low to high
Indicators				
1. High	2.23	to	5.09	Low to high
2. Moderate	1.27	to	4.15	Low to high
3. Moderate	1.69	to	3.50	Low to high
Vignette 4				
Overall	1.35	to	3.82	Low to high
Indicators				
1. Moderate	1.34	to	4.89	Low to high
2. Moderate	0.85	to	4.31	Low to high
3. Low	1.11	to	3.02	Low to moderate

Attachment Style Questionnaire (ASQ)

Overall, 29 (34%) of preservice EC teachers had a secure attachment style and 56 (66%) had an insecure attachment style. For the three types of insecure attachment, the largest group was the 25 (29%) of preservice EC teachers with a

preoccupied attachment style. Twenty-two (26%) had a dismissing attachment style, and 9 (11%) had a fearful attachment style, as shown in Table 4.9.

Table 4.9

Attachment Styles of Preservice EC Teachers

Variable	<i>n</i>	%	%
Secure	29	34.1	34.1
Insecure		65.9	
Preoccupied	25	29.4	63.5
Dismissing	22	25.9	89.4
Fearful	9	10.6	100.0
Total	85	100.0	
Missing	7		
Total	92		

Group Portrait of Preservice Early Childhood Teachers

From all the preceding descriptions of the data, a portrait of the preservice EC teachers began to emerge. Most of these vibrant individuals were sophomores or juniors. They were not at the beginning or end of their college years but in the middle of them. Most had two or three early childhood courses prior to the semester of the current study with coursework beyond an introductory level. Nearly all of them were female and there was little racial or ethnic diversity.

On average, this group of preservice EC teachers was at a moderate level in self-compassion and intrapersonal mindfulness. They were at somewhat high levels in emotional self-regulatory well-being and self-determinative well-being and very high levels in mindfulness for children in their classrooms, compassion for others, and psychological well-being, as shown in Table 4.10.

Regarding their developmental support of children's self-regulation, on average they scored low on their narrative responses but very high on their multiple-choice responses for which there was likely a ceiling effect. On average, they were somewhat highly confident ($n = 90$, $M = 3.98$, $SD = .55$ for the 5-point Likert scale) that they had responded to children's self-regulatory needs in effective ways. A large majority (83%) did not meditate.

The descriptive statistics for the 10 measures, as summarized and shown in Table 4.10, were listed in the same order as preservice EC teachers responded to them on the Qualtrics survey, after answering the demographic and meditation questions. Of the 92 preservice EC teachers, two (2%) had missing data and, thus, did not complete the first measure and 9 (10%) did not complete the last measure in the survey. Across all 10 measures, attrition ranged from 2% for the vignette narrative responses to 13% for the longest quantitative measure, the Five-Facet Mindfulness Questionnaire.

Table 4.10*Summary of Data Descriptions for 10 Measures*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
Vignette Narrative Responses	90	2.57	0.69
Vignette Multiple-Choice Responses	88	.90*	.145
Emotion Regulation Skills Questionnaire	84	3.83	0.57
Attachment Style Questionnaire – Secure Style	85	NA	NA
ASQ – Secure Style	29	.34**	NA
ASQ – Insecure Style	56	.66**	NA
State Self-Compassion Survey Long Form	83	3.33	0.75
Compassion (for others) Scale	85	4.27	0.38
Mindfulness in Teaching Sub Scale	84	4.45	0.46
Five-Facet Mindfulness Questionnaire	80	3.14	0.45
Basic Psychological Need Satisfaction Scale	84	5.20***	0.76
Psychological Well-Being	83	5.90***	.86

Note. *Percent correct, equating to 4.5 on a 5-point scale; **Percentage with secure or insecure attachment style; ***Averages on a 7-point scale, equating to 3.71 for BPNNS and 4.21 for PWB on a 5-point scale for direct comparisons with most of the other measures.

These results provided a basic picture of this group of preservice EC teachers that was interpreted and discussed in chapter five. For now, one should frame this portrait as a broad description of the preservice EC teachers who metaphorically walked along the pathway that was analyzed in the current study, as shown in Figures 3.1 and 3.2. Indeed, two categories of results were reported in that context in the next section. One category was correlation results which were not part of the path analysis but helpful in understanding the relationships of characteristics therein. The other category was the path analysis results, specifically for the five segments of the pathway.

Results for the Research Sub Questions of the Data Analysis Plan

As a brief reminder, the Data Analysis Plan (Table 3.15) included eight steps, one for each research sub question, and in five of those steps, tests for the path analysis segments (A-E). In this next section, I reported the results for each research sub question. This evidence either confirmed or changed the hypothesized relationships and, ultimately, was used to convert the conceptual models, as shown in Figures 3.1 and 3.2, to an empirical model, as shown in Figure 4.1.

Data Analysis Plan Results: RSQ1 – Correlation of the Initial Four Characteristics

The first research sub question asked (RSQ1), *Are preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness associated?* To investigate these relationships, I first conducted a correlation analysis of these four characteristics of the preservice EC teachers. Then I did another correlation analysis of the components of these characteristics.

Correlations between the Four Characteristics. There were significant positive relationships among all four of the initial variables that were located at the start of the conceptualized pathway. The correlation matrix in Table 4.11 showed that **the strongest positive relationship was between self-compassion and intrapersonal mindfulness ($r = .64, p < .01$)**. This relationship indicated that **those preservice teachers who had more self-compassion also had more intrapersonal mindfulness about themselves**. The results also showed a *somewhat strong relationship between compassion for others and interpersonal mindfulness ($r = .40, p < .01$)*. Preservice teachers who had more

compassion for others also had more interpersonal mindfulness about children in their classrooms. Also, there were two pairs of moderately correlated variables. These positive relationships were between self-compassion and compassion for others ($r = .31, p < .01$) and between compassion for others and intrapersonal mindfulness ($r = .31, p < .01$). The remaining two pairs of variables were somewhat moderately correlated. One of these positive relationships was between intrapersonal mindfulness and interpersonal mindfulness ($r = .26, p < .05$). The other relationship was between self-compassion and interpersonal mindfulness ($r = .24, p < .05$). All variables were significantly positively related with none weakly related but either somewhat moderately, moderately, somewhat strongly, or strongly correlated. Using these correlation results for the four initial characteristics, I converted the beginning of the conceptual model, as shown in Figures 3.1 and 3.2, to an empirical model, as shown in Figure 4.1, reporting the significant Pearson correlation coefficients.

Table 4.11*Correlations between the Four Initial Characteristics*

		Self- Compassion	Compassion (others)	Mindfulness (intra)	Mindfulness (inter)
Self-Compassion	Pearson Correlation	1	.31**	.64**	.24*
	Sig. (2-tailed)		0.005	0.000	0.028
	N		83	79	82
Compassion (for others)	Pearson Correlation		1	.31**	.40**
	Sig. (2-tailed)			0.005	0.000
	N			80	84
Mindfulness (intrapersonal)	Pearson Correlation			1	.26*
	Sig. (2-tailed)				0.020
	N				79
Mindfulness (interpersonal)	Pearson Correlation				1
	Sig. (2-tailed)				
	N				

* $p < .05$, ** $p < .01$.

Correlations between Components of the Four Characteristics. There were many significant positive relationships across the 16 components of self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness, as shown in the correlation matrix in Table 4.12. For each characteristic, I identified the strongest relationship between two components therein. Then, for every component of the four characteristics, I identified the strongest relationship with a component from another characteristic.

Strongest correlation of components *within* each characteristic. The strongest relationship within the SSCS-L measure of self-compassion was for the components of kindness and mindfulness towards oneself ($r = .76$, $p < .01$). This relationship indicated that those preservice teachers who had more kindness towards themselves, also

had more mindfulness about themselves. **The strongest component relationship within the CS measure of compassion for others was between kindness and mindfulness towards others ($r = .62, p < .01$).** This relationship indicated that preservice teachers with more kindness towards others, also had more mindfulness about others, e.g., children in their classrooms. **Within the FFMQ measure of intrapersonal mindfulness, the strongest component relationship was for nonjudging of inner experience and acting with awareness ($r = .49, p < .01$).** This relationship indicated that preservice teachers who were more mindful without harsh self-judgment also acted with more awareness. The MTS subscale was one component, so there were no relationships between components to report. ***Overall, the strongest relationship for two components within a characteristic was in the SSCS-L measure of self-compassion for self-kindness and intrapersonal mindfulness ($r = .76, p < .01$).***

Table 4.12*Correlations between the 16 Components of the Four Initial Characteristics*

Components	1a	1b	1c	1d	1e	1f	2a	2b	2c	2d	3a	3b	3c	3d	3e	4
1. SCS																
1a. Kindness	-	.54**	.76**	.64**	.54**	.62**		.31**	.32**			.45**	.56**	.45**	.42**	.33**
1b. Common humanity		-	.51**	.34**	.39**	.32**		.46**	.28*			.32**	.42**	.32**		.23*
1c. Mindfulness			-	.43**	.31**	.56**		.34**	.27*			.27*	.45**	.33**	.26*	.26*
1d. Self-Judgement				-	.66**	.75**			.22*			.41**	.31**	.52**	.37**	
1e. Isolation					-	.61**			.23*			.37**	.24*	.47**	.40**	
1f. Over-Identification						-			.27*			.33**	.27*	.44**	.34**	
2. CS																
2a. Kindness							-	.32**	.62**	.38**						.33**
2b. Common humanity								-	.24*				.27*			.32**
2c. Mindfulness									-	.32**			.22*			.51**
2d. Indifference										-	.22*	.26*			.26*	
3. FFMQ																
3a. Observing											-	.30**	.33**	-.34**		
3b. Describing												-	.34**		.34**	
3c. Nonreactivity													-			.25*
3d. Nonjudging														-	.49**	
3e. Acting with awareness															-	
4. MTS Sub Scale																-

Note. Strong correlations ($r = > .40$) were in bold font. Significant correlations were reported. * $p < .05$, ** $p < .001$.

Strongest correlations of components across characteristics. Another way to gain insight about component interactivity was to identify each component's strongest relationship with a component of another characteristic, as shown in Table 4.13. *First, I identified which one component within a characteristic correlated most strongly with a component from another characteristic. For the SSCS-L measure of self-compassion, that was the self-kindness component with the FFMQ nonreactivity component ($r = .56, p < .001$).* This relationship indicated that those preservice teachers with more self-kindness were more accepting of and non-reactive about their inner experiences, i.e., thoughts and feelings. **Of note, this correlation was the strongest between two components of two measures.**

For the FFMQ measure of intrapersonal mindfulness, the component that most strongly correlated with a component from another measure was, as reported above, FFMQ nonreactivity with SSCS-L self-kindness ($r = .56, p < .001$). **The next most strongly correlated FFMQ components with components from other measures were FFMQ-nonjudging with SSCS-self-judgment ($r = .52, p < .001$) and FFMQ-nonjudging with SSCS-isolation ($r = .47, p < .001$).** These relationships indicated that those preservice teachers who accepted their thoughts and feelings without negatively ruminating on them or harshly criticizing themselves felt less alone.

For the CS measure of compassion for others, its component that most strongly correlated outside of that measure was CS-mindfulness with MTS

mindfulness in teaching ($r = .51, p < .001$). That relationship indicated that those preservice teachers with more interpersonal mindfulness were more mindful towards children in their classrooms. While this linkage provided nuanced evidence, because both measures were broadly about the same construct of interpersonal mindfulness, I also identified the next most strongly correlated CS component with a component from another measure. **That second strongest correlation was CS-mindfulness with SSCS-kindness ($r = .32, p < .001$), albeit of moderate strength.** This relationship indicated that those preservice teachers with more mindfulness towards others also were kinder towards themselves.

*Next, I identified the components that were most frequently the strongest correlation for components of other measures, as summarized from Table 4.13. Accordingly, **three of the strongest component correlations between measures were with the FFMQ-nonjudging component. Another three were with the FFMQ-nonreactivity component and another three were with the SSCS-kindness component.***

The three components from other measures that correlated most strongly with the FFMQ-nonjudging component were SSCS-over-identification ($r = .44, p < .001$), SSCS-isolation ($r = .47, p < .001$), and SSCS-self-judgment ($r = .52, p < .001$). These relationships indicated that preservice teachers who were more mindful without harshly judging their inner dialogue also had more self-compassion with less over-identification (magnified negative thoughts and feelings), isolation, and self-judgment. Given that both the FFMQ-nonjudging and SSCS-self-judgment components measured a

similar construct about accepting oneself, I also identified that **SSCS-self-judgment correlated second most strongly with FFMQ-describing ($r = .41, p < .001$)**. This relationship indicated that preservice teachers who had more self-compassion without negative self-judgment also had more belief that they could describe their thoughts and feelings.

The three components from other measures that correlated strongly with the FFMQ-nonreactivity component were SSCS-kindness, SSCS-mindfulness , and SSCS-common humanity. Like the SSCS-kindness component (reported prior $r = .56, p < .001$), **the SSCS-mindfulness component correlated most strongly with the FFMQ-nonreactivity component ($r = .45, p < .001$)**. This relationship indicated that preservice teachers who had more mindfulness without negatively reacting to their own thoughts and feelings also had more balanced perspectives of situations, even painful ones. Though the SSCS-common-humanity component correlated most strongly with the CS-common-humanity component ($r = .46, p < .001$), because both assessed the same construct, I also identified the next strongest correlation for SSCS-common-humanity. That second strongest relationship for SSCS-common-humanity was with **the FFMQ-nonreactivity component ($r = .42, p < .001$)**. This relationship indicated that preservice teachers with more belief that others experience the same thoughts, feelings, and difficulties as they do were also more mindful without negatively reacting to their own thoughts and feelings.

The three components from other measures that correlated most strongly with the SSCS-kindness component were FFMQ-nonreactivity (reported prior $r = .56, p < .001$), FFMQ-describing ($r = .45, p < .001$) and FFMQ-acting with awareness ($r = .42, p < .001$). These relationships indicated that preservice teachers with more self-kindness were also more mindfully able to describe their thoughts and feelings, and act with situational and self-awareness.

Table 4.13*Strongest Correlations for Components between Two Measures*

Measure Components	Strongest Correlations with		<i>r</i>
	Measure	Component	
1. SSCS			
1a. Kindness	FFMQ 3c	Nonreactivity	.56
1b. Common humanity	CS 2b & FFMQ 3c	Common humanity & Nonreactivity	.46 .42
1c. Mindfulness	FFMQ 3c	Nonreactivity	.45
1d. Self-judgment	FFMQ 3d & FFMQ 3b	Nonjudging & Describing	.52 .41
1e. Isolation	FFMQ 3d	Nonjudging	.47
1f. Over-identification	FFMQ 3d	Nonjudging	.44
2. CS			
2a. Kindness	MTS 4	Interpersonal mindfulness	.33
2b. Common humanity	SSCS 1b & SSCS 1c	Common humanity & Mindfulness	.46 .34
2c. Mindfulness	MTS 4	Interpersonal mindfulness	.51
2d. Indifference	FFMQ 3b & FFMQ 3e	Describing & Acting w/awareness	.26 .26
3. FFMQ			
3a. Observing	CS 2d	Indifference	.22
3b. Describing	SSCS 1a	Self-kindness	.45
3c. Nonreactivity	SSCS 1a	Self-kindness	.56
3d. Nonjudging	SSCS 1d & SSCS 1e	Self-judgment & Isolation	.52 .47
3e. Acting w/awareness	SSCS 1a	Self-kindness	.42
4. MTS sub scale	CS 2c	Mindfulness	.51

Note. All correlations $p < .001$.

Data Analysis Plan Results: RSQ2 – Path Analysis Segment A – Relationship of the Four Initial Characteristics to Self-Regulation

The second research sub question asked, *Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness predict their self-regulatory well-being?* **The results of the multiple linear**

regression analysis were that altogether, these four independent variables significantly accounted for 51.6% of the variance in preservice teacher emotional self-regulatory well-being ($F(4, 75) = 18.91, p < .001$). Table 4.14 showed the results of the multiple regression analysis with the standardized coefficients in the first column, the t-value associated with the unique effect of each measure after taking the others into account in the second column, and the significance associated with that t-value in the third column. **Intrapersonal mindfulness showed the strongest relationship with emotional self-regulatory well-being**, a positive relationship, after taking self-compassion, compassion for others, and interpersonal mindfulness in account. *Both self-compassion and compassion for others were moderately positively related to emotional self-regulatory well-being.* Interpersonal mindfulness was not significantly related to emotional self-regulatory well-being for this group of preservice EC teachers. Using these results, I converted this part of the conceptual model's pathway as shown in Figures 3.1 and 3.2 to an empirical model, as shown in Figure 4.1, reporting the significant standardized coefficients.

- For SRWB = Self-regulatory well-being, SC = Self-compassion, CO = Compassion for Others, and IntraM = Intrapersonal mindfulness, the significant regression equation was $SRWB = -.361 + .181 (SC) + .316 (CO) + .536 (IntraM)$.

Table 4.14

Unique Relationship between Preservice EC Teacher Emotional Self-Regulatory Well-Being and the Four Initial Predictors

Preservice EC Teacher Characteristic	Relationship ¹ with Preservice EC Teacher Emotional Self-Regulatory Well-Being	T-Value	Significance
Self-compassion	0.23	2.14	0.036
Compassion (for others)	0.21	2.19	0.032
Mindfulness (intrapersonal)	0.41	3.80	0.000
Mindfulness (interpersonal)	0.10	1.10	0.293

¹Standardized coefficient reported

Data Analysis Plan Results: RSQ3 – Path Analysis Segment B – Relationship of Self-Regulation to Developmental Support

The third research sub question asked, *Does preservice EC teacher self-regulatory well-being predict their developmental support of child self-regulatory well-being?* The simple linear regression results were mixed, depending on how the latter was measured. There was not a significant relationship between preservice EC teacher emotion self-regulation and developmental support of child self-regulation when the combined score for narrative and multiple-choice responses was used ($F(1, 80) = 2.9, p = .09$). There was also not a significant relationship when only the multiple-choice scores were used ($F(1, 82) = .23, p = .64$).

However, **there was a significant relationship ($F(1, 81) = 5.0, p = .03$) with self-regulatory well-being positively predicting 6% of the variance in developmental support of child self-regulatory well-being when the narrative response scores were**

used. *On average, for each one-point increase in preservice teachers' emotion self-regulation, their developmental support of children's self-regulation increased somewhat moderately by .24 of a point on the 5-point Likert scale for both measures.* Using this result, I converted this part of the conceptual model's pathway as shown in Figures 3.1 and 3.2 to an empirical model, as shown in Figure 4.1, reporting the significant standardized coefficient.

- For DevSupNR = Developmental support for child self-regulation narrative responses and SRWB = Self-regulatory well-being the significant regression equation was $\text{DevSupNR} = 1.485 + (.287) \text{SRWB}$.

Since preservice EC teacher self-regulation was significantly related to their developmental support of children's self-regulation, the next test was a multiple linear regression to address the following question. *Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and self-regulatory well-being predict their developmental support of child self-regulatory well-being?* Whether scores for the narrative and multiple choice responses were combined or tested separately, the results were that there was not a significant relationship for any of the five predictors, after taking the others into account for this group of preservice EC teachers. The insignificant results for these dependent variables were for the narrative responses combined with the multiple-choice responses ($F(5, 73) = 1.57, p = .18$), multiple choices responses ($F(5, 74) = .57, p = .73$), and narrative responses ($F(5, 74) = 1.97, p = .09$).

Data Analysis Plan Results: RSQ4 – Correlation of Psychological and Self-Determinative Well-Being

The fourth research sub question asked, *Are preservice EC teacher psychological well-being and self-determinative well-being associated?* The result of the correlation analysis was that **there was a significant and very strong positive relationship between psychological well-being and self-determinative well-being ($r = .80, p < .001$)**. This relationship indicated that those preservice teachers who had more psychological well-being also had more self-determinative well-being. *The results also showed a significant strong positive relationship between psychological well-being and the components of self-determinative well-being, i.e., autonomy ($r = .71, p < .001$), relatedness ($r = .62, p < .001$), and competence ($r = .68, p < .001$).* All variables were significantly positively related with none weakly or moderately related but either strongly or very strongly correlated. Using these results, I converted this part of the conceptual model as shown in Figures 3.1 and 3.2 to an empirical model, as shown in Figure 4.1, reporting the significant Pearson correlation coefficients.

Data Analysis Plan Results: RSQ5 – Path Analysis Segment C – Relationship of Emotion Self-Regulation to Psychological and Self-Determinative Well-Being

The fifth research sub question asked, *Does preservice EC teacher self-regulatory well-being predict their psychological and self-determinative well-being?* The results of these two simple linear regressions were as follows. **There was a significant relationship ($F(1, 80) = 41, p < .001$) with self-regulatory well-being positively predicting 34% of the variance in psychological well-being.** *On average, for each one standard deviation increase in self-regulatory well-being there was a .58 standard deviation increase in psychological well-being, a large effect size.* Using these results, I converted this part of the conceptual model's pathway as shown in Figures 3.1 and 3.2 to an empirical model, as shown in Figure 4.1, reporting the significant standardized coefficients.

- For PWB = Psychological well-being and SRWB = Self-regulatory well-being, the significant regression equation was $PWB = 2.67 + .844 (SRWB)$.

There was also a significant positive relationship ($F(1, 81) = 32, p < .001$) with self-regulatory well-being accounting for 29% of the variance in self-determinative well-being. *On average, each one standard deviation increase in self-regulatory well-being predicted a .53 standard deviation increase in self-determinative well-being, a large effect size.* Using these results, I converted this part of the conceptual model's pathway as shown in Figures 3.1 and 3.2 to an empirical model, as shown in Figure 4.1, reporting the significant standardized coefficients.

- For SDWB = Self-determinative well-being and SRWB = Self-regulatory well-being, the significant regression equation was $SDWB = 2.51 + .712 (SRWB)$.

Since preservice EC teacher self-regulation predicted their psychological well-being, the next test was a multiple linear regression (Step 5a.2 in the Data Analysis Plan, as shown in Table 3.15) to address the following question. *Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and self-regulatory well-being predict their psychological well-being?* **The significant positive results ($F(5, 75) = 16.63, p < .001$) were that altogether, these five independent variables accounted for 51% of the variance in preservice teacher psychological well-being.** Table 4.15 showed the results of the multiple regression analysis with the standardized coefficients in the first column, the t-value associated with the unique effect of each measure after taking the others into account in the second column, and the significance associated with that t-value in the third column.

Self-compassion showed the strongest relationship with psychological well-being, a positive relationship, after taking compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and self-regulatory well-being into account. *Self-regulatory well-being was moderately positively related to psychological well-being.* Compassion for others, intrapersonal mindfulness, and interpersonal mindfulness were *not* significantly related to psychological well-being for this group of preservice EC teachers. Using these results, I converted this part of the conceptual model's pathway as

shown in Figures 3.1 and 3.2 to an empirical model, as shown in Figure 4.1, reporting the significant standardized coefficients.

- For PWB = Psychological well-being, SC = Self-compassion, and SRWB = Self-regulatory well-being, the significant regression equation was $PWB = 2.003 + .495 (SC) + .477 (SRWB)$.

Table 4.15

Unique Relationship between Preservice EC Teacher Psychological Well-Being and Five Predictors

Preservice Teacher Characteristic	Relationship ¹ with Preservice Teacher Psychological Well-Being	T-Value	Significance
Self-compassion	.45	4.20	0.000
Compassion (for others)	-.00	-.90	0.37
Mindfulness (intrapersonal)	-.02	-.16	0.876
Mindfulness (interpersonal)	.17	1.90	0.067
Self-regulatory well-being	.35	2.97	0.004

¹Standardized coefficient reported

Since preservice EC teacher self-regulation predicted their self-determinative well-being, the next test was a multiple linear regression (Step 5b.2 in the Data Analysis Plan, as shown in Table 3.15) to address the following question. *Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and self-regulatory well-being predict their self-determinative well-being?*

The results were that altogether, these five characteristics significantly accounted for 47% of the variance in preservice teacher self-determinative well-being ($F(5, 75) = 12.17, p < .001$). Table 4.16 shows the results of the multiple regression analysis with

the standardized coefficients in the first column, the t-value associated with the unique effect of each measure after taking the others into account in the second column, and the significance associated with that t-value in the third column.

Self-compassion showed the *only* significant relationship with self-determinative well-being, a strong positive relationship, after taking compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and self-regulatory well-being into account. None of these other four variables were significantly related to self-determinative well-being for this group of preservice EC teachers. Using these results, I converted this part of the conceptual model's pathway as shown in Figures 3.1 and 3.2 to an empirical model, as shown in Figure 4.1, reporting the significant standardized coefficients.

- For SDWB = Self-determinative well-being and SC = Self-compassion, the significant regression equation was $SDWB = .990 + .393 (SC)$.

Table 4.16

Unique Relationship between Preservice EC Teacher Self-Determinative Well-Being and Five Predictors

Preservice EC Teacher Characteristic	Relationship ¹ with Preservice EC Teacher Self-Determinative Well-Being	T-Value	Significance
Self-compassion	.38	3.26	0.002
Compassion (for others)	.04	.42	0.678
Mindfulness (intrapersonal)	.20	1.64	0.106
Mindfulness (interpersonal)	.12	1.20	0.233
Self-regulatory well-being	.12	.94	0.352

¹Standardized coefficient reported

Data Analysis Plan Results: RSQ6 – Path Analysis Segment D – Relationship of Psychological and Self-Determinative Well-Being to Developmental Support

The sixth research sub question asked, *Do preservice EC teacher psychological well-being (PWB) and self-determinative well-being (SDWB) predict their developmental support of child self-regulatory well-being?* The multiple linear regression results were mixed, depending on which set of scores was used for the dependent variable. There was not a significant relationship when the combined narrative and multiple-choice scores ($F(2, 80) = 2.8, p = .07$) or only the narrative response scores were used ($F(2, 81) = 1.0, p = .37$). **There was a significant result when only the multiple-choice scores were used. Altogether, psychological well-being and self-determinative well-being accounted for 11% of the variance in developmental support for child self-regulatory well-being ($F(2, 81) = 4.73, p < .001$).** SDWB showed a strong positive relationship ($r = .54, p < .001$) with developmental support, after taking PWB into

account. PWB showed a strong negative relationship ($r = -.46, p < .05$) with developmental support, after taking SDWB into account.

- For DevSupMCR = Developmental support for child self-regulation multiple-choice responses, SDWB = Self-determinative well-being, and PWB = Psychological well-being, the regression equation was $\text{DevSupMCR} = .816 + .107 (\text{SDWB}) - .078 (\text{PWB})$.

Data Analysis Plan Results: RSQ7 – Path Analysis Segment E – Relationship of All Characteristics to Developmental Support

The seventh and culminating research sub question for the path analysis asked, *Do preservice EC teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, self-regulatory well-being, psychological well-being, and self-determinative well-being predict their developmental support of child self-regulatory well-being?* The results of the multiple regression were that there was not a significant relationship between the predictors and developmental support. This was the outcome for any of the three measures of developmental support, i.e., narrative responses ($F(7, 74) = 1.39, p = .225$), multiple-choice responses ($F(7, 74) = 1.70, p = .12$), or the combined narrative and multiple choice responses ($F(7, 73) = 1.41, p = .22$).

Data Analysis Plan Results: RSQ8 – Relationship of Attachment Style to Other Characteristics

Correlation of Attachment and the Four Initial Variables of the Pathway.

The results of the one-way ANOVA were as follows. There was a significant positive

relationship between a secure attachment style and self-compassion ($F(3,81) = 13.51, p < .001$) with a moderate effect size ($\eta^2 = .34$), as shown in Table 4.17. **Preservice early childhood teachers with a secure attachment style scored significantly higher in self-compassion ($M = 3.7, SD = .67$) than those with a preoccupied ($M = 2.9, SD = .60$) or fearful ($M = 2.5, SD = .48$) attachment style.** There was not a significant difference in self-compassion between preservice EC teachers with secure ($M = 3.7, SD = .67$) and dismissive attachment ($M = 3.5, SD = .57$).

There was also a significant positive relationship between a secure attachment style and intrapersonal mindfulness ($F(3,78) = 8.32, p < .001$) with a moderate effect size ($\eta^2 = .25$). **Preservice EC teachers with a secure attachment style scored significantly higher in intrapersonal mindfulness ($M = 3.34, SD = .39$) than those with a preoccupied ($M = 2.9, SD = .36$) or fearful ($M = 2.77, SD = .43$) attachment style.** There was not a significant difference in intrapersonal mindfulness between those with secure ($M = 3.34, SD = .39$) and dismissive attachment ($M = 3.25, SD = .39$). *Thus, neither those with secure or dismissive attachment were significantly different in self-compassion or intrapersonal mindfulness.* Also, EC preservice teachers did not differ significantly in compassion for others or interpersonal mindfulness based on attachment style for this group of preservice EC teachers.

There was also a significant positive relationship between a dismissive attachment style and intrapersonal mindfulness ($F(3,78) = 8.32, p < .001$) with a moderate effect size ($\eta^2 = .25$). **Preservice EC teachers with a dismissive attachment style scored**

significantly higher in intrapersonal mindfulness ($M = 3.25$, $SD = .39$) than those with a preoccupied ($M = 2.9$, $SD = .36$) or fearful ($M = 2.77$, $SD = .43$) attachment style. As previously reported, there was not a significant difference in intrapersonal mindfulness between those with dismissive ($M = 3.25$, $SD = .39$) and secure ($M = 3.34$, $SD = .39$) attachment.

Table 4.17

Means, Standard Deviations, and Significant One-Way Analysis of Variance Results for Characteristics by Attachment Style

Characteristic	Attachment Style		M	SD	<i>F</i>	<i>p</i>	η^2
	Type	Compared to Other Types					
Self-compassion	Secure		3.70	.67	$(3, 81) = 13.51$	.001	.34
		Preoccupied	2.90	.60		.001	
		Fearful	2.50	.48		.001	
		Dismissive	3.50	.57		.345	
Intra Mindfulness	Secure		3.34	.39	$(3, 78) = 8.32$	.001	.25
		Preoccupied	2.91	.36		.001	
		Fearful	2.77	.44		.001	
		Dismissive	3.25	.39		.425	
Intra Mindfulness	Dismissive		3.25	.39	$(3, 78) = 8.32$	.001	.25
		Secure	3.34	.39		.425	
		Preoccupied	2.90	.36		.007	
		Fearful	2.77	.43		.003	

Multiple Linear Regression with Attachment Style and the Four Initial

Variables. When attachment style was added as a potential predictor, the five variables accounted for 57.9% of the variance in preservice teacher emotional self-regulatory well-being ($F(7, 75) = 13.35$, $p < .001$). Table 4.18 shows the results of the multiple regression analysis with the standardized coefficients in the first column, the t-value associated with

the unique effect of each measure after taking the others into account in the second column, and the significance associated with that t-value in the third column.

Intrapersonal mindfulness was most related to emotional self-regulatory well-being, a positive moderate relationship, after taking self-compassion, compassion for others, interpersonal mindfulness, and attachment style in account. *Compassion for others was also positively related to emotional self-regulatory well-being, though less moderately than intrapersonal mindfulness.* Only a fearful attachment style differed significantly from the secure attachment style in relationship to self-regulatory well-being and was moderately negatively related. Self-compassion, interpersonal mindfulness, dismissive attachment, and preoccupied attached were not significantly related to self-regulatory well-being for this group of preservice EC teachers. Of note, when attachment style was added as the fifth predictor, unlike the RSQ2 results of the first multiple linear regression with four predictors, self-compassion was no longer related to self-regulatory well-being, though compassion for others still was.

- For SRWB = Self-regulatory well-being , IntraM = Intrapersonal mindfulness, and FA = Fearful attachment, the regression equation was $SRWB = .036 + .493 (IntraM) - .585 (FA)$.

Table 4.18

Unique Relationship between Preservice EC Teacher Emotional Self-Regulatory Well-Being and Five Predictors

Preservice Teacher Characteristic	Relationship ¹ with Preservice Teacher Emotional Self-Regulatory Well-Being	T-Value	Significance
Self-compassion	0.12	1.09	0.280
Compassion (for others)	0.24	2.60	0.012
Mindfulness (intrapersonal)	0.37	3.54	0.000
Mindfulness (interpersonal)	0.08	0.87	0.389
Fearful attachment style	-0.29	-2.90	0.005

¹Standardized coefficient reported

An Asset-Based Approach. After reviewing these RSQ8 results, I decided to *explore relationships between preservice EC teachers' mean levels of secure attachment, and their other psychosocial characteristics, regardless of their predominant attachment style.* This added method was meant to safeguard against inadvertently using a deficit-based approach towards the 66% of preservice EC teachers in the current study who had an insecure attachment style. Instead, an asset-based approach recognized the strengths and potential of all human beings to develop and thrive. Their psychosocial characteristics were not fixed traits but dispositions and skills to nurture and further develop. I also believed that this principle for teacher education would keep the onus on education systems to support whole teacher person-first processes.

First, I conducted simple linear regressions that had significant results for positive relationships between mean attachment security and all other characteristics, except interpersonal mindfulness. *On average, preservice EC teachers with more secure*

attachment had more self-compassion, compassion for others, intrapersonal mindfulness, self-regulatory, psychological, and self-determinative well-being, and skilled support of children's self-regulatory development. All of these relationships with secure attachment were strong, except for the latter, i.e., developmental responsiveness for children's self-regulatory growth, which was moderate. **The strongest relationships were with self-determinative well-being, psychological well-being, and self-compassion**, as shown in Table 4.19.

Table 4.19

Positive Relationships between Preservice EC Teacher Mean Security and Other Psychosocial Characteristics: Simple Linear Regressions Results

Dependent Variables	<i>F</i>	<i>df</i>	<i>R</i> Square	Relationship with Secure Attachment ¹
Self-compassion**	25.12	(1, 78)	.24	.49
Compassion (for others)**	15.73	(1, 79)	.17	.41
Mindfulness (intrapersonal)**	18.01	(1, 75)	.19	.44
Self-regulatory well-being**	22.33	(1, 77)	.23	.47
Psychological well-being**	48.22	(1, 77)	.39	.62
Self-determinative well-being**	59.84	(1, 78)	.43	.66
Developmental responsiveness*	4.08	(1, 78)	.05	.22

Note. ¹Standardized coefficient reported.

* $p < .05$, ** $p < .01$.

An Actionable Approach. Conversely, I asked how self-compassion, compassion for others, and intrapersonal mindfulness (but not interpersonal mindfulness as it was not significant in the prior simple linear regression) may predict mean levels of secure attachment. My rationale was that the former characteristics are likely more amenable to change than attachment and, hence, more actionable to develop in teacher education.

Following this logic, more self-compassion, compassion for others, and intrapersonal mindfulness can be expected to enhance the attachment security of preservice EC teachers. In particular, individuals whose predominant attachment style was insecure could develop more secure attachment or even, in time, a predominantly secure attachment style.

The results of the multiple linear regression analysis were that altogether, self-compassion, compassion for others, and mindfulness significantly accounted for 32.5% of the variance in secure attachment ($F(3, 72) = 11.56, p < .001$). Table 4.20 showed the results of the multiple regression analysis with the standardized coefficients in the first column, the t-value associated with the unique effect of each measure after taking the others into account in the second column, and the significance associated with that t-value in the third column. **Self-compassion showed the strongest relationship with secure attachment**, a positive *moderate* relationship, after taking compassion for others and mindfulness into account. Compassion for others was also *moderately* related to secure attachment. Preservice EC teachers who, on average, had more self-compassion or compassion for others also had more secure attachment. Mindfulness was not significantly related to secure attachment for this group of preservice EC teachers.

- For SecAttach = Secure attachment, SC = Self-compassion, CO = Compassion for Others, and IntraM = Intrapersonal mindfulness, the significant regression equation was $\text{SecAttach} = -.048 + .291(\text{SC}) + .463(\text{CO})$.

Table 4.20

Unique Relationship between Preservice EC Teacher Mean Secure Attachment and the Three Predictors

Preservice EC Teacher Characteristic	Relationship ¹ with Preservice EC Teacher Mean Secure Attachment	T-Value	Significance
Self-compassion	0.31	2.50	0.02
Compassion (for others)	0.26	2.50	0.02
Mindfulness (intrapersonal)	0.17	1.35	0.18

¹Standardized coefficient reported

Next, I hypothesized that the relationship of the three characteristics to fearful attachment would mirror the results for secure attachment but negatively, because these two dimensions are opposites with, respectively, negative and positive views of oneself and others (Bartholomew & Horowitz, 1991; Baumrind, 1971). The results of the multiple linear regression analysis were that altogether, self-compassion, compassion for others, and mindfulness accounted for 29% of the variance in fearful attachment ($F(3, 73) = 9.83, p < .001$). Table 4.21 showed the results of the multiple regression analysis with the standardized coefficients in the first column, the t-value associated with the unique effect of each measure after taking the others into account in the second column, and the significance associated with that t-value in the third column. **Self-compassion showed the strongest relationship with fearful attachment**, a *negative moderate* relationship, after taking compassion for others and mindfulness into account. Preservice EC teachers who on average had more self-compassion also had less fearful attachment. Neither

compassion for others nor mindfulness were significantly related to fearful attachment for this group of preservice EC teachers.

- For FearAttach = Fearful attachment, SC = Self-compassion, CO = Compassion for Others, and IntraM = Intrapersonal mindfulness, the significant regression equation was $\text{FearAttach} = 7.20 + -.48(\text{SC})$.

Table 4.21

Unique Relationship between Preservice EC Teacher Mean Fearful Attachment and the Three Predictors

Preservice EC Teacher Characteristic	Relationship ¹ with Preservice EC Teacher Mean Fearful Attachment	T-Value	Significance
Self-compassion	-0.35	-2.77	0.007
Compassion (for others)	-0.14	-1.34	0.19
Mindfulness (intrapersonal)	-0.17	-1.31	0.20

¹Standardized coefficient reported

Then, I tested the relationship of the three characteristics to preoccupied attachment. The results of the multiple linear regression analysis were that altogether, self-compassion, compassion for others, and mindfulness accounted for 37% of the variance in preoccupied attachment ($F(3, 73) = 14.27, p < .001$). Table 4.22 showed the results of the multiple regression analysis with the standardized coefficients in the first column, the t-value associated with the unique effect of each measure after taking the others into account in the second column, and the significance associated with that t-value in the third column. **Self-compassion showed the strongest relationship with preoccupied attachment**, a *negative strong* relationship, after taking compassion for

others and mindfulness into account. Compassion for others was *negatively moderately* related to preoccupied attachment. Preservice EC teachers who on average had more self-compassion or compassion for others also had less preoccupied attachment. Mindfulness were not significantly related to preoccupied attachment for this group of preservice EC teachers.

- For PreoccAttach = Preoccupied attachment, SC = Self-compassion, CO = Compassion for Others, and IntraM = Intrapersonal mindfulness, the significant regression equation was $\text{PreoccAttach} = 3.23 + -.58(\text{SC}) + .80(\text{CO})$.

Table 4.22

Unique Relationship between Preservice EC Teacher Mean Preoccupied Attachment and the Three Predictors

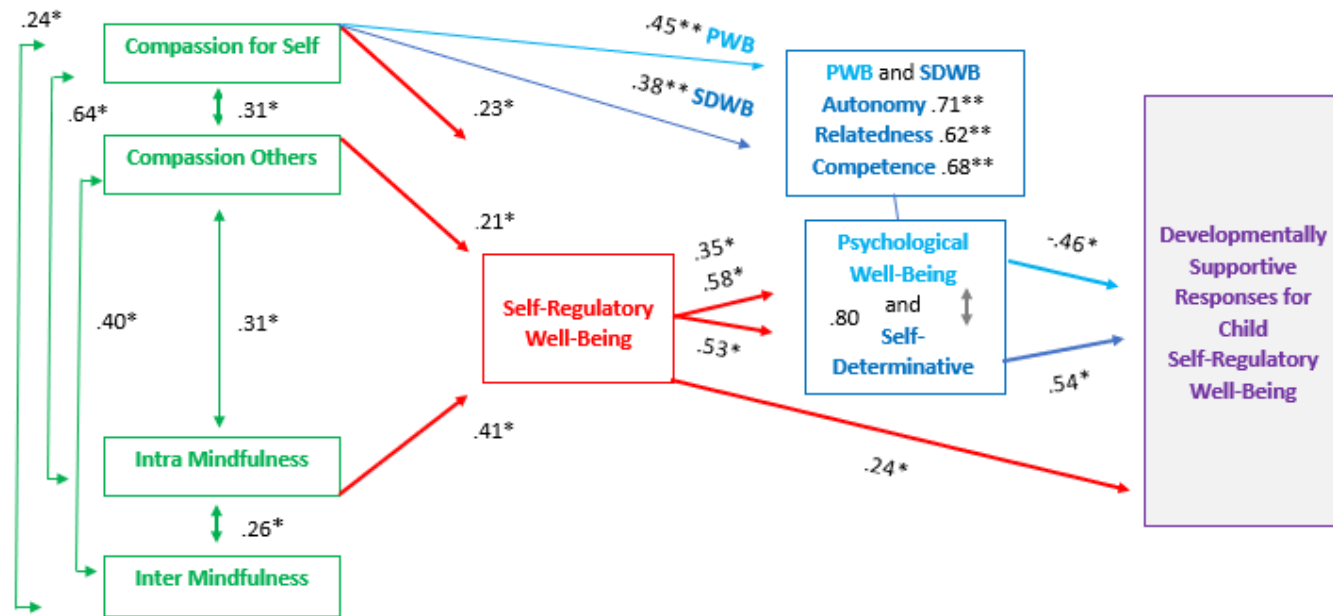
Preservice EC Teacher Characteristic	Relationship ¹ with Preservice EC Teacher Mean Preoccupied Attachment	T-Value	Significance
Self-compassion	-0.47	-3.92	0.001
Compassion (for others)	0.34	3.47	0.001
Mindfulness (intrapersonal)	-0.21	-1.73	0.09

¹Standardized coefficient reported

Finally, I tested the relationship of the three characteristics to dismissive attachment. The results of the multiple linear regression analysis were that there was not a significant relationship ($F(3, 73) = .58, p < .63$) for this group of preservice early childhood teachers.

Figure 4.1

Empirical Model: Associated Characteristics and Relationships with Preservice EC Teacher Self-Regulatory Well-Being and Developmental Support of Child Self-Regulation



Note. Significant results were reported, $*p < .05$, $**p < .001$. Pearson coefficients were reported for correlations of self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness; and self-determinative well-being and psychological well-being. These correlations were not analyses of pathway segments but deepened insights regarding the latter and their standardized coefficients.

Relationship of Meditation to Other Characteristics of Preservice Early Childhood Teachers

The small number of meditators, 16 of 92 preservice EC teachers (17%), scored higher than nonmeditators in every characteristic explored in the current study and also in their developmental support of children's self-regulation. However, only one of these results was significant, i.e., on the MTS sub scale for interpersonal mindfulness as teachers towards children in classrooms. Meditators scored very high ($M = 4.69$, $SD = .33$) compared to nonmeditators, who scored high but not as high ($M = 4.40$, $SD = .47$), on its 5-point Likert scale. *The one-way ANOVA found a significant relationship ($F(1, 82) = 4.91$, $p < .03$) with a small effect size ($\eta^2 = .05$) for the variance in mindfulness in teaching accounted for by being a meditator.*

Relationship of Self-Efficacy to Other Characteristics of Preservice Early Childhood Teachers

The relationships of preservice EC teachers' self-efficacy to their emotion self-regulation, self-determinative well-being, and developmental support of children's self-regulation were explored. I conducted a series of simple linear regressions to determine if self-efficacy predicted self-regulation and self-determination and if developmental support was related to self-efficacy. The results were reported in the same order, as follows.

Preservice EC teachers' self-efficacy accounted for 5.6% of the variance in their emotional self-regulatory well-being ($F(1, 83) = 4.83$, $p = .03$). This significant

positive relationship was moderate ($r = .24$). On average, for each one-point increase in preservice teachers' self-efficacy, their emotion self-regulation increased by .24 of a point on the 5-point Likert scale for both measures.

- For SRWB = Self-regulatory well-being and SelfEff = Self-efficacy the significant regression equation was $SRWB = 2.82 + .258 (\text{SelfEff})$.

Preservice EC teachers' **self-efficacy accounted for 8.5% of the variance in their self-determinative well-being** ($F(1, 83) = 7.65, p = .007$). This significant positive relationship was moderate ($r = .29$). On average, for each one-point increase in preservice teachers' self-efficacy on its 5-point Likert scale, their self-determination increased by .29 of a point on its 7-point Likert scale or .21 of a point on an equivalent 5-point Likert scale.

- For SDWB = Self-determinative well-being and SelfEff = Self-efficacy the significant regression equation was $SDWB = 3.571 + .417 (\text{SelfEff})$.

Preservice EC teachers' developmental support of child self-regulation **accounted for 12.3% of the variance in their self-efficacy** ($F(1, 85) = 11.75, p < .001$). This significant positive relationship was moderate ($r = .35$). On average, for each one-point increase in preservice teachers' developmental support, their self-efficacy increased by .35 of a point on the 5-point Likert scale for both measures.

- For SelfEff = Self-efficacy and DevSupAR = Developmental support all responses, the significant regression equation was $\text{SelfEff} = 2.818 + 1.827 (\text{DevSupAR})$.

Conclusion

In this chapter, I explored preservice EC teachers' self-reported compassion and mindfulness, as well as their self-regulatory, psychological, and self-determinative well-being, and developmental support for children's self-regulatory well-being. I described the results for each of the measures. Then I reported the results of the quantitative and qualitative analyses for the overarching research question, research sub questions, and path analysis. I also converted the conceptual models to an empirical model, as shown in Figure 4.1. Lastly, I explored how preservice EC teachers' attachment style, self-efficacy, and meditation related to their other characteristics and developmental support of children's self-regulation. This deep exploration and comprehensive reporting served as preparation for discussion of the results and implications in the next chapter.

CHAPTER FIVE

Discussion

The impetus for this research was to address a twofold problem: one, that education systems do not provide support for children and adults to develop self-regulatory well-being; and two, that teachers need support to learn about children's development of self-regulation and strategies to scaffold that growth. The purpose of the study, as most broadly stated on the information sheet for potential participants, was to learn more about preservice early childhood professionals' beliefs, knowledge, and practices to further develop courses that reflect their needs. More specifically, the study aimed to explore how preservice early childhood teachers' characteristics of compassion and mindfulness related to their self-regulatory well-being and adaptive responses for children's self-regulatory development. Further compelling this research, I found relatively few studies in an extensive literature review that centered on whole teacher development through person-first processes, particularly at the early childhood level for preservice teachers. Thus, the current study was designed to contribute empirical knowledge in a needed area.

In this chapter, I began by returning to the narrative group portrait of preservice early childhood teachers that first emerged in chapter four from the initial descriptions of the data. Then, I added to this portrait by discussing the results for each of the research sub questions in the Data Analysis Plan from Table 3.15 and, cumulatively, for the

overarching research question which was: *In what ways, do preservice early childhood teacher self-compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and attachment style predict their self-regulatory well-being and developmental support of child self-regulation for the self-determinative well-being of both teacher and child?* Next, I discussed the influences of self-efficacy and meditation covariates. Thereafter, I discussed a preliminary plan for an application – Thriving as an Early Childhood Professional – based on interweaving insights from findings of the current study and research from chapter two’s literature review. Then, I discussed limitations of the current study and implications for future research to continue learning about the whole teacher needs of preservice EC teachers for the continual improvement of teacher education. Lastly, I summarized the major insights from the current study and concluded with a metaphor about this experience with preservice EC teachers and appreciation for what their voices in the data expressed.

The Portrait of Preservice Early Childhood Teachers Develops

If one likened the initial group portrait of preservice EC teachers from chapter four to art, their images were silhouettes, providing a beginning impression of these vibrant individuals. As a reminder, most of the preservice EC teachers were female and white (Table 3.1), sophomores or juniors, and had two or three prior EC courses (Table 3.2), indicating that their EC knowledge was generally beyond an introductory level. The vast majority did not meditate (Table 3.13). On average, their self-efficacy as teachers,

based on their confidence about their responses to the vignettes about children having self-regulatory difficulty, was somewhat high (Table 3.14).

On average, this group of preservice EC teachers scored moderate to high on the following measures of their characteristics with one exception. They were at a moderate level in self-compassion (Table 4.1) and intrapersonal mindfulness (Table 4.3). They were at somewhat high levels in emotional self-regulatory well-being (Table 4.4) and self-determinative well-being (Table 4.5). They were at very high levels for interpersonal mindfulness as teachers towards children in classrooms, compassion for others (Table 4.2), and psychological well-being. They had more compassion for others than they did for themselves. Regarding their developmental support of children's self-regulation, they scored very high on their multiple-choice responses, which was likely a ceiling effect, but low on their narrative responses (Table 4.7). Thirty-four percent of preservice EC teachers had a secure attachment style and 66% were insecurely attached (Table 4.9). These descriptions from Tables 4.1 through 4.9 were summarized in Table 4.10.

Next, I discussed the findings for each research sub question from the Data Analysis Plan (Table 3.15). These explanations and insights added to the group portrait of the preservice EC teachers. Their silhouettes began to fill-in and change from tracings to more detailed renderings.

Research Sub Question 1 (RSQ1): Discussion of Findings – First Four Characteristics Significantly Correlated

There were two main findings. One was that preservice EC teachers had more compassion for others than they did for themselves. The other was that kindness was strongly related within and across measures. These findings were explained below.

Preservice EC Teachers Had More Compassion for Others Than for Themselves

In comparison to self-compassion, which was moderate and not robust (i.e., some of the scores within one standard deviation of the mean were low), preservice EC teachers showed extremely high, robust compassion for others. Indeed, **they had on average 28% more compassion for others ($M = 4.27$, $SD = .38$) than themselves ($M = 3.33$, $SD = .75$)**. The few other studies about early childhood teacher self-compassion and compassion for others have had similar findings (Lopez et al., 2018; Neff & Pommier, 2013; both as cited in O’Hara-Gregan, 2024). These results should be understood in the context of self-compassion as “showing compassion towards oneself rather than hurting oneself in difficult times” (Neff, 2003a, b; as cited in Saks, 2004, p. 1166). Hurting oneself likely manifests as less self-care. Examples could be to chronically not get enough sleep or, conversely, sleep much longer than usual; be perpetually busy or, conversely, procrastinate; not relax or engage in pleasurable pursuits, i.e., not let oneself play; eat poorly; not move or exercise; not spend time with family or friends; or self-medicate with addictive substances. Alternatively, more self-compassion would probably manifest as taking better and gentler care of oneself and finding a healthy balance in

helping oneself and others (Germer & Neff, 2019). Given that self-regulation does not fully develop until one's early to mid-twenties (American College of Pediatricians, 2022), calibrating that balance as circumstances change may be a challenge for many young adults and preservice EC teachers.

What was unknown was if the preservice EC teachers were taking care of themselves less than they had previously or just, generally, had less self-compassion, perhaps because, as helping professionals, they held themselves to unrealistically high standards. Another possibility was that when they responded to the survey, they were more comfortable expressing compassion for others than for themselves (O'Hara-Gregan, 2024), perhaps believing that helping professionals should be selfless. However, any of these explanations would indicate that more self-compassion would likely benefit them and, also, others. Indeed, more self-compassion predicted more compassion and helpfulness towards others (Asayesh et al., 2024; Watson-Singleton, 2021), and, in the current study, the two characteristics were moderately correlated ($r = .31, p < .001$). Strengthening the mindful self-compassion (Germer & Neff, 2019) of preservice EC teachers in their teacher education programs should be a priority.

Characteristics of Compassion and Mindfulness Correlated Most Strongly

As expected, preservice EC teachers' self-compassion and intrapersonal mindfulness correlated most strongly ($r = .64, p < .01$), and the second strongest correlation was between their compassion for others and interpersonal mindfulness ($r = .40, p < .01$), as shown in Table 4.11 and Figure 4.1. These results were logically

connected, because mindfulness helps one be more aware of and responsive to one's own and others' needs. Moreover, mindful compassion within a person serves as the foundation for mindful compassion towards others. Going to a deeper level of analysis by correlating not just the four characteristics but their 16 components, as shown in Table 4.12, yielded the following further insights.

Strongest Correlations of Components *within* the Four Characteristics. Not surprisingly, the two most strongly correlated aspects of self-compassion, as well as compassion for others, were **kindness** and **mindfulness** ($r = .76$ and $r = .62$, $p < .001$, respectively). These r values were high enough to show that kindness and mindfulness, though closely related, were distinct – not confounded – facets within the two characteristics and should each be intentionally developed. Then, their synergy as *mindful kindness* can be expected to enhance self-compassion and compassion for others. **Within** intrapersonal mindfulness, the two most strongly correlated components were nonjudging and acting with awareness ($r = .49$, $p < .001$), again, not surprising, because to not criticize one's inner emotions helps one to be more situationally aware.

Strongest Correlations of Components *between* the Four Characteristics.

Identifying the strongest component correlations **across** characteristics yielded both expected and unexpected results. Three of the 16 components were most often the strongest correlation for components from other characteristics. **These three components included two components from the intrapersonal mindfulness FFMQ measure (FFMQ-nonjudging and FFMQ-nonreactivity) and one component from the self-**

compassion SSCS-L measure (SSCS-kindness), as shown in Table 4.13. Further considering these patterns in the results illuminated the following conceptual connections.

First, the SSCS-self-isolation, over-identification, and self-judgment components correlated most strongly with the **FFMQ-nonjudging** component ($r = .47$, $r = .44$, and $r = .41$, $p < .001$), respectively. Their strong correlations were not surprising. What they had in common was what *not* to do for mindful self-compassion, and were interrelated because they all were about accepting and not ruminating on one's emotions.

Second, SSCS-kindness and SSCS-mindfulness correlated most strongly with FFMQ-nonreactivity ($r = .56$ and $r = .45$, $p < .001$) respectively, and SSCS-common-humanity correlated second most strongly with **FFMQ-nonreactivity** ($r = .42$, $p < .001$). Again, these strong correlations were not surprising. Accepting one's thoughts and feelings, e.g., by acknowledging but letting them pass through one's mind, can be expected to foster self-kindness and intrapersonal mindfulness, as well as a sense that all people experience similar thoughts and feelings.

Third, the FFMQ-describing, FFMQ-nonreactivity, and FFMQ-acting-with-awareness components most strongly correlated with the **SSCS-kindness** component ($r = .45$, $r = .56$ as reported above, and $r = .42$, $p < .001$), respectively. These results seemed logical, as well. If people can describe their emotions and acknowledge but not ruminate on them, not only are they showing more kindness towards themselves but they can respond more adaptively.

Taken together, these three sets of findings were illuminating in two ways. One, they both intuitively made sense and logically connected, hence their unsurprising nature. *However, they also served as very practical and actionable strategies for use in teacher education to strengthen one's mindful self-compassion and, ultimately, self-regulatory well-being and support of children's self-regulation.*

Mindfulness Was Strong but Kindness Was Stronger

In analyzing connections between the four characteristics overall, and components within and across them, I expected that mindfulness and self-compassion would be most strongly and consistently related which was certainly the case. **What was poignant, though, was the somewhat stronger relationship of kindness components – whether self-kindness or kindness towards others – than mindfulness components with other components. The strongest component correlations involved kindness**, i.e., within self-compassion for kindness and mindfulness ($r = .76, p < .001$), within compassion for others for kindness and mindfulness ($r = .62, p < .001$), **and** across characteristics for SSCS-kindness and FFMQ-nonreactivity ($r = .56, p < .001$). As shown in Tables 4.12 and 4.13, nearly all of the other correlations ranged from the low end of moderate (e.g., $r = .22$) to somewhat strong (e.g., $r = .40$ to $.49$). In considering why kindness was somewhat more salient than mindfulness in these component relationships, I realized that *while both were skills that can be strengthened, kindness likely carried more of an emotional charge*. As emphasized in the literature review, emotions drive behavior as strong motivators (Blair & Raver, 2014; Immordino-Yang et al., 2017, 2018; Montroy et al.,

2016). Also, while knowledge and beliefs have both cognitive and affective dimensions, beliefs, which include attitudes and values, feature more emotionality, and, hence, influence on behavior, e.g., pedagogical practices. *Early childhood teacher education should prioritize support for not only teacher knowledge but beliefs and how these dispositions translate to adaptive practices for children's optimal development.*

Moreover, the other two components of FFMQ-nonjudging and FFMQ-nonreactivity that, like SSCS-kindness, were most often the strongest correlation for other components, also seemed closely related to SSCS-kindness. Not being judgmental about or negatively reacting to one's thoughts and feelings connotes self-acceptance, self-care, and self-kindness. *Furthermore, these results that indicated the benefits of nonjudgmental, nonreactive practices for oneself and others were also clues that these characteristics, along with self-kindness, should be particularly supported in preservice EC teacher education.*

To conclude the discussion of findings for RQ1, a main reason the design of the current study included compassion was because Brophy-Herb et al. (2019) recommended further research about the relationship of "intentional kindness" (p. 764), compassion, and mindfulness. She also emphasized "dispositional mindfulness," (pp. 759+) which was differentiated from mindfulness as an attitudinal intention. *The results of the current study suggested that intentional kindness may similarly be referred to as dispositional kindness for which beliefs, values, and skill can be strengthened, along with dispositional mindfulness. Cumulatively, findings for RQ1 were the first indication that mindful*

kindness and compassion may be “as important to life as the air we breathe” (Sak et al., 2024, p. 1166). Indeed, preservice EC teacher self-kindness and intrapersonal mindfulness were most closely related to their self-regulatory well-being, as will be discussed next.

RSQ2: Discussion of Findings – Path Analysis Segment A – Three of Four

Characteristics Significantly Predicted Emotional Self-Regulatory Well-Being

In this first test of the hypothesized pathway, as shown in Figures 3.1 and 3.2, **three of the four characteristics of preservice EC teachers predicted their emotional self-regulatory well-being (SRWB)**, as shown in Figure 4.1. As a reminder before further discussion, the three significant predictive characteristics were self-compassion, compassion for others, and intrapersonal mindfulness, accounting for 51.6% of the variance in emotional SRWB ($F(4, 75) = 18.91, p < .001$). Specifically, intrapersonal mindfulness was somewhat strongly predictive of emotional SRWB ($r = .41$) while self-compassion ($r = .23$) and compassion for others ($r = .21$) were somewhat moderately predictive of emotional SRWB, and all were at $p < .001$. Interpersonal mindfulness was not significantly related.

Due to the strong correlation of intrapersonal mindfulness and self-compassion ($r = .64, p < .01$), and strong relationships between some of their components, as described in RQ1 findings, I had expected both characteristics to strongly predict emotional SRWB. Counter to that expectation, while intrapersonal mindfulness was a strong predictor of emotional SRWB, self-compassion was not a strong but moderate predictor. *Perhaps*

kindness was a necessary precondition but the complexity of ongoing emotion self-regulation most directly required skilled mindfulness. Relatedly, while intrapersonal mindfulness and self-compassion enhanced one another, the five mindfulness components (observing, describing, nonreactivity, nonjudging, and acting with awareness) synergistically and more strongly supported emotional SRWB. Moreover, as preservice EC teacher emotional SRWB was strong on average and “healthy self-regulation skills contribute to positive adaptations” (Sciaraffa et al., 2018; as cited in Virmani et al., 2020, p. 1057), these RSQ2 findings suggested a predictive relationship with developmental responsiveness.

RSQ3: Discussion of Findings – Path Analysis Segment B – Emotional Self-Regulatory Well-Being Significantly Predicted Developmental Support

For the next segment of the pathway, the outcome of the first test was that **preservice EC teacher emotional SRWB moderately predicated their developmental support of child SRWB ($r = .24, p < .05$)**, as shown in Figure 4.1. Notably, the strength of this relationship increased 121% when mediated by self-determinative well-being ($r = .53, p < .001$). *That strong relationship showed the importance of deliberately supporting and interweaving the self-determinative universal needs of autonomy, relatedness, and competence in teacher education.*

The next analysis tested the relationship between preservice EC teacher developmental support for child self-regulation and all of the preceding five predictors, *taking one another into account.* These predictors were the teacher characteristics of self-

compassion, compassion for others, intrapersonal mindfulness, interpersonal mindfulness, and emotional SRWB. **Unlike the first test, emotional SRWB was no longer predictive of developmental support of child SRWB**, nor were any of the other characteristics though this latter outcome was not surprising as those were more distal influences. Potential explanations for the changed outcome regarding emotional SRWB predicting developmental responsiveness were

1) As predictors were added, the signal from emotional SRWB was diluted to the point of no longer being significant. Similarly, the signals from the newly developed measures of developmental responsiveness may not have been strong enough for significant detection.

2) Collinearity between highly correlated independent variables, e.g., self-compassion and intrapersonal mindfulness ($r = .64, p < .001$) obscured their influences. An additional analysis, i.e., the correlation of emotional SRWB with the preceding four independent variables, provided clues about the possibility of collinearity: Emotional SRWB strongly correlated with intrapersonal mindfulness ($r = .64, p < .001$) and next with self-compassion ($r = .57, p < .001$), compassion for others ($r = .44, p < .001$), and interpersonal mindfulness ($r = .37, p < .001$).

Yet, notably, all of these correlation coefficients were somewhat to markedly below the general threshold of .70 for probable collinearity. Therefore, there may have been other more likely explanations for why, in this second test, preservice EC teacher emotional SRWB was no longer predictive of their developmental

support for child SRWB.

3) More broadly, an unknown confounding variable influenced both at least one independent variable and the dependent variable.

To further and qualitatively consider why the two tests had different outcomes for emotional SRWB predicting developmental responsiveness, I imagined *the perspective or experience of preservice EC teachers as they took the survey*. They needed to answer both multiple-choice and narrative response measures of their developmental responsiveness, with the former relatively easy and the latter more difficult to answer. Indeed, the four multiple-choice questions were so easy as to produce a ceiling effect, leaving the four narrative responses as likely the more valid but sparse measure of developmental responsiveness and, as such, prone to distortion from outlier scores. *An intriguing alternative* was that narratively responding required more self-regulatory executive function i.e., mental agility, inhibitory control, and working memory (Murray et al., 2015; Rosenbalm & Murray, 2017; Solomon et al., 2018)² and the scores may have measured those skills to some extent, instead of developmental responsiveness. If so, preservice EC teachers' cognitive self-regulation would have been a confounding variable.

Overall, there was a significant result from the narrative response data that **preservice EC teacher emotional self-regulatory well-being (SRWB) predicted their developmental responsiveness for child SRWB**. However, I decided to interpret that outcome with some caution because of the mixed result with significance found in the

first test but not the second test. I also planned for future research to continue developing and testing the validity and reliability of the measure of developmental responsiveness. I would have preferred to use an already established measure with replicated validity and reliability but could not find one specific to preservice EC teacher developmental responsiveness for preschool child self-regulation.

RSQ4: Discussion of Findings – Psychological and Self-Determinative Well-Being Significantly Strongly Correlated

Before testing the next segment of the pathway, data from the measures of psychological well-being (PWB) and self-determinative well-being (SDWB) were correlated, as shown in Figure 4.1. Their significant correlation ($r = .80, p < .001$) was 33% higher than the correlation ($r = .62, p < .001$) that Diener et al. (2010) had found in the original validation study of the PWB measure. The stronger correlation in the current study provided more evidence that PWB and SDWB, at the very least, enhance one another and supported the hypothesis that when the three universal needs within SDWB are sufficiently met, PWB increases. However, because their correlation was above the general threshold for collinearity of $r = .70$, interpreting the results of a subsequent multiple linear regression was more difficult, as will be discussed for the next research sub question.

PWB also correlated strongly with the three components of SDWB, especially autonomy ($r = .71, p < .001$) and competence ($r = .68, p < .001$) which boded well for preservice EC teachers' confidence in their competence, i.e., self-efficacy. Somewhat

surprisingly, PWB did not correlate quite as strongly with the SDWB component of relatedness ($r = .62, p < .001$), perhaps because missing data made the SDWB measure somewhat less robust. Later in this chapter, in the context of discussing the results for self-efficacy, the relationship of the self-efficacy characteristic with the SDWB components of autonomy and competence and, more broadly, PWB were further considered.

RSQ5: Discussion of Findings – Path Analysis Segment C – Emotional Self-Regulatory Well-Being Significantly Predicted Psychological and Self Determinative Well-Being

The next segment of the pathway that was analyzed were the relationships between preservice EC teacher emotional self-regulatory well-being (SRWB) and psychological well-being (PWB), as well as self-determinative well-being (SDWB). As a reminder before further discussion, emotional SRWB significantly strongly predicted both PWB ($r = .58$) and SDWB ($r = .51$) at $p < .001$, as shown in Figure 4.1.

Since emotional SRWB predicted both PWB and SDWB, it and the other characteristics (self-compassion, compassion for others, intrapersonal mindfulness, and interpersonal mindfulness) were simultaneously tested as predictors for PWB and SDWB, i.e., taking the others into account. The results were that only self-compassion significantly and somewhat strongly predicted PWB ($r = .45$) and moderately predicted SDWB ($r = .38$) with both at $p < .001$.

Those outcomes were additional evidence that self-compassion consistently made a uniquely positive difference for these teachers, in their emotional SRWB prior and now their PWB and SDWB. This result of a positive relationship between self-compassion and PWB was also consistent with other studies, i.e., Sak et al. (2024) for preschool teachers, and, more broadly, Baer et al. (2012) and Neff and Germer (2013; as cited in Saks et al., 2024). These earlier results encouraged researchers (e.g., Liu et al., 2022; as cited in Saks et al., 2024) to recommend intentionally supporting EC teacher self-compassion to strengthen not only their personal PWB but professional well-being. *The results of the current study further underscore the importance of authentically nurturing self-compassion in teacher education.*

RSQ6: Discussion of Findings – Path Analysis Segment D – Psychological and Self-Determinative Well-Being Significantly Predicted Developmental Support

The next segment of the pathway that was analyzed was the relationship of adaptive support for child self-regulation with the predictors of psychological well-being (PWB) and self-determinative well-being (SDWB), taking one another into account. As a reminder, there was not a significant result when the narrative response scores or combined narrative response and multiple choice scores were used as measures of developmental responsiveness. **However, there was a significant result when the multiple-choice scores were used. Altogether, psychological well-being and self-determinative well-being accounted for 11% of the variance in developmental support for child self-regulatory well-being ($F(2, 81) = 4.73, p < .001$). SDWB**

showed a strong positive relationship ($r = .54$, $p < .001$) with developmental support, after taking PWB into account.

Counterintuitively, unlike SDWB, PWB showed a strong negative relationship ($r = -.46$, $p < .05$) with developmental support, after taking SDWB into account. Previous research showed that the PWB and SDWB measures were strongly positively related (Diener et al., 2010) and, as reported prior, their correlation in the current study was very strong ($r = .80$, $p < .001$). However, that correlation was above the general threshold of $r = .70$ for collinearity, suggesting that the results of the test were compromised or that the parts of the PWB that did not overlap with SDWB were authentically negatively related to developmental support.

As emphasized in the discussion about RSQ3 findings, SDWB as a mediator amplified the strength of the relationship of self-regulatory well-being with developmental responsiveness by 121 percent from moderate to strong. Those preservice EC teachers who had more self-regulatory well-being had more self-determinative well-being and markedly more developmental responsiveness for children's self-regulatory well-being. *The insight from these outcomes was that teacher education curriculum, instruction, and assessment systems should intentionally include not only support for self-regulatory well-being but self-determinative well-being.*

RSQ7: Discussion of Findings – Path Analysis Segment E – No Relationship with Developmental Support When All Predictors Were Tested Simultaneously

There was not a significant relationship for each characteristic of preservice EC teachers with their developmental responsiveness, *after taking all the other characteristics into account*. As a reminder before further discussion, this result differed from the significant and somewhat moderate relationship of emotional SRWB, when regressed separately with developmental responsiveness ($r = .24, p < .05$). The outcome of RSQ7 was also inconsistent with other studies that found significant positive relationships between early childhood professionals' developmental responsiveness and their psychosocial characteristics. Those characteristics included mindfulness and mindful self-compassion (Brophy-Herb et al., 2019; Hatton-Bowers et al., 2023; Jennings, 2015; Jennings et al., 2019; O'Hara-Gregan, 2024), reflective practice beliefs (Virmani et al., 2020), and secure attachment (Vallotton et al., 2016). *The bulk of empirical evidence was that mindfulness, compassion for self and others, and secure attachment influenced developmental responsiveness*. However, this has also been a relatively new area of research in the last 10 or 15 years wherein studies about whole teacher and whole child learning and development have only started to accelerate in the last few years.

The insignificant results for RSQ7 may have had more to do with the large number of independent variables in the final model, collinearity between variables, or confounding variables obscuring relationships, as previously discussed. Also, the distal influences of self-compassion, compassion for others, and intrapersonal mindfulness –

while they did not directly relate to development responsiveness – had directly related to emotional SRWB which, in turn, directly related to developmental responsiveness. A further reason that there were not significant results for the final research sub question may have been that the measure of developmental responsiveness needed more refinement for a stronger and more valid measure, as previously discussed.

Overall, there was evidence in the current study of predictive relationships between preservice EC teachers' psychosocial characteristics and the final outcome of the pathway, i.e., developmental responsiveness for children's self-regulation. Significant relationships were found in the layered segments of the pathway. Cumulatively, their outcomes suggested the relevance and importance of supporting these characteristics in whole teacher person-first teacher education.

RSQ8: Discussion of Findings – Insights from Two Ways of Analyzing How Attachment Related to Other Characteristics of Preservice EC Teachers

As a reminder, two measures of preservice EC teachers' attachment were used to test for relationships with their other psychosocial characteristics. One measure identified a *predominant* attachment style for each preservice EC teacher from their highest mean among the four components of the Attachment Style Questionnaire (ASQ) for the secure, preoccupied, dismissive, or fearful dimensions. The other measure did not identify a predominant attachment style but used the means for preservice EC teachers' respective dimensions of attachment, i.e., secure, preoccupied, dismissive, and fearful. These measures were used in SPSS tests, revealing connected but nuanced findings about how

preservice EC teacher attachment related to their other psychosocial characteristics. The discussion below first addressed the results related to a predominant attachment style and, thereafter, the results related to the means for the four dimensions of attachment.

A Predominantly Secure Attachment Style Significantly Predicted More Self-Compassion and Interpersonal Mindfulness

Preservice EC teachers with a secure attachment style scored significantly higher than those with preoccupied or fearful attachment in self-compassion and intrapersonal mindfulness. Counterintuitively, they did not differ in either self-compassion or intrapersonal mindfulness from those with dismissive attachment. Perhaps that result was logical though, because individuals with secure or dismissive attachment styles have a positive self-image and, in that sense, a compassionate mindful relationship with themselves. However, their positive self-regard likely manifested differently because of their different perceptions of others (Bartholomew & Horowitz, 1991; Baumrind, 1971). Those with secure attachment positively perceive others which likely manifested as being more responsive to others, while those with dismissive attachment negatively perceive others which likely manifested as being less responsive to others. Consequently, it seemed plausible that self-compassion may manifest as relative selflessness or selfishness – altruism or narcissism – depending on one’s perspective of others. Recall, too, the importance of perspective-taking in the theoretical model of the influence of empathy and compassion on self-regulation, as shown in Figures 3.2 through 3.4, and that attachment acts as a “behavioral regulatory system” (Polek, 2008, p. 50). Given these connections,

exercising compassion for oneself and others in teacher education should be prioritized, e.g., through analyzing case histories or video examples and role playing how to respond to children's needs. Moreover, supporting EC teachers' reflective functioning skills (Brophy-Herb et al., 2019, 2024; Hatton-Bowers et al., 2023; Virmani et al., 2020; Vallotton et al., 2016) would also foster their affective and cognitive perspective-taking, as well as provide a tangible way to nurture more secure attachment (Vallotton et al., 2016).

Interestingly, preservice EC teachers did not differ significantly in compassion for others and interpersonal mindfulness based on their predominant attachment style. I had expected that those with a secure attachment style would have more compassion for others and interpersonal mindfulness due to not only their positive and, hence, more accepting self-image but positive and hence, more sensitive regard of others. At the very least, I expected that those with dismissive and fearful attachment styles, both of which have a negative view of others, would be significantly lower in compassion for others and interpersonal mindfulness. Perhaps more participants in the study would have made such differences, if they existed, detectable.

Mixed Results for the Relationship of Predominant Attachment Style and Self-Compassion to Emotional Self-Regulatory Well-Being

For preservice EC teachers with a predominantly secure attachment style, their self-compassion was initially significantly predictive of their emotional self-regulatory well-being (SRWB). However, when compassion for others, intrapersonal mindfulness,

and interpersonal mindfulness were added to the regression model as potential predictors, secure self-compassion was no longer significantly predictive of emotion self-regulation. Three potential explanations for the changed outcome were 1) as predictors were added, the signal from the secure self-compassion predictor was diluted to the point of no longer being significant; 2) collinearity of independent variables; or 3) attachment was a confounding variable, substantively influencing both self-compassion and self-regulatory well-being.

Regarding the latter possibility, the one-way ANOVA results, reported in chapter four, showed that some attachment styles correlated with some of the other initial four characteristics but not to the level that suggested attachment was a confounding variable. More likely, the collinearity of the first five characteristics on the pathway somewhat masked their relationships with emotional SRWB. While that made interpreting the multiple linear regression results more challenging, *from an educational perspective their overlap suggested that by supporting one characteristic in teacher education, other characteristics would also be supported. Indeed, a consistent result from the current study's data analysis was that supporting preservice EC teacher self-compassion and intrapersonal mindfulness may be uniquely effective for their own and, ultimately, children's self-regulatory well-being.*

Dimensions of Attachment: Lessons from a Strength-Based Approach

Preservice EC teachers' mean levels of attachment security were used to test for relationships with their other characteristics, whether or not their predominant attachment

style was the secure type. As explained in the prior chapter, this added method was to recognize and honor an asset- not deficit-based context for optimal human development and learning. The profound, significant results from the first set of tests (simple linear regressions) were that, on average, preservice EC teachers with more secure attachment had more of all the following: self-compassion, compassion for others, intrapersonal mindfulness, self-regulatory, psychological, and self-determinative well-being, and support for children's self-regulatory growth, as shown in Table 4.19. Indeed, only self-determinative ($r = .66$) and psychological well-being ($r = .62$) were more strongly related to secure attachment than self-compassion was ($r = .49$) at $p < .001$. Moreover, self-compassion was the *only* characteristic of the first four on the pathway that significantly correlated with self-determinative and psychological well-being (respectively, $r = .38$ and $r = .45, p < .001$), as shown in Figure 4.1. *The lesson from these results was that teacher education programs should intentionally build not only mindful compassion but relational trust and secure attachment among all participants through whole teacher person-first processes.*

Alternatively, preservice EC teachers' self-compassion, compassion for others, and intrapersonal mindfulness were tested altogether as predictors of their mean levels of secure, fearful, preoccupied, and dismissive attachment beliefs from their Likert survey responses. The most poignant, significant result (from multiple linear regression analyses) was that self-compassion was the characteristic that most consistently and strongly predicted preservice EC teachers' mean secure, fearful, and preoccupied

attachment. This evidence was respectively $r = .31$, $r = -.35$, and $r = -.47$ at $p = .02$ or lower for moderate to strong relationships, as shown in Tables 4.20-22. Compassion for others moderately predicted secure ($r = .26$, $p = .02$) and preoccupied ($r = .34$, $p < .001$) but not fearful attachment. Intrapersonal mindfulness did not significantly predict secure, fearful, or preoccupied attachment, though was at the trend level for the latter ($r = -.21$, $p = .09$). None of the four characteristics significantly predicted dismissive attachment for this group of preservice EC teachers.

These results affirmed that compassion and mindfulness skills are not only personal but pedagogical tools for effective self-regulatory functioning, amenable to change, and practical for enhancing situational or more enduring attachment security. Mindful compassion skills can also be expected to deepen preservice EC professionals' reflective functioning which Vallotton et al. (2016) positively linked to their attachment security. Overall though, the most poignant result was that self-compassion was, again, the main character in this unfolding story about how to engender self-regulatory, psychological, and self-determinative well-being in teacher education for adults and children.

Self-Efficacy: Discussion of Findings – Self-Efficacy Significantly Predicted

Emotional Self-Regulatory Well-Being

On average, preservice EC teachers were highly confident that their responses to children's self-regulatory needs in the vignettes were effective, indicating a healthy sense of self-determinative autonomy and competence (Ryan & Deci, 2017). Bandura (2023)

emphasized self-efficacy as the motivational force in human agency and self-determination. Deci and Ryan (1985; as cited in Ryan & Deci, 2017) also focused on self-efficacy as personal agency, linking efficacious self-agency to the innate need for self-determination (Deci & Ryan, 2000; Ryan & Deci, 2017). Indeed, behind individuals' sense of their own efficacy are the enabling or disabling self-beliefs that fuel their perceptions and motivation to act. As such, their modulation of thought and emotion to decide, whether implicitly or explicitly, what to do next and carry out that intent is inherently self-regulative (Bandura, 2023), as well as contextually adaptive or maladaptive. Cumulatively, from these findings in the literature review, I expected that the extent to which preservice EC teachers' self-efficacy was determined by adaptive and enabling self-beliefs would positively predict their emotional self-regulatory well-being. Indeed, preservice EC teachers had, on average, moderate levels of emotional self-regulatory well-being (SRWB) and self-efficacy with self-efficacy moderately predictive of SRWB. *This evidence of their relationship supported linking these two characteristics in the teacher education curriculum as a synergistic opportunity to co-develop them.*

Developmental Support Significantly Predicted Self-Efficacy

Furthermore, strengthening preservice EC teacher self-efficacy and emotional self-regulatory well-being can be expected to not only benefit their personal but professional agency. That expectation was supported by the significant finding in the current study that preservice EC teachers' developmental support of children's self-regulation was moderately positively predictive of their self-efficacy. *As such, these*

characteristics and skills should be an intentional focus in whole teacher person-first education, implemented through practical strategies, e.g., experiential learning and embedded coaching.

Meditation: Discussion of Findings – Meditation Was an Undeveloped and Under-Developed Skill

An opportunity for growth was identified for preservice EC teachers regarding meditation and, more broadly, self-care skills. As a reminder before further discussion, the vast majority did not have an established meditation practice. Indeed, 83% did not meditate at all. Of those who meditated, 19% had not meditated in the past week and 38% had meditated only one time. Also, more than half of those who meditated did so for just 1-5 minutes at a time. These results suggested that preservice EC teachers do not believe they have time in their schedules to meditate or see tangible benefits extending from their personal to professional lives. If so, developing content in teacher education programs about these benefits and practical strategies for establishing a consistent meditation practice, would be important. Moreover, *developing a context in teacher education that normalizes “self-care as professionalization”* (Driscoll et al., 2020, p. 453) and meditation as one way to *Stress Less, Accomplish More* (Fletcher, 2019) within the time one has, may especially resonate with college students.

The small number of preservice EC teachers in the current study who meditated (16 of 92 or 17%) made meaningful analyses of differences based on meditation challenging. For example, though meditators scored higher in every characteristic on the

pathway, those results were not statistically significant, except in one positive but small relationship for interpersonal mindfulness as teachers towards children in classrooms. As reported in more detail in the prior chapter, meditators scored very high ($M = 4.69$, $SD = .33$) compared to nonmeditators, who scored high but not as high ($M = 4.40$, $SD = .47$) on a 5-point Likert scale. Thus, I turned to other research and found nuanced results about the relationship with mindful observation for meditators compared to nonmeditators.

Mindful Observation – A Critical Personal and Pedagogical Skill

Baer et al. (2004, 2006; as cited in 2008) in developing the Five-Facet Mindfulness Questionnaire (FFMQ) that was used in the current study, found that the direction of relationships among factors was different for the observing factor. Unexpectedly, those with more mindful observation showed more – not less – harsh self-judgment and reactivity to their inner experiences, thoughts, and feelings. However, when the data was split into meditators and nonmeditators, the pattern was reversed for the meditator, presumably because their mindful observation was adaptive with a focus on accepting one's thoughts and feelings. Indeed, the direction of the relationship was the same as for other components of mindfulness, i.e., more skill as an observer was related to more skill describing emotions, acting with awareness, nonjudging, and nonreactivity. Conversely, the nonmeditators still showed maladaptive observation with more skill as an observer positively related to the negative outcome of more self-judgment and reactivity.

This nuanced finding intersected with a finding in the current study that preservice EC teachers with secure attachment styles and dismissive attachment styles did not significantly differ in self-compassion. As discussed earlier in this paper, there was no difference likely because individuals with either of those attachment styles have a positive view of themselves. What differed, though, was how that self-regard manifested in their treatment of others, based on their different views of others. Indeed, those with secure attachment were likely more positive about and, hence, more responsive towards others, and those with dismissive attachment were likely less positive about and, hence, less responsive towards others. Similar to the meditators in the Baer et al. (2008) study, the securely attached preservice EC teachers were likely more *observant*, and because of their favorable view of others, responded *adaptively*. Following this same logic, those who were dismissively attached were likely less *observant*, and because of their unfavorable view of others, reacted *maladaptively*.

Thus, while more self-compassion at first seemed positive that depended on the type, e.g., secure self-acceptance and open towards others or self-centered and closed towards others. The difficulties many students in my teacher education courses had with objectively observing children may have had more to do with their attachment styles than I previously realized. If so, coaching students in their professional role as preservice teachers on the concrete skill of mindfully observing children, may eventually help them more adaptively observe and respond not only to children but themselves and others.

Observation-Based Reflective Functioning – A Critical Pedagogical Skill

The approach described in the prior paragraph dovetailed with studies that suggested that focusing on tangible pedagogical skills, e.g., reflective functioning, may be the most effective and nonthreatening way to help teachers develop more secure attachment (Vallotton et al., 2016; Virmani et al., 2020). Of importance, reflective functioning for teachers is grounded in ongoing observation of children, wonder and curiosity about what children are experiencing, e.g., their thoughts and feelings, and responses that are developmentally supportive (Vallotton et al., 2021). To function reflectively also means that teachers observe their own actions, thoughts and feelings, and respond adaptively (Vallotton et al., 2021), as they self-regulate through the school day. Moreover, reflective functioning requires mindful observation which requires being fully present, the very skills that meditation develops. Indeed, O’Hara-Gregan (2024) in “Caring for the carers: The intersection of care and mindful self-compassion in early childhood teaching,” quoted Pommier & Neff (2013) who said that the

regular practice of entering a meditative state focused on acceptance of present experiences and interconnectedness is predictive of an enhanced capacity to show understanding and kindness to both self and others. (p.893)

Given these conceptual connections, meditation should be intentionally supported in teacher education, as both a self-care and pedagogical skill for more reflective functioning for oneself and children.

Implications for Preservice Early Childhood Teacher Education

Major implications from this study's results were the importance of dispositional mindfulness, self-compassion – especially its dispositional or intentional kindness component – and compassion as enacted empathy for whole teacher development. *Pedagogy for these adult learners should actualize kindness for oneself linked with practical strategies for mindful-nonreactivity and mindful-nonjudging, as these components of mindfulness correlated most strongly with the self-compassion-kindness component.* Indeed, harsh reactivity and judgment of one's inner thoughts and feelings are anti-kindness and what Watson-Singleton et al. (2021) referred to as cold rather than warm compassion. All of the warm characteristics – kindness, mindfulness, and common humanity – should not be viewed as static traits but skills and protective factors that should be nurtured and strengthened in teacher education. These characteristics empower person-first approaches to learning and teaching for preservice EC teachers' self-regulatory well-being which relates to their psychological and self-determinative well-being and developmental support for children's self-regulation. Infusing teacher education curriculum, instruction, and assessment systems with the science of human development and adult learning will help infuse early childhood pedagogy with the science of child development.

Moreover, preservice EC teachers' mindful compassion for themselves and others and, ultimately, their adaptive support for children's self-regulatory development depend upon their skills of observing and perspective-taking. This conceptualization, as shown in

Figure 2.5, aligned with findings from Jennings (2015) that EC teacher mindful observation and perspective-taking positively related to their emotional support of children. Of interest, in the current study, preservice EC teachers on the measure of mindfulness scored highest on average for the component of observation, albeit at a moderate level.

Yet, that result was promising as a solid foundation from which to accelerate growth in these two critical observational skills for not only mindfulness, compassion, and emotion self-regulation but, more broadly, for effectively teaching young children. Indeed, the preservice teachers in my courses often struggled to objectively observe children, compelling me to seek more effective ways to help them develop this bedrock skill upon which all else in education depends. Curiously, though, the observation component of the intrapersonal mindfulness measure used in the current study did not significantly correlate with the components about mindfulness in the measures of self-compassion and compassion for others, as shown in Table 4.12. Perhaps this incongruity was because the observation component in the intrapersonal mindfulness measure was about physically being present in one's body, e.g., to feel the temperature of water in the shower or the wind on one's face. In contrast, the self-compassion and compassion for others components of mindfulness were about psychologically being present, e.g., to feel one's own or others' emotions. These latter are mostly what teachers should do relative to observing young children, implying the need to measure mindful observation differently (Virmani et al., 2020) for similar research in the future.

In summary, there were at least three broad policy implications from the results of the current study. These priorities should include the following initiatives. *Develop educative systems that support the whole person and self-regulatory well-being of adults and children. Deepen whole teacher pedagogy for preservice teacher education and inservice professional learning through relational person-first processes to synergize knowledge, belief, and practice systems. Normalize self-care as integral to the helping professions.* These endeavors would serve not only as protective factors but catalysts for teachers and children to flourish.

An Application: Thriving as an Early Childhood Teacher

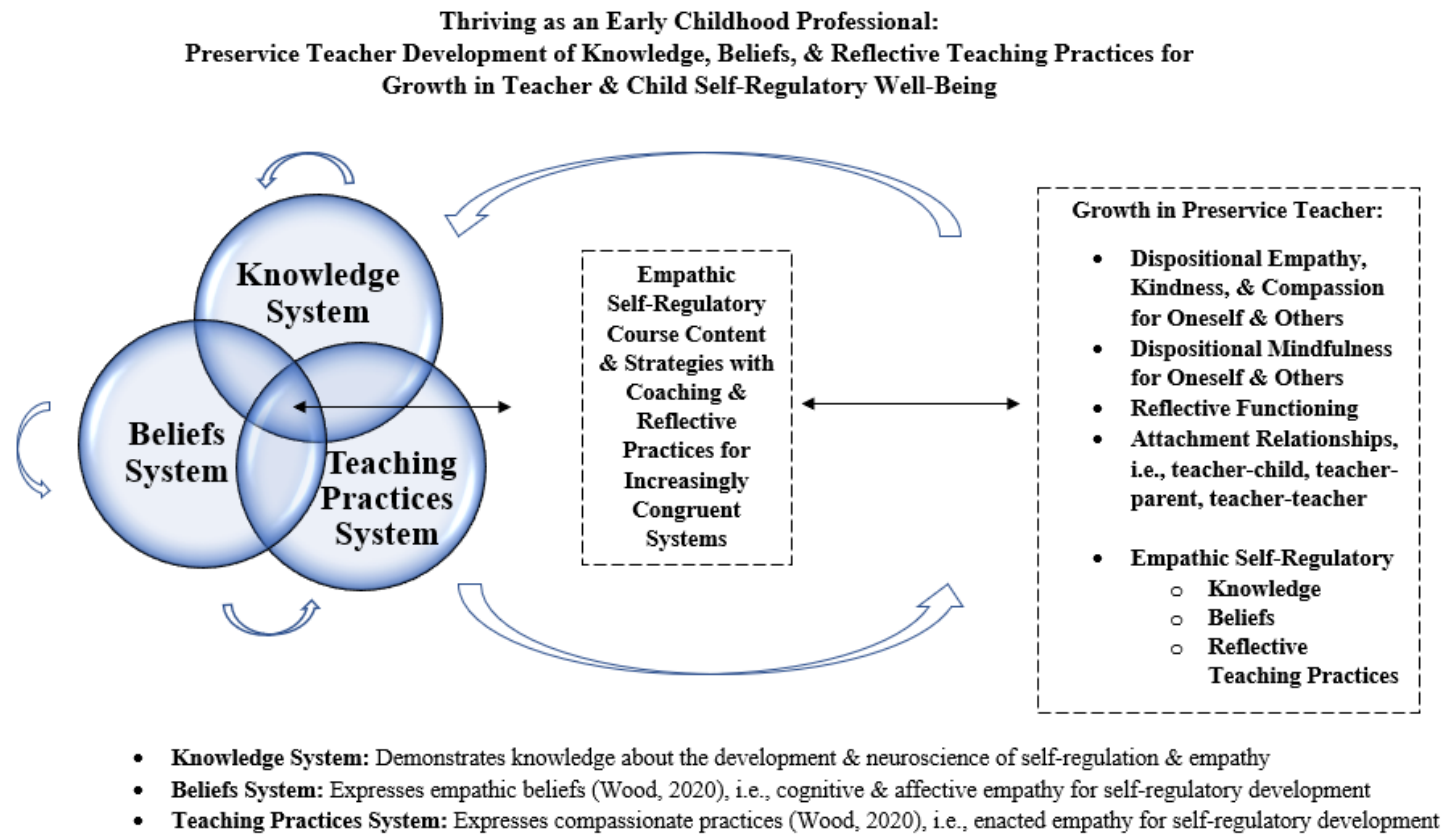
Using insights from the current study, I developed a preliminary plan for two, consecutive, one-credit courses about early childhood teacher well-being to occur over an academic year for teacher education students. Each course would meet biweekly for approximately two hours, seven or eight times during the 15-week semester for a total of 15 hours to earn one credit. Between class sessions, students would implement a well-being strategy then reflect with colleagues about that strategy at the next class session. *By spreading the content for the two credits across two semesters, students would receive support and coaching over a longer period of time, helping to sustain their mindfulness-based strategies. Support over a longer period of time for that purpose aligned with a recommendation of Brophy-Herb et al. (2024).* I also envisioned that this temporal design of the courses would benefit relationship-based experiential learning and camaraderie among colleagues, as they learned to thrive as early childhood professionals. Broadly, the

content of the two courses would be built around the following topics and as shown in Figure 5.1.

- What self-regulatory well-being is and is not
- Why self-regulatory well-being matters
- Neuroscience of self-regulatory well-being
- How self-compassion and empathy for oneself and others strengthen compassionate action and self-regulatory well-being
- How pivotal empathy and observational perspective-taking nurture self-regulatory well-being for oneself and others
- How to convey empathy nonverbally and verbally: practical strategies
- What co-regulatory pedagogical support of children looks, sounds, and feels like in EC classrooms: Practical strategies
- How thriving as an early childhood preservice and inservice teacher looks, sounds, and feels: practical strategies
- How to positively support adult and teacher self-regulatory well-being
- How to practice mindfulness based stress reduction
- How self-regulation supports self-determination and advances equity (NAEYC, 2019)

Figure 5.1

Thriving as an Early Childhood Professional: Preliminary Conceptualization of Two One-Credit Teacher Education Courses



Limitations and Implications

There were approximately four limitations of this study from which implications for future research were derived. The first limitation was the reliance on self-reported teaching practices without observational data gathered to confirm and gain insight about those practices. The exploratory nature and scope of the study did not allow for direct observation. In future research, e.g., an intervention study of a teacher education course developed from the results of the current study, there should be direct observation of teacher practices or at least teacher interviews about practices for additional insight.

The second limitation was that a convenience sample was used without any randomization of participants. Moreover, there may have been unknown qualitative differences between the preservice EC teachers who chose and did not choose to participate in the survey that affected the study's results and subsequent interpretations. Using a convenience sample limited the generalizability of results beyond EC teacher education programs in suburban midwestern universities. Optimally, in future research, a larger number of participants would be recruited from which random treatment and control groups could be established. While focusing on preservice EC teachers at one university was most relevant for improving their specific teacher education program, it is also important to acknowledge that most early childhood educators do not have four year degrees. Future research should include early care and education teachers who have not had post-secondary child development training or who have a child development

associate (CDA) certificate or two-year associate degree but not a four-year undergraduate degree.

A third limitation was that the student population at the university in general, and in the teacher education program in particular, was minimally diverse. This homogeneity meant that cultural nuances were likely missed about how to support the increased diversity of teachers, children, and families in the United States (NAEYC, 2019; NRC, 2015). Future studies should include diverse participants as much as possible for the practical reason of developing whole teacher pedagogy and also for greater generalizability of research results.

A fourth limitation was that the data were cross-sectional, providing a snapshot in time but did not identify changes over time, e.g., to determine if growth in compassion, mindfulness, well-being, and developmental practices were sustained. Future longitudinal research will be essential to determine the efficacy of teacher education interventions. Furthermore, as preservice teachers graduate, enter the workforce, and become more experienced, their knowledge, beliefs, and practices can be expected to change. In future research, studying and gaining insights about these changes and related needs of inservice teachers will be important for continuing to develop person-first professional learning for teacher well-being and their developmental support for child well-being.

In the context of limitations, except for qualitatively analyzing preservice EC teachers' narrative responses about children having self-regulatory difficulty, the current study used quantitative measures. It should be noted too, that these qualitative analyses

were then converted to a quantitative form, using a rubric for scoring. Future research should more deeply examine preservice EC teacher characteristics, e.g., self-compassion, mindfulness, well-being, and developmental responsiveness, by using additional qualitative methods. In terms of my series of three research studies, the first study was purely qualitative and generated key topics to further examine, the second and current study was mostly quantitative for that exploration, and the third study should be deeply qualitative for nuanced insights.

Conclusion

The purpose of this research was to improve preservice EC teacher education and address a twofold problem for education systems at all levels: one, that they largely do not provide support for children and adults to develop self-regulatory well-being, even though self-regulation determines lifelong learning and success; and two, that teachers need support to learn about children's development of self-regulation and strategies to scaffold that growth.

To recap, what follows were insights from the significant positive results for each of the five segments of the path analysis, as shown in the empirical model in Figure 4.1. For segment A of the pathway, preservice EC teachers' intrapersonal mindfulness, self-compassion, and self-kindness had the strongest predictive relationships with their self-regulatory well-being and, in that sense, mattered the most. Self-compassion was also the only one of the first four characteristics on the pathway to predict self-determinative and psychological well-being, suggesting its unique importance. For segment B, preservice

EC teachers' self-regulatory well-being moderately predicted their developmental support of children's self-regulatory well-being, linking teacher and child self-regulation. For segment C, preservice EC teachers' emotional self-regulatory well-being strongly related to their self-determinative autonomy, relatedness, and competence, as well as their psychological well-being, evidence of the linchpin importance of self-regulation.

For segment D of the pathway, preservice EC teachers' self-determinative well-being strongly related to their increased developmental support for children's self-regulation. Their self-determination also mediated and amplified their self-regulatory well-being for substantially more developmental support of children's self-regulation. For segment E of the pathway, testing so many characteristics at once as predictors of developmental support was perhaps like having too many cooks in the kitchen, i.e., the contributions of any one cook were likely obscured and the overall results were compromised. To continue the analogy, a more tested recipe, i.e., a more established, valid, and reliable measure of developmental responsiveness, may have helped the ingredients be more detectable. Across the pathway segments, self-compassion and intrapersonal mindfulness – as well as psychological and self-determinative well-being, correlated so strongly that their overlap suggested that they can be synergetically developed in teacher education.

In reflecting on the most important lessons learned from the preservice EC teachers who participated in the current study, I realized that *their compassion acted as a compass for kindness and mindfulness towards themselves and others*. Indeed, the word

compassion includes the word compass. More broadly, mindful compassion and especially *self-compassion*, may serve as a compass in all of our lives to keep us grounded and free to thrive, as self-regulated learners who can determine our own life course. This dynamic is different than finding oneself burning candles at both ends, accidentally starting a fire, and then putting an oxygen mask on because of the smoke. That is what one does when there is already an emergency, after somehow forgetting to take gentle care to prevent risks to one's well-being and flourish with gusto. To that end, compassion and mindfulness are not fixed traits or random reactions but chosen responses and skills that can be developed and strengthened. For preservice EC teachers, their mindful-compassion compasses guided their metaphorical walk along the pathway, enhancing self-regulatory, self-determinative, and psychological well-being on their journey as individuals and preservice professionals. There were distinct routes to this well-being and the destination of enhanced developmental support for children's self-regulatory well-being. It was a privilege to walk alongside and learn from this group of preservice early childhood teachers, and I am eager to apply insights from these results to advance whole teacher person-first education.

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Footnotes

¹ Other sources with consistent definitions and/or descriptions of self-regulation were Blair and Raver (2014), Flook et al. (2015), Fuhs et al. (2013), Montroy et al. (2014), Murray et al. (2015), and Raver et al. (2011).

² Other sources with consistent definitions and/or descriptions of executive function were Blair and Raver (2014), Flook et al. (2015), Montroy et al. (2014) and Weiland et al. (2014).

³ Other research that found that self-regulation determines learning and, by extension, human progress and survival was Bartik (2014), Blair and Raver (2014), Heckman (2011), Heckman (2013) and Moffitt et al. (2011).

⁴ Other sources that described the intellectual assimilation and accommodation of Piagetian adaptive learners were Crain (2011) and Ginsburg and Oppen (1988).

⁵ Other sources that identified early childhood as a critical period of rapid development in self-regulation and executive function were Fuhs et al. (2013), Fuhs et al. (2014), IOM and NRC (2012), and NRC and IOM (2000).

⁶ Other sources that identified early childhood as a teachable capacity were Flook et al. (2015) and Raver et al. (2011).

Appendices

Appendix A: Approval Letter from the Oakland University (OU) Institutional Review Board (IRB)



Institutional Review Board

Date: February 15, 2024

Study #: IRB-FY2024-194

Study Title: Preservice Early Childhood Professional: Beliefs, Knowledge, and Practices

Submission Type: Initial

IRB Decision: Exempt

Research Team:

Kellye Wood

Tomoko Wakabayashi

Based on applicable federal regulations, the above referenced study has been determined to be Exempt, with the following categories:

Category 1. Research, conducted in established or commonly accepted educational settings, that specifically involves normal educational practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction. This includes most research on regular and special education instructional strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:

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

Letter and Consent Document:

This letter along with the IRB approved (date-stamped) consent document can be found in Cayuse in the Submission Details page under Letters and Attachments, respectively. Please make sure to use the most recent IRB approved version of the consent form in consenting participants.

Permission from Research Sites:

Please note the following:

- This IRB exemption determination letter means that this research has met one or more of the federal criteria for exemption per 45 CFR 46.104- Exempt Research.
- Before the research is initiated, permission to conduct research at a given site must be obtained from all research locations listed in the IRB submission. You must keep copies of all such permission letters for your files.

- It is the responsibility of each researcher to follow all applicable policies and procedures of any outside institution where the research will be conducted.

Modifications:

Any changes to this exempt project must be reviewed by the IRB prior to initiation by submitting a MODIFICATION request. Do not collect data while the changes are being reviewed. Data collected during this time cannot be used in research.

Record Retention:

Exempt projects will be retained by the IRB office for three years after the last action on the project.

You are approved to start the research. Please retain a copy of this notification for your records.

If you have any questions, please contact the IRB office.

Thank you.

The Oakland University IRB

Appendix B: Email to Course Instructors – Approved by OU IRB

Dear Colleagues,

Please consider inviting your students in HDFS 211, 320, 321, 322, 424, 449, and 473 to take an online survey about their beliefs, knowledge, and practices as preservice early childhood professionals.

This research is for my doctoral study. I hope to collect survey data in March from 300 students enrolled in HDFS child development or early childhood education courses. I will use insights from the study results to develop the courses I teach and contribute to program planning.

Attached is a student recruitment letter that you may decide to post on your D2L course site and/or a slide during a class session. If you wish, I can also briefly attend lecture to refer students to information about the study. Alternatively or additionally, you can provide students with the link and QR code below to the first section of the survey that has information about the study. Please do not email students as that would be against FERPA rules unless a student emailed you first requesting information.

If taking the survey may be one of your extra credit options:

- Please note that no identifying information will be collected through the survey. This procedure is to further ensure student privacy and uncoerced decision making to consent or not consent for survey responses to be used in the study, because some students are or will be in classes that I teach.
 - To receive extra credit, perhaps students could submit two screenshots, i.e., of information at the top of the survey and the last screen thanking them for taking the survey, as indication that they took it. Alternatively, they could write a brief reflection, e.g., about how taking the survey supported their reflective practices.
 - There should be other extra credit options and the amount of extra credit for taking the survey (but not necessarily giving consent for responses to be used in the study) should be proportional to the other opportunities for extra credit.

If students can take the survey as an extra credit option, please emphasize that:

- *Allowing your survey responses to be used in the research study is entirely optional and voluntary. You can take the survey for extra credit and either consent or not consent for your responses to be used in the research study. Either*

way, you will still earn the extra credit. Also, anyone taking the survey can skip questions or stop taking it if they are not comfortable. The decision to consent or not consent for your survey responses to be used in the research study is completely your choice.

Please do not hesitate to contact me if you have questions, suggestions, or concerns.
Thank you for your consideration.

Best wishes, Kellye Wood

https://oakland.az1.qualtrics.com/jfe/form/SV_7OtFQ4RM81ubpHw



Appendix C: Student Recruitment Letter for Instructors of the Five Courses Not Taught
by the Principal Investigator – Approved by OU IRB

Dear Preservice Early Childhood Professionals:

I am Kellye Wood working under the direction of Tomoko Wakabayashi, Associate Professor, Human Development and Child Studies, Oakland University.

I am conducting a research study to learn more about the beliefs, knowledge, and practices of preservice early childhood professionals who are students in child development or early childhood education courses. I will use the research results to further develop courses that reflect the needs and interests of students.

I am recruiting students who are in early childhood courses at Michigan State University to fill out an online survey. The survey will take approximately 35 minutes.

Your participation in this research study is voluntary. Whether or not you consent for your survey responses to be used in the research study will not affect your course grade. Anyone taking the survey can skip questions or stop taking it if they are not comfortable. The decision to consent or not consent for your survey responses to be used in the research study is entirely your choice. Your decision will not affect your relationship with the researcher or Michigan State University.

The research will take place at Michigan State University during a class session if applicable and voluntary or at a time and place of your choice.

To learn more about this research study, please see the information sheet available **here** or at the beginning of the survey via:

https://oakland.az1.qualtrics.com/jfe/form/SV_7OtFQ4RM81ubpHw



If you have any questions about the research, please contact me, Kellye Wood, kellyewood@oakland.edu, 231-233-3945; or the faculty advisor for this project, Tomoko Wakabayashi, twakabayashi@oakland.edu, 248-370-3078.

Thank you for your consideration. Best wishes, Kellye Wood

Appendix D: Written Announcement for the Two Courses Taught by the Principal

Investigator – Approved by OU IRB

Note: The following written message will be posted on the online course site and/or a slide in a class session's PowerPoint slide deck.

Tonight's in-class exercise will earn the standard eight points.

You will have an opportunity to take an online survey about your beliefs, knowledge, and practices as a preservice early childhood professional. Through this activity, you may gain further insights about yourself as an individual preparing to be a teacher which may, in turn, help you develop your teaching philosophy that is due near the end of the semester.

You will **not** be asked to provide identifying information in the survey, i.e., your name or other personal details that collectively could identify who you are. Your responses are anonymous.

Separate from and **not** required by the in-class exercise: You will be asked if your anonymous survey responses can be used in a research study about the beliefs, knowledge, and practices of preservice early childhood professionals. *This participation in the research study is entirely optional and no one will know who gave or did not give permission. If you decide not to participate in the research study, it will not negatively affect your course grade. Also, like anyone who takes the survey, you can skip questions or stop participating, if you become uncomfortable.* The decision to participate or not in the research study has no impact on your course grade and is completely your choice.

To help in deciding whether or not to allow your survey responses to be used in the research study, please read the detailed information sheet available **here** or at the top of the survey via:

https://oakland.az1.qualtrics.com/jfe/form/SV_7OtFQ4RM81ubpHw



Information Sheet for Exempt Research

Preservice Early Childhood Professional:
Beliefs, Knowledge, and Practices

Introduction

You are being asked to be in a research study that is being done by Kellye Wood under the direction of Tomoko Wakabayashi, Associate Professor, Human Development and Child Studies, Oakland University, the faculty advisor for this project.

Your decision to participate in this research study is voluntary. If you decide not to participate in the research study, it will not negatively affect your course grade. You can choose to stop your participation at any time or skip any part of the research study if you are not comfortable. Your decision will not affect your present or future relationship with Oakland University, the researcher, or Michigan State University.

What is the purpose of this study?

The purpose of this research study is to learn more about preservice early childhood professionals' beliefs, knowledge, and practices. Research results will be used to further develop courses that reflect the needs and interests of students who are preservice early childhood professionals.

Who can participate in this study?

You are being asked to participate in this research study because you are a student in a child development or early childhood education course.

What do I have to do?

You will be asked to fill out an online survey.

Where will this study take place?

This research study will take place at Michigan State University during a class session if applicable and voluntary or at a time and place that you choose.

How long will I be in the study?

Doing the survey will take you about 35 minutes.

Are there any risks to me?

For this research study, the potential risks are minimal. No identifiable data that can directly be linked to you are collected.

Are there any benefits to me?

The possible benefits to you for participating in this research study are that you will gain further insights about your beliefs, knowledge, and practices as an early childhood professional. There may be no direct benefits to you, however, the results of the research study may benefit others in the future.

Will I receive anything for participating?

You will not receive anything for participating in this research study.

What if I want to stop participating in this study?

If you want to stop participating in this research study, close your browser before completing and submitting the survey. If the survey is submitted, it will not be possible to withdraw your data from the research study.

Who do I contact if I have questions about this study?

Kellye Wood, kellyewood@oakland.edu, 231-233-3945; or the faculty advisor for this project, Tomoko Wakabayashi, twakabayashi@oakland.edu, 248-370-3078

For questions regarding your rights as a participant in human subject research, you may contact the Oakland University Institutional Review Board, 248-370-4898.

If you choose to participate in this research, the online survey is available at:+

https://oakland.az1.qualtrics.com/jfe/form/SV_7OtFQ4RM81ubpHw



Appendix F: Attachment Style Questionnaire (Polek, 2008; Hofstra & Van Oudenhoven, 2003) (Van Oudenhoven, Hofstra, & Bakker, 2003; as cited in Mosterman & Hofstra, 2015)

Each style is scored as an average of its items. There is not an overall score, because attachment style scores are interpreted relative to one another.

1 = Strongly Disagree – 5 = Strongly Agree

1 (S)	I feel at ease in emotional relationships.	
2 (F)	I would like to be open to others but I feel that I can't trust other people.	
3 (S)	I feel uncomfortable when relationships with other people become close.	
4 (F)	I would like to have close relationships with other people but I find it difficult to fully trust them.	
5 (D)	I prefer that others are independent of me and I am independent of them.	
6 (P)	I often wonder whether people like me.	
7 (S)	I avoid close ties.	
8 (P)	I have the impression that usually I like others better than they like me.	
9 (S)	I trust other people and I like it when other people can rely on me.	
10 (P)	I am often afraid that other people don't like me.	
11 (D)	It is important to me to be independent.	
12 (S)	I find it easy to get engaged in close relationships with other people.	
13 (S)	I feel at ease in intimate relationships.	
14 (D)	I like to be self-sufficient.	
15 (P)	I don't worry whether people like me or not.	
16 (S)	I think it is important that people can rely on each other.	

17 (D)	I don't worry about being alone: I don't need other people that strongly.	
18 (F)	I am afraid that I will be deceived when I get too close with others.	
19 (P)	I usually find other people more interesting than myself.	
20 (S)	I trust that others will be there for me when I need them.	
21 (F)	I am wary to get engaged in close relationships because I am afraid to get hurt.	
22 (P)	It is important to me to know if others like me.	

Bartholomew & Horowitz (1991) Attachment Style Prototypes:

Secure	It is relatively easy for me to become emotionally close to others. I am comfortable depending on others and having others depend on me. I don't worry about being alone or having others not accept me.
Dismissing	I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.
Preoccupied	I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.
Fearful	I am somewhat uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I sometimes worry that I will be hurt if I allow myself to become too close to others.

Polek (2008, Appendix 1) used the same 22-item ASQ:

The Attachment Style Questionnaire (Van Oudenhoven, Hofstra, & Bakker, 2003) used in the present research (items 3, 7, 15 were reversely keyed).

Secure attachment style

- 1. I feel at ease in emotional relationships
- 3. I feel uncomfortable when relationships with other people become close
- 7. I avoid close ties
- 9. I trust other people and I like it when other people can rely on me
- 12. I find it easy to get engaged in close relationships with other people
- 13. I feel at ease in intimate relationships
- 16. I think it is important that people can rely on each other
- 20. I trust that others will be there for me when I need them

Fearful attachment style

- 2. I would like to be open to others but I feel that I can't trust other people
- 4. I would like to have close relationships with other people but I find it difficult to fully trust them
- 18. I am afraid that I will be deceived when I get too close with others
- 21. I am wary to get engaged in close relationships because I am afraid to get hurt

Preoccupied attachment style

- 6. I often wonder whether people like me
- 8. I have the impression that usually I like others better than they like me
- 10. I am often afraid that other people don't like me
- 15. I don't worry whether people like me or not
- 19. I usually find other people more interesting than myself
- 22. It is important to me to know if others like me

Dismissing

- 5. I prefer that others are independent of me and I am independent of them
 - 11. It is important to me to be independent
 - 14. I like to be self-sufficient
 - 17. I don't worry about being alone: I don't need other people that strongly
-

Appendix G: State Self-Compassion Scale Long Form (Neff et al., 2021)

HOW I FEEL TOWARDS MYSELF RIGHT NOW

Think about a situation you are experiencing right now that is painful or difficult. It could be some challenge in your life, or perhaps you are feeling inadequate in some way. Please indicate how well each statement applies to how you are feeling toward yourself right now as you think about this situation, using the following scale:

Not at all true for me					Very true for me
1	2	3	4	5	

1. I'm giving myself the caring and tenderness I need.
2. I'm obsessing and fixating on everything that's wrong.
3. I see my difficulties as part of life that everyone goes through.
4. I'm being pretty tough on myself.
5. I'm keeping my emotions in balanced perspective.
6. I feel separate and cut off from the rest of the world.
7. I'm being kind to myself.
8. I'm getting carried away with my feelings.
9. I'm remembering that there are lots of others in the world feeling like I am.
10. I'm being a bit cold-hearted towards myself.
11. I'm taking a balanced view of this painful situation.
12. I feel like I'm struggling more than others right now.
13. I'm being supportive toward myself.
14. I'm blowing this painful incident out of proportion.
15. I'm remembering that difficult feelings are shared by most people.
16. I feel intolerant and impatient toward myself.
17. I'm keeping things in perspective.
18. I'm feeling all alone right now.

SCORING KEY

Kindness: 1, 7, 13

Self-judgment (reverse scored): 4, 10, 16

Common humanity: 3, 9, 15

Isolation (reverse scored): 6, 12, 18

Mindfulness: 5, 11, 17

Over-identification (reverse scored): 2, 8, 14

To reverse score items (1=5, 2=4, 3=3, 4=2, 5=1).

To compute a total state self-compassion score: Take the mean of each subscale, then compute a total mean (the average of the six subscale means).

When examining subscale scores, higher scores on the self-judgment, isolation and over-identification scale indicate less self-compassion before reverse coding, and more self-compassion after reverse coding. You can choose to report subscale scores with or without reverse coding, but these three negative subscales must be reverse coded before calculating a total self-compassion score.

Note: This is a supplemental material for the cited article available online: <https://self-compassion.org/wp-content/uploads/2021/03/SCS-State-information.pdf>.

Appendix H: Compassion Scale (Pommier et al., 2019)

Please read each statement carefully before answering. Please answer according to what really reflects your experience rather than what you think your experience should be. Indicate how often you behave in the stated manner, using the following scale:

Almost never					Almost always
1	2	3	4	5	

1. I pay careful attention when other people talk to me about their troubles.
2. If I see someone going through a difficult time, I try to be caring toward that person.
3. I am unconcerned with other people's problems.
4. I realize everyone feels down sometimes, it is part of being human.
5. I notice when people are upset, even if they don't say anything.
6. I like to be there for others in times of difficulty.
7. I think little about the concerns of others.
8. I feel it's important to recognize that all people have weaknesses and no one's perfect.
9. I listen patiently when people tell me their problems.
10. My heart goes out to people who are unhappy.
11. I try to avoid people who are experiencing a lot of pain.
12. I feel that suffering is just a part of the common human experience.
13. When people tell me about their problems, I try to keep a balanced perspective on the situation.
14. When others feel sadness, I try to comfort them.
15. I can't really connect with other people when they're suffering.
16. Despite my differences with others, I know that everyone feels pain just like me.

SCORING KEY

Kindness items: 2, 6, 10, 14

Common Humanity items: 4, 8, 12, 16

Mindfulness items: 1, 5, 9, 13

Indifference items (reverse scored): 3, 7, 11, 15 To reverse score items (1=5, 2=4, 3=3, 4=2, 5=1).

Subscale scores are computed by calculating the mean of the four subscale item responses. To compute a total compassion score, reverse score the indifference items then take a grand mean of all items. When examining subscale scores, higher scores on indifference items indicate less compassion before reverse coding, and more compassion after reverse coding. You can choose to report indifference scores with or without reverse coding, but items must be reverse coded before calculating a total compassion score.

Appendix I: Five-Facet Mindfulness Questionnaire (FFMQ) (Baer et al., 2006; as cited in Baer et al., 2008)

Please rate each of the following statements with the number that best describes <i>your own opinion</i> of what is <i>generally true</i> for you.		Never or very rarely true	Rarely true	Sometimes true	Often true	Very often or always true
FFQM 1	When I'm walking, I deliberately notice the sensations of my body moving. (OBS)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 2	I'm good at finding words to describe my feelings. (D)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 3	I criticize myself for having irrational or inappropriate emotions. (NJ-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 4	I perceive my feelings and emotions without having to react to them. (NR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 5	When I do things, my mind wanders off and I'm easily distracted. (AA-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 6	When I take a shower or bath, I stay alert to the sensations of water on my body. (OBS)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 7	I can easily put my beliefs, opinions, and expectations into words. (D)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 8	I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted. (AA-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 9	I watch my feelings without getting lost in them. (NR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 10	I tell myself I shouldn't be feeling the way I'm feeling. (NJ-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 11	I notice how foods and drinks affect my thoughts, bodily sensations, and emotions. (OBS)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 12	It's hard for me to find the words to describe what I'm thinking. (D-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 13	I am easily distracted. (AA-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 14	I believe some of my thoughts are abnormal or bad and I shouldn't think that way. (NJ-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 15	I pay attention to sensations, such as the wind in my hair or sun on my face. (OBS)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 16	I have trouble thinking of the right words to express how I feel about things. (D-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 17	I make judgments about whether my thoughts are good or bad. (NJ-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 18	I find it difficult to stay focused on what's happening in the present. (AA-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1

		Never or very rarely true	Rarely true	Sometimes true	Often true	Very often or always true
FFQM 19	When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it. (NR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 20	I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing. (OBS)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 21	In difficult situations, I can pause without immediately reacting. (NR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 22	When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words. (D-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 23	It seems I am "running on automatic" without much awareness of what I'm doing. (AA-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 24	When I have distressing thoughts or images, I feel calm soon after. (NR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 25	I tell myself that I shouldn't be thinking the way I'm thinking. (NJ-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 26	I notice the smells and aromas of things. (OBS)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 27	Even when I'm feeling terribly upset, I can find a way to put it into words. (D)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 28	I rush through activities without being really attentive to them. (AA-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 29	When I have distressing thoughts or images, I am able just to notice them without reacting. (NR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 30	I think some of my emotions are bad or inappropriate and I shouldn't feel them. (NJ-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 31	I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow. (OBS)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 32	My natural tendency is to put my experiences into words. (D)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 33	When I have distressing thoughts or images, I just notice them and let them go. (NR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 34	I do jobs or tasks automatically without being aware of what I'm doing. (AA-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 35	When I have distressing thoughts or images, I judge myself as good or bad depending what the thought or image is about. (NJ-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 36	I pay attention to how my emotions affect my thoughts and behavior. (OBS)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

		Never or very rarely true	Rarely true	Sometimes true	Often true	Very often or always true
FFQM 37	I can usually describe how I feel at the moment in considerable detail. (D)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
FFQM 38	I find myself doing things without paying attention. (AA-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
FFQM 39	I disapprove of myself when I have irrational ideas. (NJ-R)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1

Scoring:

(Note: R = reverse-scored item)

Subscale Directions	Your Score TOTAL	Your score item Avg.
Observing: Sum items 1 + 6 + 11 + 15 + 20 + 26 + 31 + 36		
Describing: Sum items 2 + 7 + 12R + 16R + 22R + 27 + 32 + 37.		
Acting with Awareness: Sum items 5R + 8R + 13R + 18R + 23R + 28R + 34R + 38R.		
Nonjudging of inner experience: Sum items 3R + 10R + 14R + 17R + 25R + 30R + 35R + 39R.		
Nonreactivity to inner experience: Sum items 4 + 9 + 19 + 21 + 24 + 29 + 33.		
TOTAL FFMQ (add subscale scores)		

NOTE: Some researchers divide the total in each category by the number of items in that category to get an average category score. The Total FFMQ can be divided by 39 to get an average item score.

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*(1), 27-45.

Note: Retrieved from <https://positivepsychology.com/five-facet-mindfulness-questionnaire-ffmq/>

Appendix J: Mindfulness in Teaching Scale (Frank et al., 2016)

Note: In the study, I will use the subscale for interpersonal mindfulness, i.e., the last five items below.

When I am teaching it seems I am “running on automatic,”
without much awareness of what I am doing.
When I am in the classroom I have difficulty staying focused on
what is happening in the present.
When I am teaching I find myself doing things without paying
attention
When I am teaching I get so focused on the goal I want to achieve
that I lose touch with what I’m doing right now to get there
At school I tend to walk quickly to get where I’m going without
paying attention to what I experience along the way.
I rush through activities with my class without being really
attentive to them.
When something painful happens at school I tend to blow the
incident out of proportion.
I am often so busy thinking about other things that I am not really
listening to my students.
When I’m really struggling with teaching, I tend to feel like other
teachers must be having an easier time of it.
Even when it makes me uncomfortable, I allow my students to
express their feelings.
I listen carefully to my student’s ideas, even when I disagree with
them.
I am aware of how my moods affect the way I treat my students.
When I’m upset with my students, I notice how I am feeling
before I take action.
When I am upset with my class, I calmly tell them how I am
feeling.

Since early childhood teachers more often refer to students as children, that wording change will be made as applicable in the interpersonal subscale, as follows.

- Even when it makes me uncomfortable, I allow children in my class to express their feelings.
- I listen carefully to the ideas of children in my class, even when I disagree with them.
- I am aware of how my moods affect the way I treat children in my class.
- When I’m upset with children in my class, I notice how I am feeling before I take action.
- When I am upset with my class, I calmly tell them how I am feeling.

Appendix K: Emotion Regulation Skills Questionnaire (Berking et al., 2008;
Grant et al., 2018)

For each of the following statements, choose from 1 for "Not at all" to 5 for "Almost always" to best describe what has been true for you *in the last week*.

5-point Likert scale from “Not at all” to “Almost always;” 9 components; subscale scores; overall score from averaging total items

	<i>In the last week...</i>	Component
1	I was able to consciously pay attention to my feelings.	Awareness (AW)
2	I could consciously bring about positive feelings.	Modification (MOD)
3	I understood my emotional reactions.	Understanding (UN)
4	I could endure my negative feelings.	Tolerance (TOL)
5	I was able to accept my negative feelings.	Acceptance (AC)
6	I could have labelled my feelings.	Clarity (CL)
7	I had a clear physical perception of my feelings.	Sensations (SEN)
8	I did what I wanted to do, even if I had to face negative feelings on the way.	Ready to Confront (CN)
9	I tried to reassure myself during distressing situations.	Self support (SS)
10	I was able to influence my negative feelings.	Modification (MOD)
11	I knew what my feelings meant.	Understanding (UN)
12	I could focus on my negative emotions if necessary.	Awareness (AW)
13	I knew what emotions I was feeling in the moment.	Clarity (CL)
14	I consciously noticed when my body reacted towards emotionally charged situations in a particular way.	Sensations (SEN)
15	I tried to cheer myself up in emotionally distressing situations.	Self support (SS)
16	I did what I intended to do despite my negative feelings.	Ready to Confront (CN)
17	I was OK with my feelings, even if they were negative.	Acceptance (AC)
18	I was certain that I would be able to tolerate even intense negative feelings.	Tolerance (TOL)
19	I was able to experience my feelings consciously.	Awareness (AW)
20	I was aware of why I felt the way I felt.	Understanding (UN)
21	I knew that I was able to influence my feelings.	Modification (MOD)
22	I pursued goals that were important to me, even if I thought doing so would trigger or intensify negative feelings.	Confront (CN)
23	I was able to experience my negative feelings without immediately trying to fight them off.	Acceptance (AC)
24	My physical sensations were a good indication of how I was feeling.	Sensations (SEN)

25	I was clear about what emotions I was experiencing.	Clarity (CL)
26	I could tolerate my negative feelings.	Tolerance (TOL)=
27	I supported myself in emotionally distressing situations.	Self support SS

[Note from KRWood: Resilience was the label instead of Tolerance; and Self Support was referred to as Compassionate Self Support in prior language.]

Appendix L: Diener Flourishing Scale – Psychological Well-Being (American College Health Association, 2019)

N3Q41 Below are 8 statements with which you may agree or disagree. Using the scale below, indicate your agreement with each item by indicating that response for each statement.

	Strongly disagree (1)	Disagree (2)	Slightly Disagree (3)	Neither agree nor disagree (4)	Slightly agree (5)	Agree (6)	Strongly Agree (7)
I lead a purposeful and meaningful life. (N3Q41A)	☐	☐	☐	☐	☐	☐	☐
My social relationships are supportive and rewarding. (N3Q41B)	☐	☐	☐	☐	☐	☐	☐
I am engaged and interested in my daily activities. (N3Q41C)	☐	☐	☐	☐	☐	☐	☐
I actively contribute to the happiness and well-being of others. (N3Q41D)	☐	☐	☐	☐	☐	☐	☐
I am competent and capable in the activities that are important to me. (N3Q41E)	☐	☐	☐	☐	☐	☐	☐

I am a good person and live a good life. (N3Q41F)	☐	☐	☐	☐	☐	☐	☐
I am optimistic about my future. (N3Q41G)	☐	☐	☐	☐	☐	☐	☐
People respect me. (N3Q41H)	☐	☐	☐	☐	☐	☐	☐

The Flourishing Scale

Below are eight statements with which you may agree or disagree. Using the 1–7 scale below, indicate your agreement with each item by indicating that response for each statement.

7. Strongly agree
6. Agree
5. Slightly agree
4. Mixed or neither agree nor disagree
3. Slightly disagree
2. Disagree
1. Strongly disagree

- I lead a purposeful and meaningful life
- My social relationships are supportive and rewarding
- I am engaged and interested in my daily activities
- I actively contribute to the happiness and well-being of others
- I am competent and capable in the activities that are important to me
- I am a good person and live a good life
- I am optimistic about my future
- People respect me

Scoring: Add the responses, varying from 1 to 7, for all eight items. The possible range of scores is from 8 (lowest possible) to 56 (highest possible). A high score represents a person with many psychological resources and strengths.

Permission for Using the Scales: Although copyrighted, the SPANE and Flourishing Scale may be used as long as proper credit is given. Permission is not needed to employ the scales and requests to use the scales will not be answered on an individual basis because permission is granted here. This article should be used as the citation for the scales, and this note provides evidence that permission to use the scales is granted. Copyright by Ed Diener and Robert Biswas-Diener, January 2009.

Hone, L., Jarden, A., Schofield, G. (2014). Psychometric properties of the Flourishing Scale in a New Zealand sample. *Social Indicators Research*, 119(2), 1031-1045.

Appendix M: Basic Psychological Need Satisfaction Scale (Deci & Ryan, 2000; Gagne, 2003)

Basic Psychological Need Satisfaction Scale

Scale Description

Central to self-determination theory is the concept of basic psychological needs that are assumed to be innate and universal. According to the theory, these needs--the needs for competence, autonomy, and relatedness--must be ongoingly satisfied for people to develop and function in healthy or optimal ways (Deci & Ryan, 2000). Many of the propositions of SDT derive from the postulate of fundamental psychological needs, and the concept has proven essential for making meaningful interpretations of a wide range of empirically isolated phenomena.

This 21-item scale addresses need satisfaction in general in one's life and was adapted from a more broadly used measure of need satisfaction at work (Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva, 2001; Ilardi, Leone, Kasser, & Ryan, 1993; Kasser, Davey, & Ryan, 1992). The Basic Psychological Need Satisfaction Scale in General has been used, for example, in Gagné (2003) and Thorgeresen-Ntoumani, Ntoumanis, Cumming, and Chatzisarantis, (2011).

Please use the following references when using this scale: (Deci & Ryan, 2000; Gagné, 2003)

Feelings I Have

Please read each of the following items carefully, thinking about how it relates to your life, and then indicate how true it is for you. Use the following scale to respond:

1	2	3	4	5	6	7
not at all			somewhat			very
true			true			true

1. I feel like I am free to decide for myself how to live my life.
2. I really like the people I interact with.
3. Often, I do not feel very competent.
4. I feel pressured in my life.
5. People I know tell me I am good at what I do.
6. I get along with people I come into contact with.
7. I pretty much keep to myself and don't have a lot of social contacts.
8. I generally feel free to express my ideas and opinions.

9. I consider the people I regularly interact with to be my friends.
10. I have been able to learn interesting new skills recently.
11. In my daily life, I frequently have to do what I am told.
12. People in my life care about me.
13. Most days I feel a sense of accomplishment from what I do.
14. People I interact with on a daily basis tend to take my feelings into consideration.
15. In my life I do not get much of a chance to show how capable I am.
16. There are not many people that I am close to.
17. I feel like I can pretty much be myself in my daily situations.
18. The people I interact with regularly do not seem to like me much.
19. I often do not feel very capable.
20. There is not much opportunity for me to decide for myself how to do things in my daily life.
21. People are generally pretty friendly towards me. 8)88

Scoring information. Form three subscale scores, one for the degree to which the person experiences satisfaction of each of the three needs. To do that, you must first reverse score all items that are worded in a negative way (i.e., the items shown below with (R) following the items number). To reverse score an item, simply subtract the item response from 8. Thus, for example, a 2 would be converted to a 6. Once you have reverse scored the items, simply average the items on the relevant subscale. They are:

Autonomy: 1, 4(R), 8, 11(R), 14, 17, 20(R)

Competence: 3(R), 5, 10, 13, 15(R), 19(R)

Relatedness: 2, 6, 7(R), 9, 12, 16(R), 18(R), 21

Note: Retrieved from <https://selfdeterminationtheory.org/basic-psychological-need-satisfaction-scales/>

Appendix N. Protocols for the Qualitative Analysis and Quantitative Scoring of Vignette
Narrative Responses

How to Evaluate the Quality of and Score Narrative Responses

Background Information:

- The framework for evaluating teacher narrative responses to scenarios where children experience self-regulatory difficulties is teacher empathy and developmental support for children to self-regulate.
- To empathize, a teacher must both cognitively understand and emotionally be able to imagine how children feel. When teacher empathy motivates their positive actions to help children self-regulate, this enacted empathy indicates compassion at a high level.
- Building children’s self-regulatory capacity and skills is a long-term developmental process that requires not only teachers’ developmentally appropriate responses but, explicitly, their developmentally *supportive* responses. Teachers’ developmentally supportive responses boost children’s self-regulatory growth, as teachers deliberately *co-regulate* with children in the moment – the short term – so that children can increasingly *self-regulate* in the long term.
- To self-regulate, children must
 1. become situationally aware of their emotions and actions,
 2. modulate emotion with thought, and
 3. choose a response or next action that is effective for them and, if applicable, others.

This 3-part process can be challenging for children, especially when they have “big feelings,” whether these emotions carry a positive or negative charge for them. Children often need support from teachers to navigate the three overlapping parts or steps in the self-regulatory process.

- Corresponding to these three self-regulatory steps, teachers need to be able to
 1. empathize to positively help children become aware of their emotions and actions,
 2. assist children to cognitively connect their emotions with antecedents, and
 3. help children to generate an effective response or next action.

These are the three indicators of the quality of teacher support for which each teacher response to a scenario will be evaluated..

- Raters will score each response on the three indicators of the teacher’s developmentally supportive responses for child self-regulation. Each indicator will be scored on a Likert scale from 1 to 5 with 1 for “very weak or no evidence” to 5 for “very strong evidence.” The three scores will be averaged for an overall score for that teacher’s level of developmental supportiveness for the respective scenario. The three indicators are:

Indicator 1	Empathize with Child
Indicator 2	Connect Emotion and Antecedent for Child
Indicator 3	Generate Response with Child

Directions for Scoring:

Indicator 1: Empathize with Child

Ideally, the teacher began the interaction by demonstrating recognition of the child’s physical or emotional cues about how the child feels and acceptance of the child’s emotion. For example, the teacher observed that “Your arms are folded and you’re frowning,” “Your tears tell me you’re sad” or “You’re upset.” In this way, the teacher connected with the child as an initial support by demonstrating cognitive and emotional understanding of the child’s perspective, even if in subsequent support the teacher will need to guide the child to a more effective way to respond to their emotions.

Notes:

- This Indicator coincides with the start of the self-regulatory process and challenge for children of *becoming more situationally aware of their emotions and actions*.
- For the scenario where KC became frustrated because the puzzle piece would not fit and threw it, but no one was hit or became upset:
 - The teacher should first focus on KC’s emotion. If instead the teacher’s first or only focus was that KC threw the puzzle piece (e.g., by saying, “You threw the puzzle piece. I’m concerned it could have hit someone. Go pick it up.”), the teacher did not begin with KC’s emotional perspective, and this empathy indicator should be scored as a **1**.

- *However, if the teacher then recognized or named KC’s emotion (e.g., by saying, “You’re frustrated”) score this indicator as a 2 for an attempt at empathizing.*
 - The teacher must focus first on KC’s emotion to score a 3 or higher, based on your assessment of how well the teacher did this based on the evidence.
- For the scenario where EM ran by and accidentally knocked down LR’s block tower then started playing elsewhere:
 - The teacher should respond first to LR who was upset and started crying. If instead the teacher interacted first with EM, score this empathy indicator as a 1.
 - *However, if the teacher then responded to LR by recognizing or naming LR’s emotion, score this indicator as a 2 for an attempt at empathizing.*
 - The teacher must focus first on LR’s emotion to score a 3 or higher, based on your assessment of how well the teacher did this based on the evidence.
- For the scenario where the new child MH cries when their parent leaves:
 - If the teacher did not focus on MH’s emotion, e.g., by naming it and comforting MH, but only tried to distract, re-direct, or chastise MH, score this indicator as a 1.
 - If the teacher only asked MH if they wanted to be comforted or left on their own (e.g., to “be alone,” “have space” or “go to the calm corner”) *but then did not* recognize or name the emotion, comfort MH, or at least stay nearby to provide nonverbal support, score this indicator as a 2 for an attempt at empathizing.
 - The teacher must focus first on MH’s emotion, e.g., by recognizing or naming it and comforting MH, to score a 3 or higher, based on your assessment of how well the teacher did this based on the evidence.

Directions for Scoring:

Indicator 2: Connect Emotion and Antecedent for Child

Ideally, the teacher positively scaffolded the child in regulating their emotions, i.e., by helping the child not only become more aware of and identify feelings but *explicitly linking these to their cause or precipitating factor*. For example, the teacher not only

named the child's feeling, e.g., "You're mad," "You're sad," or "You're upset" but *connected it to the reason*, e.g., feeling angry because the puzzle piece did not fit, upset because a classmate ran into your block tower and it fell over, or sad because it is hard to say goodbye when a parent leaves.

Note:

- This Indicator coincides with the need for children to *modulate their emotions with thought* in the self-regulatory process.
- For the scenario where KC became frustrated because the puzzle piece would not fit and threw it, but no one was hit or became upset:
 - If the teacher focused first on the thrown puzzle piece but then not only names *but connects KC's emotion with the antecedent*, score this indicator as a **2** or **3**, depending on your assessment of how well the teacher did this based on the evidence.
 - If the teacher focused first on KC's emotion and not only names *but connects it with the antecedent*, score this indicator as a **4** or **5**, depending on your assessment of how well the teacher did this based on the evidence.
- For the scenario where two children were involved, i.e., EM Knocks over a Block Tower:
 - If the teacher did not respond first to LR who was most in distress *but* then interacts with LR and not only names *but connects LR's emotion with the antecedent*, score this indicator as a **2** or **3**, depending on your assessment of how well the teacher did this based on the evidence.
 - If the teacher responded first to LR and not only names *but connects LR's emotion with the antecedent*, score this indicator as a **4** or **5**, depending on your assessment of how well the teacher did this based on the evidence.
- For the scenario where the new child MH cried when their parent left:
 - If the teacher names MH's emotion *and connects it to the antecedent* but also makes a minimizing or dismissive comment, e.g., "you'll be fine," score this indicator as a **2** or **3**, depending on your assessment of the evidence.
 - If the teacher names MH's emotion *and connects it to the antecedent*, score this as a **4** or **5**, depending on your assessment of how well the teacher did this based on the evidence.

Directions for Scoring:

Indicator 3: Generate Response with Child

Ideally, the teacher problem solves with the child to generate and choose an emotionally satisfying and situationally effective next step or action for the child and, if applicable, others. Examples of effective solutions are:

- KC turns the puzzle piece this way and that way to fit it into the frame or asks a classmate or teacher for help rather than throwing the piece.
- LR tells EM who ran into/knocked down LR's block tower that LR was upset by that; EM offers to help LR rebuild the block tower; or EM plans to walk more slowly around or further away from people's block towers, perhaps even practicing (e.g., by playfully pretending to navigate around an obstacle course).
- MH makes a card to give their parent later upon return or MH holds their family photo or keeps it with them while playing.

Note:

- This Indicator coincides with an optimal outcome and desired result of the self-regulatory process, i.e., *a next step or response that is positive and meaningful to the child, and if applicable, others.*
- If the teacher directed or told the child what to do without any discussion with the child to generate a solution, *and* it was likely not an emotionally satisfying and situationally effective “solution” for the child and others (if applicable), score this indicator as a **1**.
- If the teacher directed or told the child what to do without any discussion with the child, *but* that idea or choice of ideas was likely an emotionally satisfying and situationally effective solution for the child, and others (if applicable), score this indicator as a **2** or **3**, depending on your assessment of how well the teacher did this based on the evidence.
- If the teacher engaged the child in discussion to generate *a solution* that was likely emotionally satisfying and situationally effective for the child and others (if applicable), score this indicator as a **4**.
- If the teacher engaged the child in discussion to generate at least *two solutions*, i.e., *choices*, that were likely emotionally satisfying and situationally effective for the child and others (if applicable), score this indicator as a **5**.

Anchor Responses for Scenarios:

Below are examples of low-, medium, and -high quality responses.

Scenario	Low Quality (e.g., a 1 or 2)	Medium Quality (e.g., a 3)	High Quality (e.g., a 4 or 5)
Child Throws a Toy: KC is trying to make a wooden puzzle piece fit into the frame by pushing it harder and harder. Suddenly, KC throws the piece with force, just missing another child's head. KC folds her arms across her chest, frowns, and scrunches her eyebrows.	"You threw that toy. I'm worried that it hurt someone, or that it will break. Pick it up and apologize." <u>Indicator 1</u> Empathize with Child: score of 1 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: score of 1 <u>Indicator 3</u> Generate Solution with Child: score of 1 Average of scores = 1	"It seems as though you are frustrated. Don't throw the puzzle pieces, you could hit someone and hurt them. Let's try and fit your piece together." <u>Indicator 1</u> Empathize with Child: 5 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: 1 <u>Indicator 3</u> Generate Solution with Child: 2 Average = 2.66	Walk over child, get down to their level. I notice that you are feeling frustrated and threw the puzzle piece. Throwing the puzzle piece is unsafe and could hurt someone. We will find a safer way to release your frustration. After, I would have the child walk over and pick up the puzzle piece and we would generate ideas together that would help them feel less frustrated like taking a deep breath and trying to finish the puzzle again. <u>Indicator 1</u> Empathize with Child: 5 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: 2 <u>Indicator 3</u> Generate Solution with Child: 3 Average = 3.33

Scenario	Low Quality (e.g., a 1 or 2)	Medium Quality (e.g., a 3)	High Quality (e.g., a 4 or 5)
Child Knocks Down Another Child's Block Tower: During playtime, EM hurries to a center across the room. EM cuts through the block area and bumps into LR's tower, knocking it down. LR yells, "No!" and thrusts a fist out at EM who has not stopped moving. LR cries loudly as EM begins to play elsewhere.	1st Example: EM, you need to go back and apologize for knocking their tower down. <u>Indicator 1</u> Empathize with Child: score of 1 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: score of 1 <u>Indicator 3</u> Generate Solution with Child: score of 1 Average of scores = 1 2nd Example: First, I would check on LR and ensure that they did not get physically hurt. Then I would have EM come back to the block area to see that their running caused the blocks to fall and that hurt their classmate's feelings. <u>Indicator 1</u> Empathize with Child: 2 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: 2 <u>Indicator 3</u> Generate Solution with Child: 1 Average = 1.66	I would first go to EM and say "You were running through the classroom, and you knocked down LR's tower. He is sad. You can continue to play somewhere else after you help pick it up. Then I will talk to LR and say "I noticed you were very upset when EM knocked your tower over, I do not think that was her goal. When things like that happen its helpful to say, EM you knocked over my tower and that made me feel upset. <u>Indicator 1</u> Empathize with Child: score of 2 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: score of 3 <u>Indicator 3</u> Generate Solution with Child: score of 3 Average of scores = 2.66	I would walk over to LR and say I notice they are crying. I would ask them what has made them feel this way. I hope they would tell me that EM knocked over their tower. I would walk over to EM, bring them to the block area. I would say, "LR is upset because you knocked down the tower they were building. Next time you walk through the block room, be more careful to the others around you to make sure you do not harm them or break what they are building. Help LR clean up the blocks or help LR rebuild their tower, then you can go back to the area you want to play in." <u>Indicator 1</u> Empathize with Child: 4 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: 4 <u>Indicator 3</u> Generate Solution with Child: 3 Average = 3.66

Scenario	Low Quality (e.g., a 1 or 2)	Medium Quality (e.g., a 3)	High Quality (e.g., a 4 or 5)
New Child Cries: New child MH started preschool 3 weeks ago. Many mornings, after MH's parent leaves, MH cries a long time and does not want to join into class activities. Today, as MH's parent walks out the door, MH again begins to cry.	1st Example: I would do what other teachers have taught me: to ignore the child and not coddle them too much. Just say "mom will be back soon" and redirect attention. <u>Indicator 1</u> Empathize with Child: score of 1 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: score of 1 <u>Indicator 3</u> Generate Solution with Child: score of 1 Average of scores = 1 2nd Example: I would ask the child if they are okay, and if they want me to support them or if they want to be left alone. I would encourage to play with something. <u>Indicator 1</u> Empathize with Child: score of 2 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: score of 1 <u>Indicator 3</u> Generate Solution with Child: score of 2 Average of scores = 1.66	"You're upset that your parents left. I know that can be hard, but they will be back later today. Would you like to look at photos of you and your parents?" <u>Indicator 1</u> Empathize with Child: 5 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: 3 <u>Indicator 3</u> Generate Solution with Child: 2 Average = 3.33	"MH, you are upset because your parents have left. I wonder if you would like to come with me to build a tower together, or work on some artwork to make for your parents when they come back to pick you up after school." <u>Indicator 1</u> Empathize with Child: 5 <u>Indicator 2</u> Connect Emotion with Antecedent for Child: 5 <u>Indicator 3</u> Generate Solution with Child: 3 Average = 4.33