

Improving Learning Outcomes in Virtual Courses with Peer Coaches:  
Similarities Help Learners Understand Their Differences

by

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## ABSTRACT

Over 7 million students in the US choosing virtual education as they pursue their degree (U.S. Department of Education, 2021). With almost 10,000 business degrees offered online (GetEducated, 2021) digital classes now have to deliver meaningful learning experiences to prepare leaders for inherently relational challenges. This study examines how well online undergraduate students learned and connected in a 7.5-week leadership development course that used a peer coaching model. In this course design, two peer coaches met each week to process and provide feedback on the coursework.

Experiential Learning Theory (ELT) suggests that learning is an individual transformation that occurs as learners move through four dialectically opposed learning modes: concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb & Kolb, 2017). Learners make meaning of their experience (like conversations or coursework) by thinking about them and developing a mental model that influences their actions which changes the way they view new experiences. In this study, I illustrate how peer coaching supports this transformative process and can help learners expand their thinking not just academically, but personally and professionally too. Moreover, peer coaches emphasize diversity by acknowledging and leveraging markedly different mental models to enhance students' depth of learning and relating.

I used a convergent mixed-methods design in which qualitative and quantitative data were collected in parallel, analyzed separately and then merged. The reason for collecting both quantitative and qualitative data is to develop a better understanding of the effects of learning preference and affect because each type of data will provide different pieces of evidence regarding those effects. The quantitative data was collected

using Qualtrics from self-report surveys using primarily Likert scales to measure learning outcomes, learning preferences, and affect as a part of class exercises. The qualitative data was collected from students' open-ended reflection assignments about the benefits of differences in their peer coaches. The multiple regressions did not show that learning preference contrasts significantly predicted learning outcomes nor relationships. In contrast, positive affect did predict learning outcomes. The thematic analysis offered clues as to how positive affect improves both learning outcomes and the quality of the peer coaching relationship.

Dedicated to the G-d that unifies contrasting chasms--alpha and omega, lion and lamb,  
mercy and justice. Reconciling dialectical opposites is nothing new to you: Jew and  
Greek, male and female, Zealot and Tax Collector, sinner and saint; are all one in You.

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When asynchronous leadership education does not intentionally practice intimate relationship *practice* (Fletcher, 1999)—and by extension *development*—it misses an important aspect of such training programs. Leadership is a relational process; but online programs tend to not leverage peer interactions to help learners immediately practice the *relational* skills necessary to effectively grow *leadership* skills. In the US, companies spend \$14 billion a year to develop their leaders (Loew & O’Leonard, 2012). A customized leadership-development degree from the top business schools can cost up to \$150,000 (Gurdjian et al., 2019). Intuitively, asynchronous education implies broader accessibility, but leadership education has not proved to cultivate relationships between dislocated learners. When leadership curriculum ignores meaningful peer interactions, it misses an engagement opportunity that supports skill development and application. Such socio-emotional experiences help learners develop a *mindset* along with a *skill set* (Wallace et al., 2021) that prepares them not just to get a degree, but in their career paths and multifaceted personal lives.

Peer coaching is an interactive learning tool that leverages a “multiplier effect,” a type of interpersonal intelligence that synergistically creates more learning than isolated learners alone could create (Parker et al., 2015). Peer coaching is when students who have about the same level of understanding intentionally help each other learn, in this case, about leadership (Bennett & Bush, 2013). Experiential Learning Theory (ELT) suggests that learning is a unique journey that changes the way learners face future situations (Kolb, 1984). The peer coaching practices in this study follow ELT and encompasses all four learning modes: thinking, reflecting, feeling, and acting. With more than 7 million students choosing virtual education (U.S. Department of Education, 2021),

peer coaching can assist virtual educators orchestrate engaging connections between isolated students and the course content. While there is some research exploring peer coaching in face-to-face classes (Parker, et al., 2008), there are few studies of online classes to guide teachers, from a theoretical framework, as they create meaningful and rigorous learning experiences without ever having all their students in one space.

Leadership development and growth are held together by active meaning-making in these interdependent social situations (Phillips et al., 2001; Weick, 1995). Positive affect plays a role in enhancing learning as "...the boundaries of awareness stretch open a bit further during positive emotional experiences, enabling people to connect the dots between disparate ideas and thereby act creatively, flexibly, and with greater sensitivity to future time horizons" (Fredrickson, 2013, p. 18).

The purpose of this study is to examine the effects of positive affect and learning preferences on relationship development and learning in a virtual learning environment supported by peer coaching. This convergent mixed-methods study examines the research question "How do learning preference contrasts and positive affect influence learning outcomes and relationship development between peer coaches?" By exploring the relationships between these four measurable student characteristics, I hope to offer evidence that peer coaching may enhance learning and relating in the virtual classroom.

Next, this paper reviews the current literature about peer coaching in online formats, delves into ELT's learning cycle and learning preferences, explains homophily and affect and how they influence relationship development and the learning journey. I then introduce participants of this study and go on to explain how their data was collected and measured. Next, I clarify how I analyzed the quantitative and qualitative data

separately, then compared them side by side. Then, I share the insights gleaned during analysis. Next, I discuss the meaningful connections and conclusions that I drew over the course of this study. Then, I acknowledge the limitations of it. I go on to call future researchers to build on the work started here. Looking forward, I invite academia to consider this modern era and how it can transform to face the future in a newly constructed way.

## CHAPTER 2

### LITERATURE REVIEW

#### **Peer Coaching in Virtual Learning**

##### **What is Peer Coaching?**

Bennett and Bush (2013) described peer coaching as “a type of helping relationship in which two people of equal status actively participate in helping each other on specific tasks or problems with a mutual desire to be helpful” (p. 258). Being of equal status, neither one is a professionally trained coach with honed skills in helping others learn (Parker et al., 2015). Rather, both partners share a posture of inquisitiveness and curiosity about each other, cultivating more inquires and acceptance.

##### **What is not Peer Coaching?**

Contrasted with peer mentoring or peer tutoring, peer coaching organically cultivates a give-and-take dynamic where both people are trying to help the other learn (Parker et al., 2008). Zey (1984) defined a mentor as someone “who oversees the career and development of another person, usually a junior, through teaching, counseling, providing psychological support, protecting, and at times promoting or sponsoring” (p. 7). Budge (2006) acknowledged the contradiction indicated then by peer mentoring, “most literature agrees that a mentor is an individual who is much more experienced and older than the mentee. Peer mentoring, by its very nature, does not meet that criterion” (2006, p. 81). Universities use peer mentoring by leveraging more experienced students to support new students’ personal and academic development (Hensen & Shelley, 2003; Smailes & Gannon-Leary, 2011). Peer tutoring is “characterized by specific role-taking as tutor or tutee, with high focus on curriculum content and usually also on clear

procedures for interaction, in which participants receive generic and/or specific training” (Topping, 2015, p. 2).

### **Why Peer Coaching?**

Peer coaching is already an established practice in leadership development programs and literature (McCauley & Guthrie, 2007; Van Velsor et al., 2010). Research suggests that peer coaching is an efficient, effective, sustainable and scalable method (Parker et al., 2014) to train leaders that are relationally prepared for the challenges of the future. Course developer, Dr. Mai Trinh (2020) emphasizes the power of peer coaching from a relational standpoint:

Developing trusting interpersonal relationships, giving and receiving feedback, and just having frequent human contact enrich students’ learning experience in the online class. Also, by coaching their peers, students are experimenting with their leadership skills and practicing the knowledge they learn in class. (p. 135)

Better than courses that strictly offer isolated cognitive exercises, peer coaching can be legibly incorporated into syllabi as a measurable activity that holds space for the less easily measured experience—human connection.

### **Peer Coaching in This Study**

In this study, peer coaching was an integral part of the weekly rhythms of a virtual, undergraduate leadership assessment and development course, within an Organizational Leadership program. Actively designed from ELT (which I will explain later), this virtual course was conceptualized in four cyclical phases: Peer coaching helped students practice what they learned in each module (skills and knowledge) and develop intimate connections by putting their lived experiences at the center of their learning (Trinh, 2020). During the preparation phase (usually the first half of the week),

students read the assigned chapters or articles and completed a quiz to test comprehension. Then, students independently worked through a critical-thinking exercise and a reflection prompt. Once completed, students sent their work to their peer coaches for feedback and to work out when they would meet for their coaching conversations. While in the offering feedback phase, students looked at their peer coach's work and gave three specific points: (1) something they liked, (2) something that could be improved and how, and (3) something that they would like to discuss more in depth during the coaching conversation and why. This feedback was then reviewed before the coaching conversations. During the coaching conversation phase, students typically met via video conferencing for at least 60 minutes and took turns offering insight pertaining to the week's topic, either in structured or organically fluid ways. Finally, during the reflection phase, students reflected on the coaching conversation by answering additional reflection prompts assigned by the instructor.

As peer coaching distinguishes itself as a practice that helps learners develop relational skills and closeness in online classes (Trinh, 2020), it is evident that there is a gap in the literature studying this phenomenon. Few studies have specifically examined the learning outcomes for students in virtual classes supported by empirical evidence and grounded in theory.

### **Kolb's Experiential Learning Theory's Learning Cycle**

Kolb's (1984) Experiential Learning Theory (ELT) is a holistic approach to training leaders that incorporates all four modes of human functions in learning and encompasses the relational practice better than purely intellectual training. Furthermore,



the peer coaching exercises in this study were actively designed using this theoretical framework to train inherently relational skills *and* acquire knowledge.

### **An Active, Transformative Process**

Unlike learning models that frame learning as an information download into passive receptacles (the learners) that can be stored and used later, ELT suggests that learners assume active roles in their own learning processes (Kolb & Kolb, 2017). ELT conceives of learning as a continuous and proactive process, where learners are transformed by their experience and environment (Kolb, 1984). Rooted in process instead of content, “peer coaching can be transforming for individuals. The focus is on understanding self, other people, events and patterns over time rather than “truth” as measured by an external judge” (Parker et al., 2008, p. 491). Kolb frames learning, much like Souba (2006) frames leadership—as a personally transformative process, “Most fundamentally, the process [of becoming a world-class leader] is about a personal transformation. All great leaders are on a continuous inward journey of self-discovery and self-growth to transform themselves and their organizations” (p. 159).

### **Four Learning Nodes**

Kolb and Kolb (2017) suggest that this active and transformative process can be understood as four interconnected and cyclical learning nodes (see Figure 1): concrete experience, reflective observation, abstract conceptualization, and active experimentation. Concrete experiences are immediate experiences that learners are involved in. Reflective observation happens when learners watch others or develop observations about their own experiences. Abstract conceptualization is when learners

create theories to explain observations. Active experimentation uses theories to solve problems or make decisions.

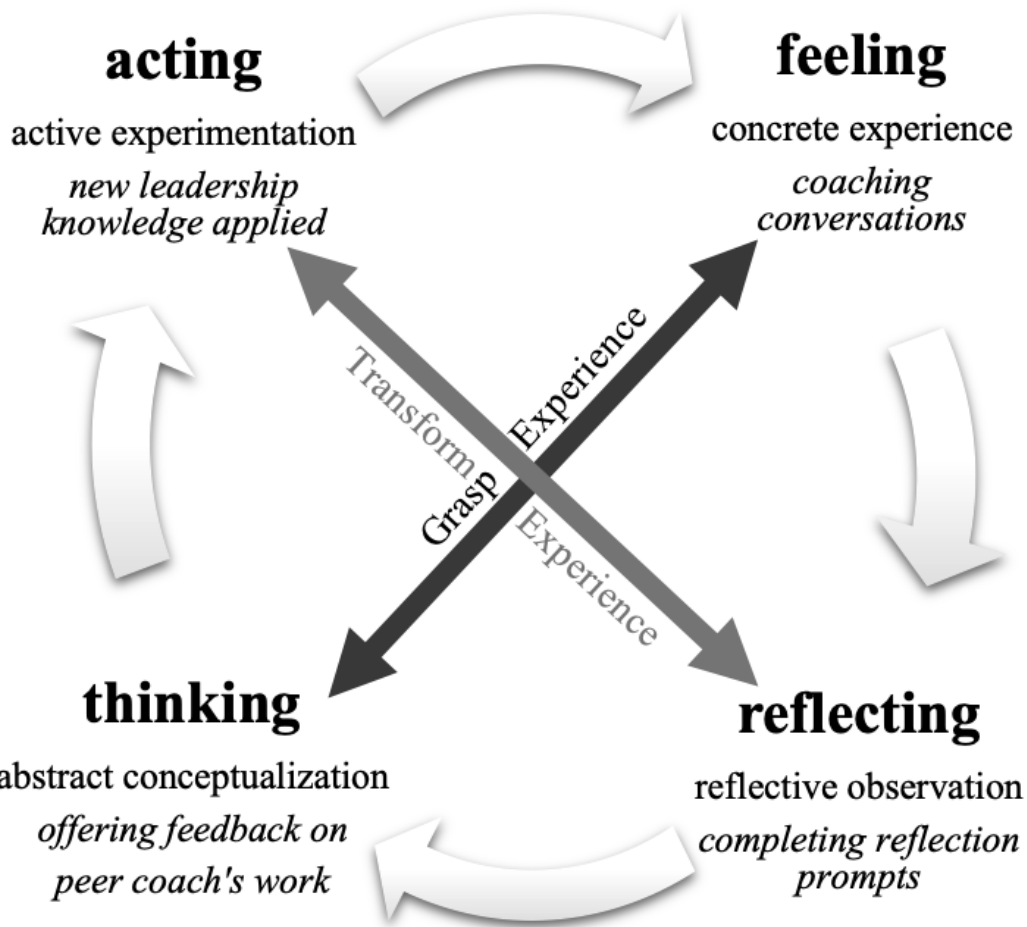


Figure 1. Kolb's Experiential Learning Cycle with Course Activities

### Learning as a Recursive Cycle

While learning can begin at any point in the cycle, I now want to highlight the cyclical interconnectedness of these nodes. Learners reflect on concrete experiences. Abstract concepts become new mental models from which learners see and navigate the world and are built from their own observations. This new framework can then be actively tested and used as a map to venture into new experiences, beginning the process

anew. People learn best when engaging in all learning modes—thus completing the learning cycle (Kolb & Kolb, 2017).

To illustrate the learning modes in process, I will highlight the activities within this course that were designed to take students through the learning cycle. The coaching conversations where students are open to the immediate experience and are aware of their feelings and sensations was intentionally designed as a concrete experience. Students engaged in reflective observation as they considered and connected module concepts with their personal experiences during critical thinking exercises and reflection prompts. Students used abstract conceptualization to interpret, analyze, and craft a thoughtful response to these preparation materials. Active experimentation occurred when students applied their new knowledge to their own leadership.

### **Learning Cycle Progresses as Oppositions are Reconciled**

Essentially, Kolb (1984) suggests that learners grow as they *grasp* and *transform* experience. By resolving these opposing tensions in unique ways and settings, learners recursively progress through the dynamic cycle (Kolb & Kolb, 2017). Similarly, leadership is also a recursive process; the social construct balances an individual's influence on their group's performance which then evaluates the individual's skills (Wallace et al., 2021). Assumedly, one could conceptualize both learning and leading as interdependent and developing complexities.

### **Learning Preferences**

Learning preferences are individual ways that learners progress through ELT's learning cycle based on their preferences and are influenced by factors in their lives like, personality type, educational specialization, culture, career choice, current job role, and

tasks (Kolb & Kolb, 2017). These preferences are not isolated, unchangeable traits that are constant throughout one's life. Rather, they dynamically change and respond to the learner's environment (i.e. a leadership course), exerting a heavy influence on the way learners engage in the four learning modes that make up the learning cycle (see Figure 1). ELT explains why students paired up with a peer coach with *complementary* learning preferences could help each other progress through resolving dialectically opposed learning modes as they grasp and transform experience in a peer coaching setting (Kolb & Kolb, 2017).

Naturally, learners prefer one mode over another on each mutually determined and in flux axis (see Figure 1). On the perceiving or grasping continuum is where learners' preferences for being either involved in new experiences *or* creating theories to explain them shows up. On the processing or transforming continuum is where learners' preferences for developing observations about one's own experience *or* using theories to make decisions shows up. When partnered with a peer coach that has a complementary learning preference, I expect that students could have a more dynamic and holistic experience perceiving and processing information, than doing so alone.

### **The Benefits of Differences**

Experimental studies have demonstrated the benefits of working with learners that see the world differently. (Wolfe, 1977; Kayes, 2001; Sandmire & Boyce, 2004). Randomly created student engineering teams formed by including one student from each learning preferences, outperformed self-formed teams that tended to be less diverse (Halstead & Martin, 2002). For class projects, students tend to choose each other for class teams based on friendship, not necessarily diversity advantage (Hall, 1996). Even though

learners tend to prefer the familiar, Hall (1996) suggests that differences, even uncomfortable ones, are where personal growth happens: “If we had [chosen partners based on diversity] there would have been more disagreements to work through, personality clashes to cope with and conflict to resolve. The stress would have been greater, but the learning probably more profound” (p. 30). Since the literature seems to support Kolb and Kolb’s (2017) notion that learning with someone that has a complementary learning preference, I expected peer coaching pairs with a greater difference, or a higher contrast of learning preferences (on the transforming and grasping axes) to learn better.

*Hypothesis 1: Participants with different learning preferences from their peer coaches will demonstrate better learning outcomes.*

### **I Like You Because You Are Like Me**

Homophily is the phenomenon that humans tend to gravitate towards and connect with others that are similar (Lazarsfeld & Merton, 1954). Homophily can be a function of the kind of traits (inherent or acquired) that tend to divide society into classes (i.e. race, ethnicity, sex, age, occupation, or education) called “status homophily” or internal traits that influence the way our orientation to the future called “values homophily” (McPherson et al., 2001).

If “sameness” contributes to higher quality relationships because it improves important social elements like support, trust, and openness, then adding in good communication (because it is a weekly class assignment) should produce a high quality connection (Gittel, 2003). In the context of this study, high quality connections are positive interactions (like receiving helpful feedback or an empathetic response) between

peer coaches that lead to positive feelings, action, and learning outcomes (Dutton, 2003; Dutton & Heaphy, 2003). These connections then become the building blocks for longer term high-quality relationships, both of which can be experienced in the context of peer coaching (Parker et al., 2015). High quality relationships have sense of enhanced positive energy, a caring connection and a sense of reciprocating positive regard (Stephens et al., 2012).

*Hypothesis 2: Participants with similar learning preferences to their peer coaches will experience better relationships with their peer coaches.*

### **Positive Affect Leads to Positive Outcomes**

Watson, Clark and Tellegen (1988) described positive affect (PA) as “the extent to which a person feels enthusiastic, active, and alert. High PA is a state of high energy, full concentration, and pleasurable engagement, whereas low PA is characterized by sadness and lethargy” (Watson et al., 1988, p. 1063) Positive affect, in this scale and study, is an independent dimension of one’s mood, thought of *a state* rather than a *trait* (Watson et al., 1988). While affective states and traits are respectively related, they are not used interchangeably. Connecting back to the nodes of Kolb’s Learning Cycle (Figure 1), learners experience varying levels of positive affect (state) when in *specific learning instances* such as reflecting, acting, thinking, and feeling. These situations of positive affect are distinguished from positive affect as a stable component (trait) of one’s personality like extraversion or anxiety/neuroticism. More than simply an ephemeral feeling while learning, the literature suggests that positive affect is associated with substantial benefits related to this study, specifically *learning*—broader cognitive

function (Fredrickson, 2013)—and *relating*—perspective-taking (Waugh & Fredrickson, 2006).

### **Learning with Others**

By broader cognitive function, I mean understanding situations from multiple different perspectives at once. A “wide-angle lens,” as it were, that allows leaders to see around corners in the labyrinth of management. Positive affect has proven to help learners expand their thinking in new situation in a way that helps them collaboratively create new knowledge from existing mental models (Diener, Thapa, & Tay, 2020).

Echoing Kolb’s recursive learning cycle, Goran Carstedt, a Volvo Executive, expressed the pivotal nature learning plays for organizational leaders:

The world simply can’t be made sense of, facts can’t be organized unless you have a mental model to begin with. The theory does not have to be the right one, because you can alter it along the way as information comes in. But you can’t begin to learn without some concept that gives you expectations or hypotheses (Hampden-Turner, 1992, p. 162).

Organizational scholars, Bolman and Deal (2017), offer that having a good mental model allows leaders to effectively make decisions because they can see situations from multiple different perspectives (or frames). By frame, they mean, “a set of ideas and assumptions—that you carry in your head to help you understand and negotiate a particular ‘territory’” (Bolman & Deal, 2017, p. 12). In their book, they suggest that organizational leaders can avoid oversimplifying reality by thinking holistically through the full range of issues, including, people, power, structure, and symbols (Bolman & Deal, 2017). By dynamically engaging these multiple frames, leaders “register and assemble key bits of perceptual data into a coherent pattern” (Bolman & Deal, 2017, p. 12). This helps leaders make decisions quickly and holistically because the iterative

frames give a more vivid picture of the layered situation and how they can move forward within it.

Alice Isen (2009) proposed a neurobiological explanation for how humans improve thinking: dopamine fires up the executive and flexible think areas of the brain. When this happens, leaders are better at perspective-taking.

To illustrate how Kolb's ELT Learning Cycle (Figure 1) explains why positive affect, specifically perspective-taking can improve learning, I overlay them atop the learning nodes. As students listen to their peer coach's different leadership philosophy during their coaching conversations (concrete experiences), they think about it in relation to their own philosophy (reflective observation). By building connections between (reconciling) the differing philosophies (abstract conceptualization), peer coaches gain a richer understanding of leadership. Arguably learners are better equipped to respond to challenges in the future because of their new awareness (active experimentation). Thus, reconciling opposing tensions (whether it be viewpoints or learning nodes) becomes an important skill in learning and leading.

*Hypothesis 3: Participants with higher positive affect will demonstrate better learning outcomes.*

### **Relating to Others**

Here, perspective-taking emphasizes the interpersonal connotation as leaders look at themselves from the perspective of another. Rather than looking around corners with a wide-angle lens, leaders check their own reflections in a mirror. Building on Isen's (2009) ideas, Waugh and Fredrickson (2006) suggest that after a while in relationships, positive emotions contribute to a sense of *oneness*. With expanded sense of self,



individuals might be able to “predict a more complex understanding of others... [which] may then smooth the progress of the relationship, allowing each person to better appreciate the other and continue to become close” (Waugh & Fredrickson, 2006, p. 94). Virtual peer coaching offers a place to develop high quality relationships that are characterized by mutual positive affect (Parker et al., 2015), specifically because of the relational practice that is embedded within it. Relational practice (Fletcher, 1999) is a way of interacting that leverages a relational approach that supports personal development and learning. In the context of leadership training, relational practice (by way of peer coaching) catalyzes the co-creation of knowledge by applying skills, social processes, coordinated actions and learning outcomes in a way that serves both partners and results in positive actions (Parker et al., 2015).

Furthermore, peer coaching is an effective way to “learn a process for how better to *attend* to other people” (Parker et al., 2008, p. 491). This is a key element for programs that want to cultivate inclusiveness. When peer coaches regularly attend to their partners by understanding their perspective and experience, they are able to develop trusting relationships while they develop their leadership skills and apply course content (Trinh, 2020). Relational practices embedded within peer coaching offer both a place and the precursors for this stretching by “[deepening] the capability, and a mindset to enhance awareness, skill and openness in self and with others” (Parker et al., 2015, p. 234). In this leadership development course specifically, peer coaching conversations house student interactions and the development of intimate relationships by sharing increasingly more personal information every week (Trinh, 2020). Contextualizing the vulnerability of companioning another person as they share core values, visions for the future,

assumptions that inhibit effectiveness and personal challenges Trinh (2020) offers, “This process of relating to people, being compassionate and empathetic, and being sensitive to people’s feelings opens students up for concrete experience in the here and now” (p. 135). Therefore, this study should reveal a measurable difference in the quality of relationships for participants with high positive affect scores.

*Hypothesis 4: Participants with higher positive affect will experience better relationships with their peer coaches.*

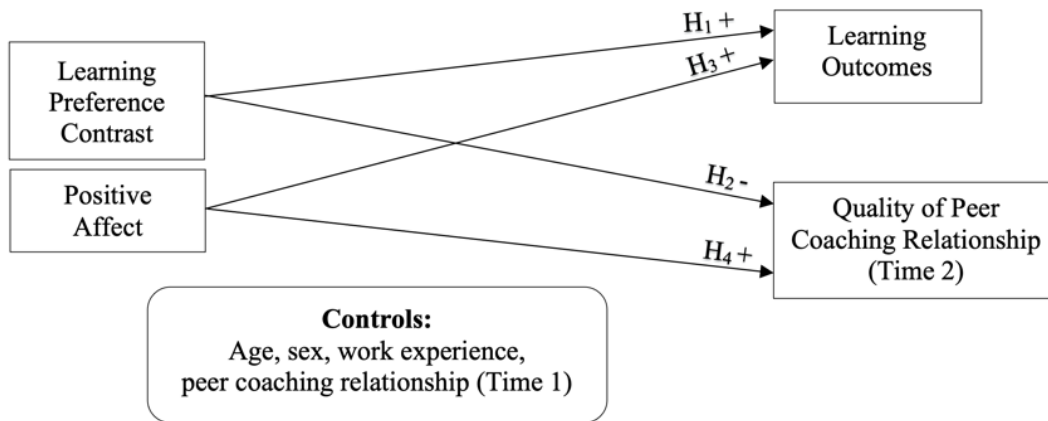


Figure 2. Hypothesis Model

## CHAPTER 3

### METHODS

#### **Design Rationale**

The convergent design is appropriate to address the research question because quantitative and qualitative data were collected in parallel, analyzed separately, and used as complimentary sources of data to inform each other. Thus, collecting learning preference and positive affect data will allow me to see if they are significant predictors of learning outcomes or the quality of their relationships with their peers quantitatively. Concurrently, the qualitative data will complement the quantitative data by illuminating the mechanisms by which peer coaching impacted learning, specifically *what* and *how* those relationships helped them learn.

#### **Sample/Participants**

The sample consisted of undergraduate students in a virtual leadership development course, in the Organizational Leadership Bachelor of Arts program, in a large public research university in the southwestern region of the United States. Participants were invited by their teachers to participate in this research study. The sample includes 545 participants, 59% of whom were females. The average age was 31.48 (s.d. = 8.50) ranging from 20-62 years. The average number of years of work experience was 11.51 (s.d. = 8.40) ranging from 0-40. For the quantitative analysis, participants were selected if they had at least one peer coach consented to be a part of the study. I then removed participants if there were inconsistencies in their data. For the qualitative analysis, open ended reflections about the perceived benefits of diversity within peer coaching were collected from the same population and coded (n = 472).

Assumedly, fewer participants completed the reflection assignment than completed the earlier survey questions collected for the quantitative data.

### **Procedures**

Data was collected over a four-year period (Fall 2017-Spring 2021) from 11 different sections of the course. Participation was completely voluntary. Throughout each accelerated 7.5-week asynchronous course, offered through Blackboard and Canvas, Qualtrics was used to administer and organize self-reported surveys. Figure 2 illustrates the course's data collection timeline. At the beginning of each course (time 0), demographic data (including sex, age, and years of work experience), affect scores and consent were collected from students. Peer coaches met during the second week and given prompts to engage with the course content collaboratively. In the third week, Likert scale data was collected measuring the quality of their relationships with each peer coach (time 1). During the fifth week, learning preference data was gathered. In the seventh week, the same Likert scale survey that measured the quality of peer coaching relationships was administered again to record current relationship status (time 2). In that same week, students submitted open ended reflections in Canvas about the perceived benefits of diversity in their peer coaching experience. (This assignment is the source of the qualitative data.) At the end of the course, student evaluation surveys collected learning outcome data.

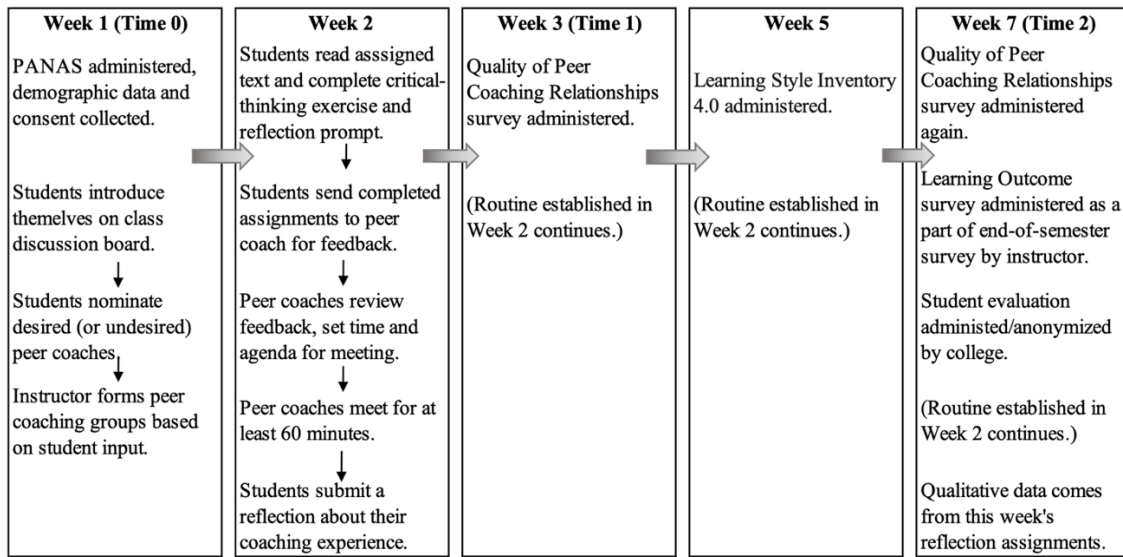


Figure 3. Data Collection Timeline

## Measures

### Quantitative

**variables.** I controlled for demographic variables like age, sex, work experience, and the quality of peer coaching relationships (at time 1) as these variables may influence the learning outcomes or the peer coaching relationship regardless of the learning preference contrast. The quality of peer coaching relationships was measured with a 12-item scale developed by Gregory and Levy (2010). These 7-point Likert scale items (ranging from 1 = *Strongly disagree* to 7 = *Strongly agree*) measured students' perceptions of the quality of their relationships with their peer coaches. A sample item is "I feel safe being open and honest with my coach." The actual scale used is featured in the Appendix B. The quality of peer coaching relationships scale at time 1 was sufficiently reliable with a Cronbach's  $\alpha$  of .971. The quality of peer coaching relationships scale at time 2 was sufficiently reliable with a Cronbach's  $\alpha$  of .976. The scale at time 1 was used as a control; the scale at time 2 became the dependent variable.

**independent variables.** I ran a regression to see if learning preference contrast between peer coaches and positive affect predicted learning outcomes that contributed to personal leadership development and the quality of the relationship between peer coaches.

***learning preference contrast.*** During week 5, students completed version 4.0 of the Learning Style Inventory (Kolb & Kolb, 2013) to measure their learning preferences with twelve statements. The inventory presents participants with a hypothetical situation like, “When I learn...” and has them complete the statement by ranking four different learning modalities by their preference. Their highest preference was assigned a score of 4, the second most a 3, the third most a 2, and the least preferred modality a 1. Each learning modality option was represented in each statement: abstract conceptualization (AC), active experimentation (AE), concrete experience (CE), and reflective observation (RO). Overall learning modality preference was calculated by totaling the scores from each statement. Scores indicate participants’ preference on the “grasp” and “transform” axes of the learning cycle (see Figure 1). Learning preference contrast is the absolute value of the difference of these two preference scores between participant and peer coach.

***positive affect.*** Positive affect was measured using 10 items from the original 20-item Positive and Negative Affect Schedule (PANAS) developed by Watson, Clark and Tellegen (1988). The original PANAS has two 10-item subscales measuring both positive and negative affect. Survey data was collected using a 7-point Likert scale (ranging from 1 = *Strongly disagree* to 7 = *Strongly agree*) through Qualtrics. Participants indicated to what extent they generally feel like the item listed. The 10 items

within this study's surveys were words that correlated with either positive or negative affect; negative affect items were reverse coded in Excel. A sample item is "Interested." The PANAS scale was sufficiently reliable with a Cronbach's  $\alpha$  of 0.800. None of the items were removed. The actual PANAS scale used in this study can be found in Appendix A.

**dependent variables.** Students completed a 10-item survey during the final week of class that gauged participants' learning outcomes that contributed to their personal leadership development. The 7-point Likert scale items (ranging from 1 = *Strongly disagree* to 7 = *Strongly agree*) were developed based on the literature review of leadership development program outcomes (Reyes, et. al. 2019 and Wallace et. al., 2021). A sample item from this scale is "My peer coaching experience improved my self-awareness." The actual scale used is featured in Appendix C. The learning outcomes scale was sufficiently reliable with a Cronbach's  $\alpha$  of .941.

### **Qualitative**

Collected from a reflection assignment during week 7, the qualitative data were open-ended responses to this prompt, "Have you benefited from the diversity in skills and experience that your two peer coaches offered? Why or why not? If you were assigned to a peer coach of your choice, did it make any difference?"

### **Analyses**

#### **Quantitative Analysis**

**data screening.** Excel was used to calculate the absolute value of the difference between participant and peer coaches' preferences for action over reflection (AE-RO) and abstract over concrete (AC-CE), remove instances where peer coaches either (1) did not

consent to join the study or (2) were not the same person at times 1 and 2 and split into two cases instances in which participants had two qualified peer coaches. SPSS was used to enter and screen the resulting 720 cases. Participants with a different peer coach at times 1 and 2 (or had no peer coach at time 2) were excluded because the time given to develop the relationship was not equal. The Little's MCAR Test was significant ( $\chi^2 = 84.89$ ,  $df = 64$ ,  $p = .041$ ) suggesting that there is a pattern in the missing data. Descriptive statistics and zero-order correlations are shown in Table 1. All variables are normally distributed.

Table 1

*Descriptive Statistics and Zero-order Correlations*

**TABLE 1** | Descriptive statistics and zero-order correlations among study variables.

Variable	M	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Sex	.58	.49	-								
2. Age	31.55	8.15	.01	-							
3. Years of Work Experience	11.55	8.26	.01	.93**	-						
4. Relationship Quality (Time 1)	6.14	1.00	.02	-.08	-.05	(.97)					
5. Affect	5.74	.76	.01	.03	.06	.17**	(.80)				
6. Preference for Abstraction or Experience	12.05	9.29	-.01	-.05	-.07	-.02	-.025	-			
7. Preference for Experimentation or Reflection	12.72	9.02	-.02	-.06	-.08	.03	-.00	.03	-		
8. Relationship Quality (Time 2)	6.13	1.11	-.00	-.03	-.04	.65**	.11**	.01	.02	(.98)	
9. Learning Outcome	6.08	.99	.05	-.02	-.03	.21**	.19**	-.01	.06	.32**	(.94)

N = 720. Scale reliability  $\alpha$  is presented in the diagonal of the matrix. 1 Sex was coded as 0 = Male, 1 = Female. \*\* Correlation is significant at the 0.01 level (two-tailed).

**hypothesis testing.** The hypotheses were tested for statistical significance in SPSS 27 using multiple regression to see if the data was a good fit to the model.

**paired sample t-test for time 1 and 2.** Because the quality of peer coaching relationships is a repeated measures design, meaning the same population was measured at different times, a paired-samples T-Test was run to demonstrate that there was no significant change between times 1 and 2. On average, participants evaluated the quality



of their relationship with their peer coaches about the same at time 1 ( $M = 6.14$ ,  $SD = .97$ ) as they did at time 1 ( $M = 6.12$ ,  $SD = 1.06$ ). This difference, 0.02, BCa 95% CI [-0.04, 0.08], was not significant  $t(719) = .60$ ,  $p = .547$ .

### **Qualitative Analysis**

Gioia, Corley, and Hamilton (2012) acknowledged the strength of traditional approaches (such as the multiple regressions, used for this study's quantitative analysis) as researchers try to elaborate on what is already understood, "Constructs and variables have the wonderful advantage of allowing parsimony and some semblance of consensuality as we engage in the ambitious and ambiguous work of trying to make sense of organizing, organization, and organizations" (p. 16). For the qualitative analysis, I followed the Gioia Methodology (Gioia et al., 2013) progressing from the 1st-order analysis (open and axial coding) to the 2nd-order analysis (looking for themes to explain observations that coalesce into "aggregate dimensions"), to build an iterative *data structure* (i.e., a "Gioia Table"). Gioia et al. (2013) suggested that having an independent coder confirm analysis, and by extension, computing intercoder agreement percentages is not necessary since the data structure itself offers "the requisite rigor" (p. 22). My data structure (Table 3) shows how open-ended reflection assignments were distilled into concepts, upon which themes were built to illustrate the mechanisms by which positive affect may have influenced learning outcomes and relationship development (the aggregate dimensions). While students did not explicitly state them while reflecting on these prompts, their feelings towards their peer coaching experience was blatant. I then analyzed the entries that demonstrated positive affect. Focusing on those respondents, I narrowed my focus to their responses to the first two (of three) assigned reflections

questions: "Have you benefited from the diversity in skills and experience that your two peer coaches offered? Why or why not?" While I had done a cursory review of the literature to understand the general landscape of factors relevant to affect, I held off on closer reading to inhibit confirmation bias. Once I immersed myself in what other researchers were observing and theorizing, this qualitative analysis morphed from "inductive" to a type of "abductive" research, where I examined these responses and current theories simultaneously (Alvesson & Kärreman, 2007).

## CHAPTER 4

### RESULTS

#### Quantitative Results

##### Hypothesis 1 & 3 Learning Outcomes

Model 2 examined the effects of sex, age, work experience, the quality of peer coaching relationships at time 1, affect, AC-CE, and AE-RO on learning outcomes. While this multiple regression model was a significant fit to this dataset ( $F(7, 443) = 5.08, p < .001$ ), neither of the learning preference contrasts,  $H1_a$  AE-RO ( $\beta = .05, p = .288$ ) nor  $H1_b$  AC-CE ( $\beta = -.00, p = .956$ ), had a significant effect on learning outcomes in this sample. Therefore, Hypothesis 1 was not supported because neither learning preference contrasts sufficiently explained the variances of learning outcomes (see Table 2). However, Affect did significantly predict learning outcomes ( $\beta = .17, p < .001$ ), supporting Hypothesis 3 (see Table 2). As expected, the quality of peer coaching relationships at time 1 ( $\beta = .18, p < .001$ ) was a significant predictor of both learning outcomes and the quality of peer coaching relationships at time 2.

Table 2

*Results of Hierarchical Regression Analyses***TABLE 2 |** Results of Hierarchical Regression Analyses Predicting Learning Outcomes and Quality of Peer Coaching Relationship

Variable	Model 2 (LO)		Model 2 (PQRC)	
	$\beta$	S.E.	$\beta$	S.E.
Constant		.56		.49
Sex	.04	.09	-.02	.08
Age	.12	.02	.20*	.01
Work Experience	-.13	.02	-.20*	.01
Quality of Relationship (T1)	.18***	.05***	.65***	.04
Affect	.17***	.06***	.00	.05
AC-CE	-.00	.01	.02	.00
AE-RO	.05	.01	-.01	.00
R2	.03**		.00	
$\Delta F$ (df)	4.67** (7, 443)		.08 (7, 443)	

N = 720. R<sup>2</sup> (Adjusted) Beta is the standardized regression coefficient. Significance levels are based on directional, one-tailed t tests. \*\*\*p < .001, \*\*p < .01 \*p < .05

**Hypothesis 2 & 4 Quality of Peer Coaching Relationships at Time 2**

Model 2 examined the effects of sex, age, work experience, the quality of peer coaching relationships at time 1, affect, AC-CE, and AE-RO on the quality of peer coaching relationships at time 2. While this multiple regression model is a significant fit to the data ( $F(7, 443) = 45.88, p < .001$ ), neither Affect ( $\beta = .00, p = .94$ ), learning preference contrasts H2<sub>a</sub> AE-RO ( $\beta = -.01, p = .817$ ), nor H2<sub>b</sub> AC-CE ( $\beta = .02, p = .659$ ) had a significant effect on the quality of peer coaching relationships at time 2 in this sample. age ( $\beta = .20, p = .040$ ), work experience ( $\beta = -.20, p = .044$ ), and the quality of peer coaching relationships at time 1 ( $\beta = .65, p < .001$ ) were, however, significant predictors of the quality of peer coaching relationships at time 2. Therefore, Hypotheses 2 and 4 were not supported because neither affect nor learning preference contrasts

sufficiently explained the variances of quality of peer coaching relationships at time 2 in this data set (see Table 2).

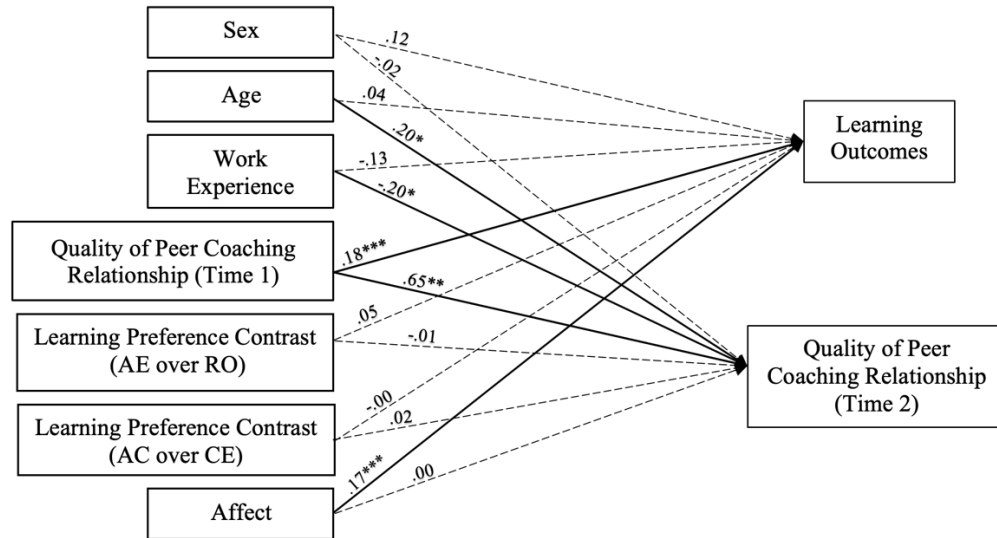


Figure 4 Results Figure

### Qualitative Results

Iconic group projects are often caricaturized by poor communication, unequal contributions, and failed expectations. Fortunately for the participants of this study, peer coaching seemed to be a rewarding and enjoyable experience for the vast majority of them. Overwhelmingly, feedback demonstrated an overall positive and beneficial experience. Only 22 instances (less than 1% of all codes) noted specific interpersonal tensions, which seems to indicate that most students had (or acquired in class) the relational skills set necessary to cooperate long enough *and* well enough to accomplish an objective (completing peer coaching exercises), which arguably, is a definitive demonstration of leadership effectiveness.

Of the 610 reflections, 32 participants (6.3%) submitted blank assignments. Another few submissions did not effectively address their **personal experiences** with peer coaching, but used vague and tangential trains of thought, usually about diversity or leadership, to meet the word count. Of the remaining response, I coded for signals of positive affect. Table 3 is the data structure produced directly from these open-ended reflection assignments to help answer, “**how** does positive affect influence learning outcomes and relationship development?” Themes emerged to help identify mechanisms by which participants’ positive affect leveraged their peer coaches’ diverse skills and experience to learn more through better relationships. These six themes are: perspective taking, professional development, learning from differences, connecting on common ground, shared suffering, and trust. Before I expand on these mechanisms (2<sup>nd</sup> Order themes), I will explain positive affect signals in the qualitative data more clearly and contrast them with negative affect signals.

### **Implicit Positive Affect**

In this data set, I interpreted positive affect to be the disposition behind statements of openness, positive assumptions, and warmth. The distinctly *optimistic* “lenses” through which participants viewed their peer coaching experiences generally stemmed from sentiments like: believing they could learn from anyone (openness), enumerating the glowing benefits of peer coaching (assumption of positive results), and expressing affection and/or admiration for their peers (warmth). Participant #500 offered a whimsically trusting view of peer coaching with extreme words like *every* and *always*,

I did benefit from the diversity in skills and the experiences that my peer coaches offered. [My first peer coach] helped me make connections to the materials in every conversation while remaining objective to the experience...[My second

peer coach] is a great coach who is attentive, knowledgeable, and always willing to advise when prompted.

If I were assigned to a peer coach of my choice, I do not believe it would have made any difference. Naturally, we tend to pick like-minded people as our choices, which causes us to see experiences through the same scope...A part of the learning process that is vital for leadership development is understanding different people's perspectives. We learn and grow through our experiences but also from others' insights...I need new perspectives and opportunities to understand all the angles to acquire to best possible outcomes...We can assume that every student is ambitious about learning, but we need to be forced into unfamiliar situations to learn and retain the knowledge. I enjoyed having the opportunity to connect with my peer coaches...

Conversely, sentiments that signaled low positive affect were: being skeptical, hesitant or nervous; reporting that they *did not* learn from their peer coach (and then expressing ways they had learned); and blaming the peer coach for schedule conflicts and superficial conversations.

Despite *initial* doubt or anxiety, peer coaching usually proved to be an effective method for learning and building trust even for those signaling low levels of positive affect. Over 30 respondents reported some type of initial hesitation with group projects or nervousness about giving/receiving feedback. Participant #229 echoed this initial sentiment, but cedes to the profound experience and insight their peer coaches offered them:

“I started out a bit skeptical about the peer coaching as I have done similar activities in other classes... With each week came new and exciting questionnaires and sessions that taught me about myself in ways that I had not previously even explored...both of my coaches were able to get deep with me and didn't hold anything back... we really started to build trust with each other... I realized that I needed desperately to work on my personal connections and possibly by having more mentors in my life. Rather than feeling like I am going about life on my own I could be like my coaches who had built relationships with people they could trust and rely on.”

Participant #80 began by denouncing any peer coaching benefits (blaming the situation), but ended by acknowledging some real value:

Not really because again I only had one peer coach... [my peer coach] is a great listener and ... was able to give me something I couldn't give myself and that was truthful advice from someone who doesn't know you. The best value I received was honesty and I really respected her for that.

Participant #64 framed their reflection response with what they construed as limitations, such as, different time zones or only having one peer coach (both of which, other students reported and overcame):

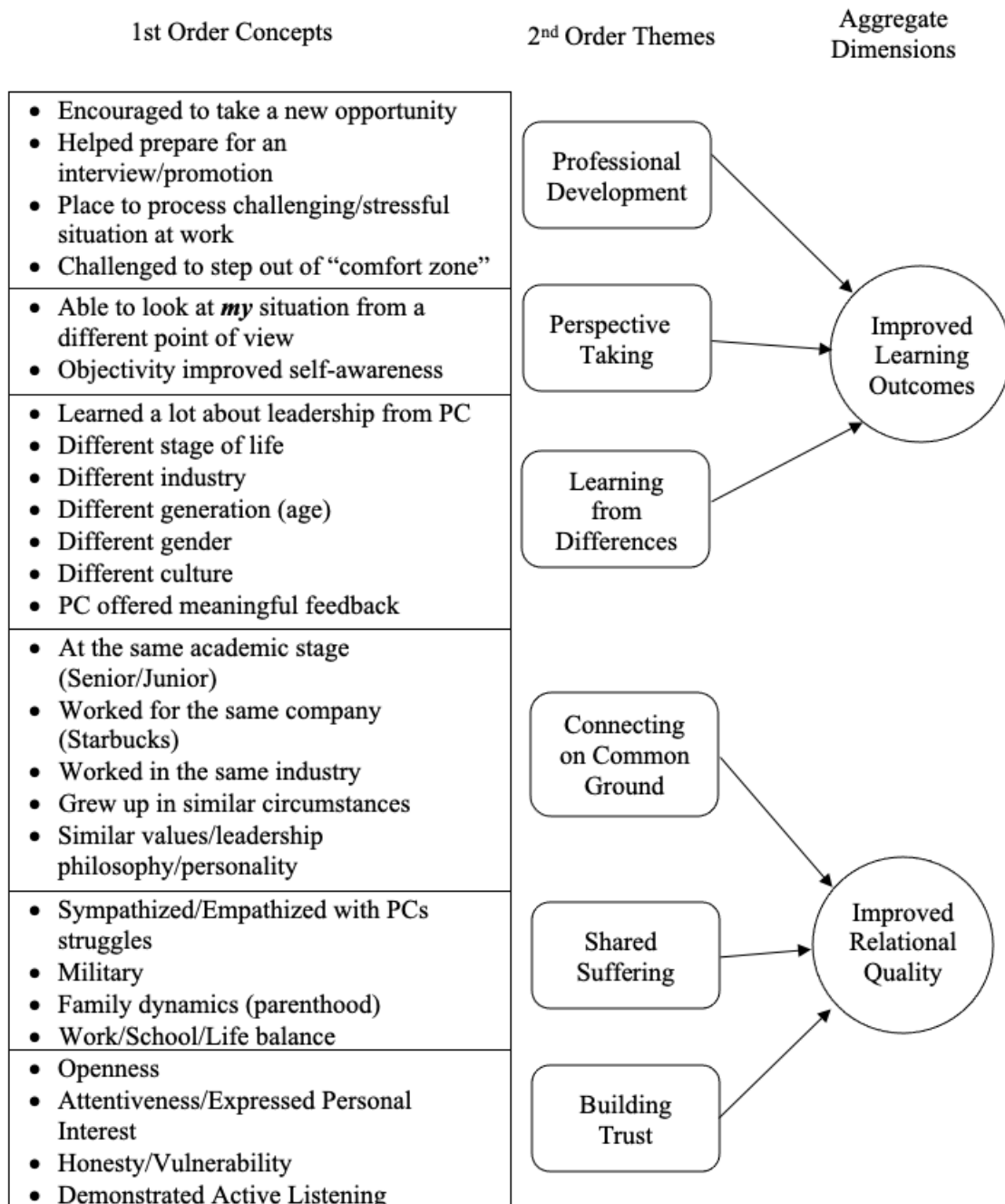
while I'm sure [my peer coach] has great skills and experiences that I would be able to take and apply in my own life I just didn't really get to that point with her. There tended to be a lot more pointless back and forth conversations that didn't really get us anywhere. I was assigned a peer coach that was in a different time zone and I don't think that helped. If she had been here we may have had a better chance to get things on a better page but I really don't know.

The low positive affect coded segments tended not to communicate personal responsibility *for* or contribution *to* the superficial nature of these interpersonal dynamics. This suggests that perhaps those with low positive affect did not see any way to improve the relationship; whereas those with higher positive affect scores were able to “connect the dots between disparate ideas and act creatively” (Fredrickson, 2013, p. 18). In this case, they were not able to find creative ways to connect with their peer coach despite unexpected circumstances.



Table 3

*Gioia Table*



## Professional Development

The first theme I am going to talk about is this mechanism of professional development. It seemed that participants were ostensibly getting a degree in organizational leadership for professional advancement. For students who did not develop or reflect on a more personal connection with their peer coaches, developing professionally seemed like a safe but interesting topic for most of these leadership students. By professional development, I mean that students reported that peer coaching catalyzed their professional development, helping them feeling more confident in their abilities to face challenges (and opportunities) at work. It emerged from these first-order concepts: considering new opportunities at work, improving strategies for interviews/promotions, and providing a space to process challenges at work. When struggling to calibrate her leadership role within her team, Participant #114 learned a lot from their peer coach:

My other peer coach seemed to have a lot of the nurturing qualities I myself possess, but was able to balance them with a certain level of authority or assertiveness that clearly established his leadership amongst his team. This was something we discussed extensively, as I have a difficult time connecting with my team on a personal level without it getting in the way of team performance. I frequently find I am either too friendly, which in turns makes it difficult for me to act as a leader with any sort of authority, or I am not friendly enough, which makes it difficult for my team to buy into me and my vision.

Participant #107's peer coach helped them see work from an aerial view:

[My peer coach] challenged me to believe in myself and not be fearful and missing a target. She helped me better understand numerous situations from the perspective from an executive office where typically I am not privy to certain high-level strategic decisions.

Peer coaches also provided reciprocal professional advantages:

my peer [coach] shared with me when it came to applying for a new position. My peer [coach] shared the experience of resume writing, applying for a new position,

and interview process. This experience helped me gain insight on taking steps but also sharing my experience that helped my peer [coach] feel confident about their new employment opportunity (#427).

Summarily, this implies that one of the easiest ways peer coaching helped participants learn more was offering a place to sharpen a myriad of one's professional skills.

### **Perspective Taking (Self Awareness)**

The second theme that I identified as a mechanism that helped those with a positive affect improve their learning was perspective-taking. Here, that means participants assumed their peer coach's point of view of their own instances of partnership or leadership. In other words, participants asked themselves the uncomfortable and vulnerable question, "What is it like to interact with me?" This theme emerged from these two first-order concepts: looking at the situation from a different point of view and objectivity improved self-awareness. Participant #214 demonstrated these common sentiments:

One of my coaches demonstrated a consistent desire to understand the rationale behind decisions that I made. The other coach was concerned with my preferences and how my preferences impacted the behaviors that I exhibited. Although each person wanted to know the underlying influence on my behavior, they wen[t] about understanding in two very different ways...I learned that I was also learning about myself regarding my preferences, rationale behind decisions, things that I did well and things that I truly needed to work on.

Participant #227, a military instructor, expanded their ability to connect with different generations thanks to the additional time spent connecting with their peer coaches:

It was great to see younger individuals' outlook on life and how they were approaching the challenges. I sometimes get stuck in my own way of thinking and it was great to be able to connect to others a lot younger than I am. I am consistently stuck either teaching to students who are eighteen or nineteen-year-olds. Therefore, I am never able to talk to them the same way I have had the opportunity to talk to my peer coaches. The Marine Corps has a very strict fraternization policy that we have to abide by during times when we are stationed at a schoolhouse. If I am not working with the younger students, most of my peers

are much older than I am. So there are two different spectrums that I have to work around. This course helped me understand that it can be done correctly.

#585 agreed:

I did learn a considerable amount from both of my peer coaches, and I am happy I had the opportunity to further train my interpersonal communication skills. However, I think I would have grown more by stepping farther outside of my comfort zone and working with someone completely unlike myself.

Students in this study regularly confirmed that they instinctually wanted to be with *similar students* but realized, in the end, that it was with the “*digestibly different ones*” that they learned more. In other words, students that were different, but relatable, offered perspectives that could be assumed, rather than dismissed entirely. These reflections seemed to indicate that the greater the difference between peer coaches, while still being empathetically tethered to the participant, the deeper the realizations about oneself. The next theme, externalizes the locus of learning, moving out of introspection and looking objectively at leadership from different vantage points.

### **Learning from Differences**

The third way positive affect helped peer coaches learn better together, resides in the ability to offer a customized application of the course content and transferrable learning from personal experience that has unique meaning to each other. Meaningful differences were noted 642 times. Commonly noted were obvious differences like: gender, generation (age), stages of life/career/education, industry, family structure, leadership philosophy, and temperament (intro- or extraversion). Participant #103 recounts how her different peer coaches contextualized leadership, assumedly improving her learning outcomes:

Another reason that it was beneficial to be coached by two different people is the unique perspectives of handling different situations. Since we are all different

people, we approach different situations with assorted mindsets. During the quarter, there was a few times conflict appeared in my workplace. To help handle these situations, I asked my peer coaches for their advice. Their answers were either similar to my own, or completely different, allowing me to assess the situations from different perspectives. By the end of these conversations, I was able to come to a decision on how to handle the situation.

Participant #114 acknowledged the importance of alternate dispositions in dynamic leadership instances:

Beyond our differing industries and life choices, I found it to be extremely beneficial to interact with people with objectively different personalities and professional styles from my own. One of my peer coaches was much more assertive and better about acting decisively to achieve his ultimate goals.

A seasoned supervisor, Participant #572 shares how their peer coach, a work-from-home mom, reciprocally broadened each other's understanding of leadership because of their differing histories:

Her level of leadership and dealing with leadership issues were different to my experiences. Nonetheless, she was able to utilize knowledge gained through previous courses and the current course to address proposed leadership issues, concerns, and situations. [My peer coach] also mentioned how she moved around a lot and predominately worked from home or took care of her children full time. She proved to be able to use experiences and dealings with her children and compare them to similar leadership situations where she acts as the leader and her children as the followers. The beauty of our diverse team is that I was able to listen to her examples where she used her children and provide follow up questions based on situations, I have experienced in the workplace to challenge her knowledge. This gave her the opportunity to gain a form of experience with an emphasis on the workplace through my dealings. My skills and experience allowed me to help my partner gain understanding of leadership from a supervisory position. She mentioned numerous times how my tenure and experience allowed her to trust my opinions and suggestions as well as establish a level of trust in sharing coaching content amongst one another. We both appreciated and embraced the fact that we came from different backgrounds, lifestyles, cultures, etc.

As students of leadership, peer coaches can offer specific insight into the lives (and synonymously, the learning) of their partners because they can recognize and recount differences with their peer coaches. In the following section, I will expand on how

participants *interpreted* and *internalized* those differences based on accompanying similarities.

### **Connecting on Common Ground**

Departing from the aggregate dimension of learning outcomes, here I switch to the themes and concepts that lead to improved relational quality between peer coaches. While it was common for students to remark on learning from the differences of their peers, half as common were the 274 instances of noted similarities that pinned the relationship together. This theme holds a *relational* connotation to the similarities that encouraged participants to figuratively *lean into* their partner's feedback. These connections were built from first order concepts like: being at the same academic stage, having similar values or leadership styles, and working in the same industry or for the same company. Mentioned over 100 times in the responses, the Organizational Leadership program seemed like a popular choice for Starbucks' virtual-degree-seeking partners. Participant #190 acknowledged how much they learned from the later stages of their peer coaches' careers, but they seem to be more attentive to feedback because of the relational connection:

[My first peer coach] works as a director in the not for profit world had a lot of experience in managing people and dealing with difficult situations. He was able to draw upon his experiences in providing me feedback on my own experiences, which I thought was very helpful. Also, I think that fact that we are both around the same age, did not take the traditional path to get our degrees, and are both first generation Hispanic Americans, helped us to connect greatly. [My second peer coach] also has a higher-level position in management was able to draw upon his experiences to help me learn and grow as I shared my experiences with him. I also thought that we were able to share a deeper connection because we both share in what it feels like to try and try to get a degree, but take a lot longer than most to finally get it. I also feel that we shared in knowing how important it is to get a degree.

More emotive than stark similarities, codes and concepts in this theme moved past simple demographic data, such as age or sex, to the *experience implied and shared by* those facts. Usually, those common experiences are more meaningful in the context of leadership, such as being young or a woman, which tend to be seen as more challenging for those populations. It is in these significant challenges that my next theme emerges.

### **Shared Suffering**

I distilled the fifth theme from subtle interpersonal nuances. While the principle of homophily quips that “similarity breeds connection” (McPherson et al. 2001), I would add to that by suggesting this data set demonstrates that *suffering* breeds connection. In some cases, I mean sharing suffering as experiencing similar defining challenges inherent to specific circumstance that *changed the way they identified themselves*. Some first order concepts that give rise to this theme were: being in the military, a spouse, or a parent. In other cases, the shared suffering was less iconic, but the struggles were equally intuited; a common challenge that connect students mentioned was balancing work and school or experiencing unexpected an emergency.

Responses like these captured the essence of military service that seemed to connect peer coaches deeply and instantly, and lead me to this augmentation of homophily:

She was prior military, so I knew we would at least have that in common. It can be hard to try and explain how military leadership works to people who have never served. This became helpful a couple times throughout this these peer coaching assignments...My other peer coach who didn't have this background tried to understand but it was a lot more difficult (Participant #187)

[My peer coach] and I were both in the Marine Corps. Although we have never met in person before, nor did we know each other before this course, we have a bond as brothers that is indescribable. We were able to talk about our experiences

with previous and current leaders and how they have shaped who we are and why we lead the way we do.(Participant #112)

While Participant #406 explicitly appreciated younger people in their learning journey, they cherished the instant connection to someone who had similar personal experiences:

While it is important to value differences and listen to different points of view, it can be difficult to really get what you need out of a situation when you and your coach are not on the same page. I chose coaches that were a bit older than many of my classmates, as I myself am quite a bit older than many of my classmates. That isn't to say that I couldn't learn anything from the feedback of a younger person; on the contrary, I have learned quite a bit from the feedback of my younger peers during my OGL studies. But in the context of peer coaching, I wanted to talk with someone who understood my needs better as a returning student with quite a bit of career and life experience who is trying to balance school, work, and running a household. I didn't want to have to spend time explaining my life situation to someone who was still very young and could not understand; I wanted to speak with people who were in the same boat as me and discuss how they were able to handle their specific situations. Also, the fact that [my peer coach] is a military spouse who has spent most of her career in food service retail management was incredibly helpful because that is my life as well. To speak with someone who understands the nuances of your life is very freeing.

Despite communication interruptions, anxiety and poor past experiences in school, participant #434 overcame all these challenges to benefit from peer coaching, in large part, because of the similarities in life experience, particularly parenthood:

The diversity in skills and experience of my two peer coaches were the benefit! Initially I hesitated with taking the process seriously because my life is so complex. As a nontraditional student who is also online, with children...it is hard to connect with classmates... It can be hard to put energy into meetings or assignments because it feels like a waste of time...

Trying to disclose anything personal to a non-parent I find challenging because reality is viewed differently when you have children. One of the reasons I withdrew from nursing school was because I could not connect with my peers. Listening to their stories in class were distracting not opportunity for growth...I find it hard to take advise from those who do not understand parenting.

Trying to receive advise from someone who may never have rented or own a place of their own is frustrating...However, having two coaches who had



some life-experiences... granted a comfort level I was not expecting. Both of my peer coaches are parents and could understand [me]...

There was a struggle initially to meet with my one coach... Once we were able establish contact, things went smoother.

Overcoming similar difficulties was not the only shortcut to immediate connection; being empathetically and emotionally available during suffering was also reported to be a catalyst in relational development between peer coaches. Starkly contrasted in age, work experience, and family dynamics to their peer coach, Participant #330 illustrated the power of presence even in virtual environments, that improved their peer coaching relationship:

...when I had an emergency situation occur with my youngest son, [my peer coach] was sincere in expressing his concern. That didn't go unnoticed by me and I am completely appreciative of his kind words. One of the greatest lessons from these experiences was that the quickest way to connection is to find common ground and once that is established, communication can be limitless. [My peer coach] and I were able to have meaningful conversations about our values and what challenges us in our work lives.

Being empathetically “present” in times of distress and personally experiencing familiar obstacles seemed to be powerful ways in which peer coaching relationships developed. Fortunately, commonalities were not the only way that relationships seemed to flourish in this sample. As I talk about in the next section, certain behaviors eclipsed personal similarities and differences to foster meaningful relationships.

### **Building Trust**

Finally, building trust means that peer coaches signaled certain personal qualities during their meetings that paved the way for participants to feel more comfortable while openly sharing thoughts and feelings. While learners tended to approach peer coaching with preconceived notions about its psychological safety and academic advantage, I

noticed that trust seemed easier and faster to build for participants that signaled a higher positive affect. This theme emerged from first order concepts like: vulnerable openness, actively listened, expressed personal interest. Fortunately for pessimistic participants like #118, a positive peer coaching experience overcame an admittedly lack of trust to establish the kind of openness that allowed for greater self-awareness:

...the experiences I gained with my peer coach will never be forgotten. It was amazing...

It also helped me experience trust again. I've had some very rough online experiences with people looking to take advantage of a situation, and it was wonderful to see there are decent people out there still...

It was amazing when all the facts came to light how trust formed almost instantaneously, because there was a sense of vulnerability on each side. Better Decision making and specific criticisms made for real connectivity between us. We spoke in a similar fashion and we respected one another's opinions. And all of it formed from conversational depth.

Even in a short 7.5 weeks, meaningful, illuminating connections can still be cultivated, as shown by Participant #409 "I feel so invested in [my peer coach's] development; I know she has a very bright future...We built trust, we learned, and we will remain connected. This opportunity to network is untapped in virtual education but it is the essence of networking. We need more of this." For whatever reason leaders pursue formal education in the flexible confines of virtual platforms rather than the physical spaces of a campus classroom, the expectation is the same: learning that results in the kind of personal development that makes a degree meaningful and enhances their influence. Participant #500 agrees:

...we need to be forced into unfamiliar situations to learn and retain the knowledge. I enjoyed having the opportunity to connect with my peer coaches who had different and similar backgrounds and worked in various industries. The multiple perspectives are what every good leader seeks when asking for advice from others.

## CHAPTER 5

### DISCUSSION

While conducting this study, I wanted to clarify the influence positive affect and learning preference contrasts had on learning outcomes and relationships development. Moreover, if there was a demonstrable effect, the mechanisms by which those effects played out in virtual peer coaching relationships. While Table 1 does not show learning preference contrasts having a direct effect on relational or learning outcomes, the Table 3 does illustrate how other differences did enhance them. Positive affect's direct influence is seen in the quantitative data; the implicit influence of positive affect surfaces throughout the qualitative data as well.

Quantitatively, how much online students liked their peer coaches one week after meeting them, was the best predictor of how much they would like them at the end of the course. Liking one's peer coach early on was also the best predictor of how much was learned during the course. Positive affect was the second-best predictor of how much students learned in this leadership class, but not how much they liked their peer coaches. Perhaps it could be said that "rose-colored goggles" will not help leadership students *like* their peer coaches more, even if those lenses do help them *learn* more.

It was interesting to see that there was a positive correlation ( $\beta = .21$ ) between age and quality of peer coaching relationships, but a negative correlation ( $\beta = -.20$ ) between work experience and quality of peer coaching relationships. For some reason, older students were more likely to like their peer coaches, unless they had been working. I wonder if negative experiences in the working environment (presumably the ones that motivated students to finish their degrees) jaded employees to intimate and organic social

contexts. Studies have shown that while workplace relationships can be helpful, they can also be harmful (for minority groups) without effective intervention, the effects of which can be long-lasting (Dutton & Heaphy, 2003; Dutton & Ragins, 2007; Gersick et al., 2000).

## CHAPTER 6

### LIMITATIONS

#### **Priming for Benefits**

In the open-ended reflection assignment, the prompt explicitly asks about the *benefits* of diversity. In his textbook, the Social Animal, Aronson describes the impressionable way humans build structures that help interpret the complex social interactions, “Priming [is] a procedure based on the notion that ideas that have been recently encountered...are more likely to come to mind and thus will be used in interpreting social events” (2018, p. 87). Primed students may then notice the positive results (rather than the obstacles) of their peer coaches’ differences.

Furthermore, there may be an over representation in the qualitative data (text responses) by those that had a positive experience. Their good experience may have been better aligned with the prompt, catalyzing their efforts to psychologically explore and express their reflections in the given format. Conversely, negative experiences with peer coaching may have resulted in an avoidance behavior in participants (especially those with a positive affect) inhibiting them from acknowledging, and by extension, reporting those negative experiences. Some students may view open criticism of the peer coaching model a vicarious criticism of either their professor or their peer coach, thus limiting or euphemizing their authentic responses.

Finally, it’s possible that participants with the bandwidth (in terms of availability, accessibility, communication, and relational skills) to connect meaningfully with the assignment, were also the same students able to connect meaningfully with their peer coaches. (I will talk more about this in the Future Research section below, specifically

how I would measure and test it.) Better able to overcome the inherent challenges of a geographically distanced learning community, these learners' circumstances may have moderated their peer coaching experience in a way that confounded the results of this study.

### **Insensitive Survey Data**

Given that the quantitative data analysis did not demonstrate that learning preference contrasts could significantly predict learning outcomes or the quality of peer coaching relationships, perhaps the effects of learning preference contrasts in peer groups are too subtle to be detected in this size or type of population within seven weeks using Likert scales in surveys. It is also possible that self-report surveys based on the Learning Style Inventory 4.0 scale are not an accurate way to gauge learning preferences. This could be because students do not *accurately understand* their own learning style (or preference) or did not *accurately report* their metrics. Students might be unaware of their actual current learning preference in this leadership development course, resorting to a personal bias that distorts how learners see themselves. Or they may think back on different learning situations from childhood and over emphasized those experiences in their perceptions, not realizing the learning preferences are not static traits that persist throughout one's life. Valuing expediency over accuracy, students could have just reported numbers for the sake of completing an assignment not understanding the implication of misrepresented data. If logistics were not a consideration, a more comprehensive data collection method such as an interview, might be better suited. The benefit of the interview is that respondents are typically very forthcoming about their insights and experience (Gioia, et al. 2013).

### **(Pseudo) Silence of the Students**

Contrasted to the forthcoming insight typically gained from interviews, a portion of the reflections submitted did not divulge meaningful data. A few responses in this study were effectively *silent*, by way of submitting blank assignments. Some did not fulfill the 500-word minimum. Others did not answer the assigned questions in a personally relevant manner. In other words, respondents offered vague leadership ideologies that generalized the benefits of diversity universally but did not connect it to themselves or their peer coaching experience. Even though it remains infeasible to interview every respondent, nonparticipation and vague generalizations beg the question "whose voices are not being heard?"

### **No Instructor of Record**

The name of the instructor is not recorded for each class section. By extension, I could not consistently tell which instructor participants had. This is only a small limitation since in the master design the instructor has very little intervention in the peer coaching process. Thus, the influence of the instructor on the peer coaching process would be minimal.

## CHAPTER 7

### IMPLICATIONS FOR FUTURE RESEARCH AND PRACTICE

#### **Future Research: Expanded Quantitative Data Analysis**

##### **Nested Data**

Even though multiple regression is a valid statistical analysis, and this was a significant sample size, a more complicated analyses may enhance the significance between variables. For example, instead of the current analysis (see Theory Model Figure 2) with simply five control variables (age, sex, years of work experience and the quality of peer coaching relationships at time 1) and three independent variables (learning preference contrasts and affect), a nested model or a dyadic/one with many design could group variables together in a more meaningful way that could reliably test the effects of learning preference contrasts and affect in online classes that use peer coaching.

##### **Moderating/Mediating Variables**

In this study's hierarchical regressions, I simply examined whether certain variables predicted other variables. Future research should expand this analysis by examining moderating or mediating variables on learning outcomes and the quality of peer coaching relationships. In other words, examining if affect explains how learning preference contrasts and learning outcomes /the quality of peer coaching relationships at time 2 are causally related (mediating) or if it influences the strength of the relationship (moderating). Besides Affect, two other moderating/mediating variables might be learning identity (Trinh, 2016) and the quality of peer coaching relationships.



## **Learning Identity**

Future research should examine the influence a strong positive learning identity has on learning outcomes in this data set. A validated scale, Learning Identity measures “an individual’s disposition to learn from life experience that entwines his or her love of learning, valuing of learning and development, and core belief in him- or herself as a learner” (Trinh, 2016, p. 27). Built for and from Kolb’s ELT framework, this data point might offer a more comprehensive conclusion as it relates to positive affect.

## **Bandwidth**

Unlike the additional analyses I call for above, that is basically a rearranging of data points currently already collected for this population, this arrangement requires a new data point to be collected: Bandwidth. As I mentioned earlier in this paper, personal bandwidth may have played a role in over representing the benefits of peer coaching in the qualitative data. To further explore personal bandwidth, or formally obligated hours before a week starts, a survey question could be added at the beginning and end of the course of asking students (1) how many hours (on average) they (expect to) work per week during the semester and (2) in how many classes (or credit hours) are they’re currently enrolled. Assumedly busy students (whether because they are taking a full course load or work a full-time job) have less time (bandwidth) to devote to any class. Demonstrating that high quality peer coaching relationships help students triage their time, attention, or effort more effectively could be meaningful support for the power of peer coaching to congeal and concentrate distant and distracted learners.

## **Implications for Practice**

### **Leveraging Diversity**

Peer coaching as framed by ELT is not just a leadership training method but can be generalized as pedagogical practice for lots of disciplines. One important aspect is that peer coaching validates the inherent diversity present in a class because it honors the holistic learner and the experiences, perspectives, and knowledge that they bring to the learning space. Peer coaching makes discussing how the content can apply in a specific context a legible and measurable activity that can be graded and quantified in a syllabus. When learners with different mental models engage in relational practice (Fletcher, 1999) that intentionally approaches people and conversations from a place of curiosity and acceptance, it allows learners to practice listening to and considering before dismissing different viewpoints. Assumedly, coaching conversations could be more illuminating and effective if students with opposing political or religious viewpoints were incentivized (by way of grading) to offer empathetic and meaningful feedback for six weeks in a row. Without being a meaningful component of completing the course, learning from, and appreciating an alternate perspective can tragically be lost.

### **Learning as Practice, Not Performance**

Because ELT frames learning as an individual journey that synthesizes what one is learning with what one already knows (Kolb, 1984), the expectation is no longer to *find the right answer*, but rather it is to *engage* in the active process of meaning making using course concepts.

## More Effective Than Discussion Board Posts

Having earned 109 virtual credit hours to date, I can attest that I put significantly more effort into the assignments that would be read and discussed by classmates that personally knew me. Retrospectively, I triaged my time, energy, and attention to prioritize the assignments in the two courses that required a type of peer coaching. The positive peer pressure that came from a meaningful academic community motivated me to make sure that I understood the content and could respond with my clearest thoughts. **poor engagement.** In contrast, discussion board activities usually got a spell check and possibly a quick read through to make sure that my sentences made grammatical sense. Rarely, if ever, did meaningful divergent viewpoints arise in these types of conversations (and I use the term loosely). This could be for a myriad of reasons. Perhaps students in my courses lacked the care or confidence to disagree in this format (even if they could on Reddit). Maybe the “be respectful or you’ll be kicked out of the course” clause in most syllabi inhibited conversations that revolved around differing opinions. Discussion board posts are caricatured in social media as vapid forms of forced conversation (Martinez, 2019). I agree with sentiments found in Figure 5 below:



Figure 5. Popular Discussion Board Tweet

Brown's tweet (2017) has been liked over 112,000 times and retweeted almost 50,000 times; discussion board users seem to agree with us. From my perspective, instructors cared more about meeting word count and citing relevant sources than engaging in transformative and affirmative interactions. *If* a classmate read my discussion board post, they were doing so to respond to also get a grade, not because they were trying to understand my perspective. Classmates did not necessarily (or usually) know me nor have any expectation to interact with me in the future. This dynamic did not typically spur me on to produce anything better than a response that was essentially error free and not embarrassing—a low bar compared to the assignments I shared with peer coaches.

**little autonomy.** According to their website (Instructure, 2021), Canvas served over 30 million users by 2019. Currently, in Canvas, discussion board post notifications are not conducive to relational development or appropriately stimulating conversations. The only notification options were (1) to be notified *every* time *anyone* posted either a thread or response or (2) not receive any notifications at all. One classmate, who later became a member of my research group, Ann Magsamen, regularly had these insightful (and sometimes sarcastic) threads that I *enjoyed* reading when I came across them in the ocean of peer contributions. Unfortunately, at that time, there was no setting in Canvas to email me when *she* posted something. This notification simplicity made students choose between a deluge of notifications (especially in large classes) or silence. Peer coaching, by contrast, allows a smaller number of familiar people to engage with the content with customizable notifications (i.e.: emails/texts/calls) that signal when a thoughtful response is ready. With the social and emotional context born of the peer coaching relationship,

feedback is specifically offered with the intent to benefit the author. Thus, rather than getting an overwhelming number of notifications loosely (and possibly poorly) related to the module content written by strangers, the peer coaching rhythm in this study allows students the autonomy of requesting how to be notified when each of their peers is ready to engage with module content.

**demoralizing academic interactions.** It can be a degrading experience to read a poorly composed post. Since students do not get know the scores given to their peers' work, I never knew what grade was given to students that did not seem to take the assignment seriously. Without public instructor intervention, low-quality posts establish a cultural norm of superficiality and low-quality engagement. (Personally, they lowered my motivation to engage, not only on the assignment, but in the course.) Peer coaching offers more context to these questionable contributions. Personal connection and context allow students to empathize with their peers lived experience and understand the effort their partners exerted to contribute to asynchronous conversations. For example, grammar errors become an opportunity for graciousness and admiration when English is not the author's first language or occur during a family emergency.

In summary, peer coaching in virtual education broadens the opportunities for students to engage with course content beyond the monoliths of reading and writing. It is cost-effective, scalable, transferrable and a legible, skilled exercise that doesn't require students to learn another new software. Rather it harnesses and enhances the literacy of a resource that has been available for generations: human connection.

## CHAPTER 8

### CONCLUSION

Organizational leadership scholars suggest that “leadership requires both unyielding adherence to a core set of principles and dynamic flexibility in response to the needs of followers and the demands and affordances of situations” (Wallace et al., 2021, p. 3)

Learning to be flexibly responsive to follower needs, is a relational skill that can be practiced in the confines of peer coaching in virtual learning environments. As business and management education explores and expands learning methods and modalities that enhance inclusion and are situation specific, it may be beneficial to look at the innovative trends of learning organizations. In a nimble response to dynamic changes in today’s workforce, industry is moving towards microlearning and educational journeys to increase job satisfaction and loyalty, particularly of the remote work force (Training Industry, Inc, 2021). While degrees and certificates signal unyielding adherence to academic rigor, the rising costs, and cumbersome process and can unnecessarily exclude some learners. Reconciliation and balance can be achieved between these opposing tensions between industry and academia. By harnessing adaptive learning formats and social interactions that empower learners to respond to their immediate environments, academic rigor can be upheld and administered in coffee shops and on buses. This type of individualized learning, underpinned with peer coaching, cultivates the leaders, as critical thinkers and dynamic connectors, that both industry and academe need in an increasingly digitally connected world.

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[https://twitter.com/Andre\\_BrownJr/status/844731901906731009](https://twitter.com/Andre_BrownJr/status/844731901906731009)
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APPENDIX A

POSITIVE AND NEGATIVE AFFECT SCHEDULE (PANAS)

Positive and Negative Affect Schedule (PANAS) Survey (Watson et al., 1988)

Directions: This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer for each word. Please indicate to what extent you generally feel this way.

1. Interested
2. Distressed ®
3. Excited
4. Upset ®
5. Strong
6. Guilty ®
7. Scared ®
8. Hostile ®
9. Enthusiastic
10. Proud

APPENDIX B

QUALITY OF PEER COACHING RELATIONSHIP SURVEY

Quality of Peer Coaching Relationship Survey (Gregory & Levy, 2010)

1. My peer coach and I have mutual respect for one another.
2. I believe that my peer coach truly cares about me.
3. I believe my peer coach feels a sense of commitment to me.
4. My peer coach is a good listener.
5. My peer coach is easy to talk to.
6. My peer coach is effective at communicating with me.
7. I feel at ease talking with my peer coach about my job performance.
8. I am content to discuss my concerns or troubles with my peer coach.
9. I feel safe being open and honest with my peer coach.
10. My peer coach helps me to identify and build upon my strengths.
11. My peer coach enables me to develop as an employee of my organization.
12. My peer coach engages in activities that help me to unlock my potential.

APPENDIX C  
LEARNING OUTCOME SURVEY



1. My peer coaching experience increased my confidence about my leadership abilities.
2. My peer coaching experience increased my ability to adapt to different people.
3. My peer coaching experience increased my ability to adapt to different situations.
4. My peer coaching experience improved my self-awareness.
5. My peer coaching experience improved my active listening skill.
6. My peer coaching experience improved my ability to seek feedback.
7. My peer coaching experience improved my ability to give feedback.
8. My peer coaching experience improved my ability to receive feedback.
9. My peer coaching experience helped me develop a clear vision of the future.
10. My peer coaching experience empowered me to pursue my goals and vision.

APPENDIX D

INITIAL IRB APPROVAL FROM 2016



EXEMPTION GRANTED

Mai Trinh  
CISA Bachelor of Interdisciplinary Studies  
480/727-0416  
Mai.Trinh@asu.edu

Dear Mai Trinh:

On 11/15/2016 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Effects of peer coaching on student learning outcomes in online leadership education
Investigator:	Mai Trinh
IRB ID:	STUDY00005067
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"><li>• Attachment 2 - Short Consent Form v2.pdf, Category: Consent Form;</li><li>• Trinh Peer Coaching IRB Protocol v1.docx, Category: IRB Protocol;</li><li>• Attachment 1 - Recruitment announcement v2.pdf, Category: Recruitment Materials;</li><li>• Attachment 3b - Survey 2.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);</li><li>• Attachment 3a - Survey 1.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);</li><li>• Attachment 3c - Sample prompt for writing assignments.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);</li></ul>

APPENDIX E

MODIFICATION/UPDATE IRB APPROVAL FROM APRIL 2021



EXEMPTION GRANTED

[Mai Trinh](#)

[CISA: Leadership and Interdisciplinary Studies](#)

480/727-0416

Mai.Trinh@asu.edu

Dear [Mai Trinh](#):

On 4/6/2021 the ASU IRB reviewed the following protocol:

Type of Review:	Modification / Update
Title:	Effects of peer coaching on student learning outcomes in online leadership education
Investigator:	<a href="#">Mai Trinh</a>
IRB ID:	STUDY00005067
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	None

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (1) Educational settings on 4/6/2021.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

If any changes are made to the study, the IRB must be notified at [research.integrity@asu.edu](mailto:research.integrity@asu.edu) to determine if additional reviews/approvals are required. Changes may include but not limited to revisions to data collection, survey and/or interview questions, and vulnerable populations, etc.

Sincerely,

IRB Administrator

cc: