CAUSAL ATTRIBUTION TENDENCIES OF EARLY CHILDHOOD PRACTITIONERS

AND THE EFFICACY OF ATTRIBUTION RETRAINING

By

Alex J. Faucheux

Bachelor of Science - Business
Louisiana State University
2014

Master of Business Administration
University of Louisiana-Monroe
2017

Master of Education- Special Education
Penn State University
2019

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Joshua Baker, Ph.D.
Examination Committee Co-Chair

Gerilyn Slicker, Ph.D.
Examination Committee Co-Chair

Stephanie Gerow, Ph.D.
Examination Committee Member

Joseph Morgan, Ph.D.
Examination Committee Member

Katherine Feather, Ph.D.
Graduate College Faculty Representative

Alyssa Crittenden, Ph.D.
Vice Provost for Graduate Education &
Dean of the Graduate College

ABSTRACT

Causal Attribution Tendencies of Early Childhood Practitioners and the Efficacy of

Attribution Retraining

By

Alex Faucheux

Dr. Joshua Baker and Dr. Gerilyn Slicker, Co-Committee Chairs
Associate Professor of Special Education; Assistant Professor of Early Childhood Education
University of Nevada, Las Vegas

Early childhood practitioners frequently attempt to identify the cause of outcomes experienced by their learners. This is sometimes referred to as causal attribution. Causal attribution may be affected by prior success and failure of a learner, the amount of effort exerted by the learner, the ability level of the learner, and knowledge of any disability associated with the learner, all of which can be considered controllable or uncontrollable, stable or unstable, and internal or external (Weiner, 1986; Woodcock & Vialle, 2011). As practitioners attribute cause to outcomes, they start to develop attributional tendencies; these tendencies, along with the cues and public behaviors associated with these attributional tendencies, may have an impact on future outcomes of learners (Graham, 2020; Toevali & Kikas, 2016). It is important that practitioners develop adaptive attributional tendencies in which cause is attributed to controllable and unstable variables. One potential teaching approach for developing adaptive attributional tendencies is attribution retraining (Haynes et al, 2011; Wilson & Linville, 1982; 1985).

This dissertation is a foundational dissertation that will examine multiple aspects of attribution, addressing several gaps in the extant literature including attributional tendencies of early childhood practitioners, attribution retraining for early childhood practitioners, and the thoughts and beliefs on attribution of early childhood practitioners. The study included a

quantitative randomized control pre-test/post-test study that examined the efficacy of attribution retraining on a sample of early childhood practitioners and a qualitative thematic analysis that used semi-structured interviews to explore the thoughts and beliefs of early childhood practitioners regarding attribution of success and failure. Results from the quantitative portion of the study were inconclusive but did suggest that attribution retraining could potentially be effective in the future. Results from the qualitative portion of the study showed early childhood practitioners emphasize social-emotional learning and support, and the importance of family and family collaboration, when attributing cause to success and failure. This study established a foundation for future attribution and attribution retraining research with early childhood practitioners and parents of young children.

Results are expanded on and discussed, then the implications for future research and practice are given. Future research should continue to explore attributional tendencies of early childhood practitioners and attribution retraining as a teaching tool for educating early childhood practitioners, as well as family members of young learners. Future research should include qualitative methodologies and mixed methodologies in order to capture more complete information about early childhood practitioners, and family members.

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DEDICATION

For Claire

"What really frightens and dismays us is not external events themselves, but the way in which we think about them. It is not things that disturb us, but our interpretation of their significance."
- Epictetus

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CHAPTER ONE

INTRODUCTION

How early childhood practitioners respond to learner outcomes like success and failure may have a substantial effect on a child's education (Toevali & Kikas, 2016). Responses may be impacted by what practitioners identify as the cause of these outcomes, or causal attribution. Weiner (1986) stated that causal attributions of outcomes are often associated with prior success or failure, the amount of effort the learner exerted, or the level of ability the learner possessed prior to the outcome. Woodcock et al. (2011) found that knowledge of a disability also influences causal attribution. Causal attributions made over an extended period of time create attributional tendencies (Clark & Artiles, 2000). Following the attribution of an outcome, practitioners often send cues to their students, knowingly or unknowingly, that reflect the practitioners' attributional tendencies which in turn influence the attributional tendencies of students (Graham, 2020). These cues are oftentimes unintentional but still may indicate to the child that that they are likely to experience the same outcome again in the future (Graham & Taylor, 2022). Cues may include outward signs of frustration or other emotions, the type of feedback delivered, the amount of attention given to a student, tone of voice, body language, or other observable behavior events. Children as young as five years old can determine social dynamics between others based on nonverbal cues alone (Brey & Shutts, 2015). At three years old, children attribute traits to others, infer similarities between people based on traits, and start to infer things relative to the motives and emotional reactions of others (Heyman & Gelman, 1998; Liu et al., 2007). Additionally, children at 15 months old make predictive generalizations regarding the behaviors of others based on prior cues and reactions to events. In turn, the children respond accordingly to these predictions (Repacholi et al., 2016).

This chapter will provide an overview of the theoretical frameworks guiding this dissertation which include attribution theory, and radical and molar behaviorism. Then, an overview of attribution retraining (AR), the teaching framework used in this dissertation, will be provided. A brief overview of professional development in early childhood education (ECE) will follow. Then, the conceptual framework will be presented. Finally, the statement of the problem, the research questions, the significance of the study, the delimitations, and relevant definitions are provided prior to chapter two.

Attribution Theory

Attribution theory states that causal factors contain the fundamental properties of stability, locus, and controllability (Weiner, 1986). Locus refers to a cause that is either internal and within the learner, or external and within the environment. Stability refers to a cause that is stable and unchanging, or unstable and capable of changing. Controllability describes the cause as controllable by the learner, or uncontrollable relative to the learner.

A seminal attribution study by Weiner and Kukla (1970) found that participants in a "teaching" experiment were influenced by perceived student ability and motivation. Students without ability but with high motivation received more positive feedback than students with ability who also possessed high motivation. Conversely, students with high ability and who were motivated received more negative feedback compared to students with no ability and no motivation. Clark (1997), in her seminal piece on attribution and learning disabilities (LD), found that teachers rewarded boys with LD at a higher rate compared to their peers without LD. Additionally, teachers showed less anger and more pity for boys with LD, while also holding higher expectations of failure for these students. Corrigan et al. (2003) demonstrated that when a

health risk is perceived as controllable by others, others experience more anger; however, when a health risk is perceived as uncontrollable, more sympathy is shown by others. Weiner (1985) referred to these feelings and emotions as attribution dependent. In other words, internal events are influenced by causal attribution of outcomes, and causal tendencies tend to guide feelings and behavior (Graham & Taylor, 2022).

Radical Behaviorism and Private Events

Although attribution theory is rooted in social and motivational psychology, this dissertation will examine attribution, and its effects, from a radical and molar behaviorist perspective. Behaviorism, credited to John B. Watson, presented the idea that a science of behavior was possible (Baum, 2005; Malone, 2014). Watson (1913; 1924) created what came to be known as methodological behaviorism, a phrase coined by B.F. Skinner (1974). Methodological behaviorism rejected private events or internal events like states of being, thoughts, feelings, and other mental processes in the analysis of behavior and instead focused on only observable phenomena.

B. F. Skinner, expanding on the work of prior behaviorists, including Watson, developed the most well-known philosophy of behavior and the philosophy that still guides the science of behavior today, radical behaviorism (Skinner, 1945). Radical behaviorism is a comprehensive philosophy of behaviorism, most commonly associated with applied behavior analysis (Johnston, 2014). Skinner (1945) distinguished radical behaviorism from methodological behaviorism through the operationalization of verbal behavior, linking verbal behavior to private events, acknowledging that private events were governed by behavior laws just like public events, and identifying that behavior change was due to consequences.

Public events are simply all behaviors that are observable and measurable by others and differ from private events due to this observability. Including private events in the analysis of behavior was the essence of what made radical behaviorism radical, and private events are essential to a complete science of behavior (Palmer, 2011; Skinner, 1974). Radical behaviorism, according to Cooper et al. (2020), made three assumptions about private events: 1) Private events are behavior, including thoughts and feelings; 2) "private" behavior" is only different from "public" behavior due to its inaccessibility; if we could observe private behavior consistently, there would be no distinction between public and private; and 3) private events are affected no differently by behavior concepts, principles, and science than are public events. By acknowledging private events as behavior, radical behaviorism established those common feelings experienced by practitioners, like frustration and sympathy, were impacted by antecedent and consequence events just like public behaviors and could be influenced by behavior principles. The causal attribution dimensions, stability, locus, and controllability, influence a number of attribution dependent private events, including anger, guilt, pity, shame, and expectations of future outcomes. If causal attribution is changed then attribution dependent private events may change as well.

Molar Behaviorism

Radical behaviorism is the foundation of modern Applied Behavior Analysis and Positive Behavior Support (Singer & Wang, 2009). However, not a lot of empirical research exists for private events, possibly due to how private events are defined and understood from a radical behaviorist point of view, and partly due to the difficulty of operationalizing private events for analysis and change. A molar behaviorist view of private events, in contrast, focuses not so much on the private event of "feeling confident," for example, but rather the aggregate public events

that compose the "confident feeling," such as the way someone walks, talks, or interacts with others.

The essence of molar behaviorism is that present behavior depends on past events, not just current events, and that behavior extends throughout time (Baum, 2002; Baum, 2017). Feeling confident, for example, is not just a discrete event that occurs for a split second but rather a measurable event that exists across time. As it relates to private events, Rachlin considered private behavior just an extended series of public and observable behavior events (Rachlin, 1992). In other words, private behavior is observable through the public behaviors that accompany it. Rachlin (1985) described "being in pain" as all the activities that makeup "pain," including grimacing, groaning, and limping, amongst others. In this sense, pain is now public, operational, and observable. According to Sutton (2007), teachers who experience anger or frustration reported that these feelings were not momentary, and that feelings of anger and frustration changed their behavior in the classroom which resulted in students becoming immediate targets of the public behavior change. Public behaviors that are a byproduct of private events are referred to as collateral behaviors in behavior analytic literature. A teacher who is "frustrated" or "experiencing frustration" with a student may change their tone of voice, alter their body language, limit their engagement with the student, or outwardly question the student's ability or effort relative to a task.

Molar behaviorism adheres to the behavior principles of reinforcement, punishment, and extinction and the conceptually systematic interventions derived from these principles. However, molar behaviorism is a more pragmatic and actionable way of analyzing the private behavior of practitioners for several reasons. First, a molar view of private events encourages an operational and observable view of private events. More specifically, the focus is on the public behavior

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associated with "feeling frustrated" or "feeling sympathy" rather than just the feeling itself. From a molar behaviorist standpoint, the private event is not the focus and can even be a distraction away from public behavior and the function of activities in relation to past and present environmental changes (Baum, 2011). Second, a molar view acknowledges and considers the criticism from many non-behaviorists that radical behaviorism may be reductive and limited in its approach to complex internal events. Finally, identifying the private events of practitioners that result from student outcomes can lead to establishing a predictable repertoire of collateral behaviors.

Attribution Retraining

Research shows that an instructional strategy known as attribution retraining (AR) can change attributional tendencies (Graham & Taylor, 2022). Attribution retraining is derived from Weiner's seminal work on attribution theory and operates on the fundamental three dimensions of causality: locus, stability, and controllability. Interventions that use AR are designed to change maladaptive attributional patterns or tendencies to adaptive attributional patterns or tendencies (Haynes et al., 2011). A person with maladaptive attributional tendencies attributes outcomes to uncontrollable and stable causes. For example, a practitioner who attributes failure of a student to a disability, a student's lack of ability, or a student's background or personal characteristics possesses maladaptive attributional tendencies. A person with adaptive attributional tendencies would consider the cause of an outcome as controllable and unstable. For example, a practitioner who attributes failure of a student to effort, instructional methods, or environmental variables possesses adaptive attributional tendencies. In other words, adaptive attributional tendencies indicate the belief that outcomes could be different in the future if controllable variables were to change. Although there is essentially no research available regarding retraining teachers using

AR, there is a large body of research on the use of AR with students. Primarily, AR research with students has focused on modifying attributional patterns while analyzing how AR directly affects academic outcomes (Haynes et al., 2011). Wilson and Linville (1982; 1985) conducted two seminal studies using video recordings and pamphlets to target the stability dimension of academic achievement. Within those studies, students watched taped interviews of senior college students discussing how their low grades improved after their first semester. The seniors attributed the change to the unstable nature of grades and discussed adaptive attributional patterns. Participants then reviewed handouts related to attribution and the video that they watched. The studies resulted in increased test scores and grade point averages for college freshmen by the end of the year.

The results of more contemporary AR studies have demonstrated similar results. Participants who received AR in a study from Boese et al. (2013) indicated higher expectations of grades and took greater responsibility for their academic successes or failures, while students who were prone to failure-avoidance and maladaptive attribution saw increased performance over students who were not failure-avoidance and who already possessed adaptive attributional traits. A similar study from Perry et al. (2010) improved adaptive attribution in the AR group, while an increase in course-specific and overall academic outcomes was observed for these participants as well. The participants in the AR group who performed at an average or below-average level on an initial test performed better than participants who did not receive AR. These results generalized across multiple types of subsequent tests such as multiple choice, short answer, and essay. Finally, average or below-average AR participants saw improved overall GPAs.

The majority of AR research over the last 20 years typically began with a sample of participants who were randomly assigned to an AR group or a no-AR group and who were given a pre-test. The AR intervention was then introduced and typically began with attribution induction which used either a video that discussed adaptive causal attribution and sometimes demonstrated adaptive attribution through the use of student models followed by a professor or researcher emphasizing the importance of focusing on controllable causes. Induction is the most critical part of the intervention (Stewart et al., 2009). Induction was followed by attribution consolidation, where participants took part in a discussion, completed an attribution-related task related to their own outcomes, or received a follow-up explanation from a researcher. Consolidation focused on reinforcing the AR content (Stewart et al., 2009). AR induction and consolidation were the two most common components of AR interventions (Boese et al., 2013; Hall et al., 2004; Haynes et al., 2006; Haynes et al., 2008; Haynes Stewart et al., 2010; Parker et al., 2016; Perry et al., 2010). A post-test was then given, and attributional tendencies and academic outcomes were analyzed. A third component, causal search activation, was used in some studies and took place prior to induction. This portion of the intervention was designed to have participants think about their own successes, failures, and attributional tendencies (Stewart et al., 2009).

Though the effectiveness of AR is well-documented for some populations, there is a lack of research on AR in early childhood settings and classrooms in general. Studies in the classroom do exist, but critics often point to AR's reliance on controlled environments and the lack of research in other scenarios (Horner & Gaither, 2004; Dresel & Haugwitz, 2008; Berkely, 2011). Attribution retraining studies often use older students, typically students who are entering into, or are already in, college. At this point in these students' lives, their personal attributional traits may

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have been reinforced for years. Adaptive attribution instruction should ideally start at the beginning of a student's academic life cycle so that, in theory, good habits can be formed and reinforced at an early age. Early childhood practitioners who understand attribution and possess adaptive attribution patterns may be able to instruct learners on adaptive attribution with more success and could, themselves, assess outcomes using adaptive attribution patterns. Research indicates that teacher-child interaction may be the most important part of early childhood development across all domains (Lee & Bierman, 2016).

Professional Development of Early Childhood Practitioners

Professional development (PD) is an important part of on-going improvement in the quality of practice of early childhood practitioners (Schachter, 2015). Aikens et al. (2016) identified several approaches to PD, which included coaching, workshops, in-person courses, mentoring, and curricula, but the mode of delivery, the amount delivered, the content taught, and the design tended to change substantially from one study to the next. This ambiguity and uncertainty were reflected in the numerous literature reviews analyzing PD in ECEC. The method of PD most frequently cited for its effectiveness was coaching, and PD that included a coaching component was associated with an increase in quality outcomes and an improvement in practitioner behavior and implementation (Brunsek et al., 2020; Dunst, 2015; Gupta & Daniels, 2012). Schachter (2015) found that coaching was useful for targeting the knowledge, skills, and dispositions of practitioners but found coaching to be expensive and time-intensive and that qualified experts were needed, which made it difficult to sustain or scale coaching over time.

Adaptive attribution is less of a skill and more of an applied mindset for approaching success and failure. This proposed dissertation will consider the challenges of delivering PD in ECEC and seeks to develop a resource-sensitive way of delivering attribution content based on

existing literature while still providing opportunities to scale the PD in future research. A modified version of content acquisition podcasts (CAP) was identified as a resource-sensitive and scalable way to teach attribution. Kennedy (2011) developed CAPs, and Kennedy and Thomas (2012) were the first to use CAPs to educate preservice teachers. Content acquisition podcasts were designed based on Mayer's Cognitive Theory of Multimedia Learning. This theory presented several principles for creating effective and engaging multimedia materials for use in teaching and education (Mayer, 2005). There is no uniform way to create CAPs, but all CAPs must follow Mayer's principles of multimedia learning.

The use of CAPs has empirical backing. For example, Kennedy et al. (2014) used CAPs to teach preservice educators the characteristics of LD and ASD. The CAPs group was compared to a group that was provided a graphic organizer of the material and was given as much time as they needed to read a textbook chapter on the material. The CAPs group outperformed the non-CAPs group by a large margin on the post-test and maintenance test, except if participants in the non-CAPs group received additional outside instruction. The results indicated that CAPs could be used with course material or as a standalone instructional tool if time constraints existed. Kennedy et al. (2016) taught students functional behavior assessments using CAPs and compared the results to a group that received typical lecture-style instruction. Participants who were taught using CAPs performed significantly better than the students who attended the lecture. Participants also experienced a reduction in cognitive load.

There are benefits to using CAPs for professional development. First, although there are guidelines for CAPs, there is no strict criterion dictating what goes into a CAP, as long as the principles of multimedia learning are followed. This flexibility allows for more personalized content based on the literature, personal experience of the creator, and the needs of the audience.

Second, CAPs are considerate of time and resources which addresses a common issue of coaching and other professional development approaches. Finally, CAPs are created with consideration to how many students already engage in learning inside and outside the classroom. Rapp et al. (2016) found that the majority of faculty members and fourth-year medical students chose YouTube as their preferred learning source when they were preparing for a surgical procedure. A study from Jaffar (2012) found that 98% of second-year medical students used YouTube as a resource for information. There is a lack of research on the use of CAPs-like instruction in early childhood PD; however, the use of the use of short-form videos in educational PD offers a wealth of possibilities for the future.

Conceptual Framework

The conceptual framework that guides this proposed dissertation is rooted in attribution theory and radical behaviorism. Attribution of outcomes, according to attribution theory, consists of controllable, stable, and external causal factors and internal, stable, and uncontrollable causal factors. Radical behaviorism, along with a molar behaviorist perspective on private events, helps describe the public and private events that occur as a result of attribution Private events like frustration, pity, and anger are on display to students through public behaviors from practitioners that outwardly reflect private events, whether intentional or not. Prior research shows that teachers report private events like frustration and anger are not temporary, and that the public behavior changes they experienced as a result of these private events were directed at students in the classroom (Sutton, 2007). Children start to understand public and private events of others as early as 15 months, and the ability seems to increase rapidly as children develop (Liu et al., 2007; Nurmsoo et al., 2012: Repacholi et al., 2016).

The framework (see figure 1) begins with a student outcome, typically a success or failure. After each outcome, practitioners will search for explanations, causal attributions, for why that particular outcome occurred. These causal attributions typically consist of variables like ability, effort, strategy, instruction, environment, or disability. The causal variables that are chosen by practitioners impact their attribution dependent private and public events. The private events of practitioners, like their expectations of their learners and their feelings of frustration and sympathy, are frequently made public through collateral behaviors, or cues and signals. These public events, or behaviors that are observable by others, may include the interventions that practitioners use or the way in which practitioners respond to these outcomes. Children at a young age respond to the public events of others and, in theory, this may impact future outcomes of these children, although there is limited research exploring future outcomes (Graham, 2020) One potential way to change the attributional tendencies of practitioners is through AR. The effectiveness of AR has been demonstrated with students, but rarely with practitioners. However, if practitioners make adaptive causal attributions, as opposed to maladaptive causal attributions, then their responses to student outcomes may change.

Figure 1

Conceptual Framework

| Attribution Theory (Weiner, 1986) Social and Educational Psychology | Radical Behaviorism (Skinner, 1945) Behaviorism |

Student Outcomes:

Success
Failure

Attribution Retraining (IV)

Professional
Development

Causal Attribution of Outcomes (Practitioner Attributional Tendencies)
Internal v. External
Controllable v. Uncontrollable
Stable v. Unstable

Attribution Dependent Private Events
- Perceptions of Student
- Anger, Pity, Guilt, Frustration, Sympathy
- Expectations of Failure

Attribution Dependent Public Events
Cues, signals, and other public collateral behaviors

Statement of Problem

Early childhood practitioners seek out reasons why their learners experience

certain outcomes such as success and failure. In turn, practitioners develop attributional

tendencies which may affect how practitioners respond to these outcomes. Attributional tendencies may also have an effect on private events. Although private events are unobservable by others, these private events can be considered aggregates of public behavior that occur over an extended period of time (e.g., anger often manifests through an increase in tone of voice, the use of harsh language, an increase in negative feedback, or the use of reprimands or punishment). These public behaviors are observable by others, including early learners. Public behaviors may include the interventions used by practitioners, reinforcement from practitioners, or other consequences delivered by practitioners, and may shape the behavior of learners, deliberately or not. Learners also start to make predictions about the behavior of others, based on their observations. Early childhood education that is high-quality and delivered consistently can have a positive future impact on children across multiple domains (Donoghue et al., 2017) Because of this, It is especially important to focus on practitioners who work with young learners.

Attribution is under-researched in the field of ECE. Attribution is also frequently examined from the self-perspective, and AR is almost exclusively studied using older students. The studies that do examine attribution from the perspective of practitioners rarely examine how these attributional patterns can change through AR. Adaptive attribution is rarely explicitly taught to practitioners.

Previous quantitative research has demonstrated the importance of adaptive attribution in response to outcomes of children. In particular, practitioners who hold maladaptive attributional tendencies, and attribute outcomes to uncontrollable and stable factors, are more likely to believe that a learner who failed will continue to fail in the future which is a belief that is detrimental in education. What quantitative research has failed to address, and what this dissertation

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contributes, is the foundation for an efficient and effective way to change attributional tendencies of early childhood practitioners.

There is also a lack of qualitative analysis in attribution research. Since attributional tendencies are a product of private events, observable only to the practitioner, quantitative data examining attribution cannot always measure these private events to the fullest extent with accuracy and reliability. Without complete information about the practitioner and their beliefs, it is difficult to tell the full story of why practitioners hold certain attributional beliefs about learners, or how practitioners perceive current success and failure of their learners. Qualitative research adds value to this area of study through the examination of a "central phenomenon" or a core idea (Creswell, 2022). At its core, attributional tendencies are a person's thoughts and feelings regarding why people succeed and fail. These thoughts and feelings may reflect an individual's personal successes and failures, learning history, education, cultural upbringing, and other intersectional variables that quantitative data often fail to capture.

This dissertation was examined the efficacy of attribution retraining for ECE practitioners through a randomized control trial intervention and a thematic analysis of semi-structured interview data. The first objective of this dissertation was to examine the efficacy of AR on attributional-dependent events of early childhood preservice practitioners. Then, using a qualitative thematic analysis study, the second objective was to develop a better understanding of the belief's practitioners hold regarding attribution of success and failure of young learners. The following research questions were aimed at meeting the objectives of this dissertation and guided the study.

1. What is the efficacy of attribution retraining for developing adaptive attributional tendencies in early childhood practitioners?

2. What beliefs do practitioners hold regarding attribution of success and failure?

Significance of Study

Young children learn more quickly than their older counterparts while also possessing less learning history related to attribution (Janacsek et al., 2012). It should be the responsibility of early childhood practitioners to teach and demonstrate adaptive attribution patterns to learners. Early childhood practitioners should understand how to respond to learner outcomes and how to demonstrate adaptive attribution patterns to learners. Practitioners should also understand their own attributional patterns, how those patterns affect their behavior, and how they can change these patterns.

Prior to this study, a pilot data collection study based was done in order to examine the effects of student characteristics on the reported frustration levels, sympathy levels, expectations of failure, and type of feedback delivered by ECE practitioners. Practitioners read through eight vignettes that each described a different student's ability and effort levels, and whether the student did, or did not, have ASD. Practitioners then reported on their frustration, sympathy, expectations, and feedback using Likert scales. Results from this pilot study highlighted effort as potentially the most influential variable when attributing cause for experienced ECE practitioners. Experienced ECE practitioners appeared to be significantly less likely to be influenced by a student's disability status compared to preservice practitioners based on prior research from Woodcock and Vialle (2010, 2011, 2016). This study examined the efficacy of AR on early childhood practitioner attributional tendencies. The quantitative portion of this study should increase the research base of AR with practitioners, specifically ECE practitioners and also increase research on the use of short-form multimedia in training programs for ECE practitioners. This study also examined the beliefs of practitioners regarding attribution of

success and failure. This portion of the study addressed the lack of qualitative research relative to attribution and attributional beliefs while giving a platform to ECE practitioners to share their lived experiences. This dissertation laid the groundwork for larger studies, including mixed method studies involving AR, attributional cues, and teaching attribution to ECE practitioners.

Delimitations

The following were the delimitations of this study. First, convenience samples were used for all studies, which led to smaller sample sizes and likely limited generalizability to other populations. Participants included in the sample were at different points in their degree program, which affected what they had and had not been taught at the time of their participation in the study. The amount of experience working with or interacting with children with ASD likely differed between participants and likely affected their perspective relative to the diagnosis and the training videos.

Second, the training videos were not pilot tested prior to intervention. This may have affected the validity of the training videos. Although training videos were modeled after empirical research from Kennedy (2012) and Mayer (2008), adjustments were made to fit the researcher's instruction style and preference based on the researcher's personal experiences training practitioners using video content. These adjustments could have introduced bias towards one intervention or the other. The vignettes were modeled after vignettes that were previously pilot-tested several times, but the actual vignettes used in the experiments had not been pilot tested prior to the study, which potentially affected the validity of the instrument.

Third, most participants completed both studies in the (virtual) classroom. Although participants were told that participation had no impact on grades, this could have affected their responses. Participants also watched the intervention videos in the classroom or in the virtual

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classroom, and, while headphones were supposed to be worn while watching the videos, there was potential for distraction during the intervention, although no distractions were reported or identified once the study took place.

Fourth, some participants may have "learned" or predicted what the researcher was looking for, or the perceived "correct" answer, during both the pre-test and the post-test and could have adjusted their answers accordingly.

Fifth, an interview protocol was used. A review of using interviews as a data collection method from Alshenqeeti (2014) identified the risk of bias in interviews, and the potential inconsistencies in interview protocol as possible limitations. Biases may have included known or unknown biases towards another individual based on their responses, their experience, or their line of thinking. Additionally, the interview sample size was smaller than anticipated.

Finally, the researcher was the instructor in the intervention videos and also conducted the semi-structured interviews. The participants who consented to interviews may be familiar with, or recognize, the researcher from the video. This familiarity could have potentially influenced participant responses during the interview portion of the study.

Definition of Terms

Adaptive Attributional Tendencies (or Patterns or Traits): Attributing cause to controllable, unstable, and, often, external variables

Attribution: Associating causal factors with outcomes (Clark & Artiles, 2000)

Attribution Dependent Events: Private events (e.g., frustration, sympathy, expectations of failure) influenced by attribution (Weiner, 1985). Also refers to public events (e.g., feedback) influenced by attribution.

Attribution Retraining: A systematic instructional intervention that works to change maladaptive attributional tendencies to adaptive attributional tendencies (Graham & Taylor, 2022)

Attribution Retraining Consolidation: Follows attribution retraining, and reinforces the content (Stewart et al., 2009)

Attribution Retraining Induction: The most important part of retraining where attribution is taught, and the importance of adaptive attribution is emphasized (Stewart et al., 2009)

Attribution Theory: Causal factors are composed of three fundamental properties: locus, stability, controllability (Weiner, 1986)

Behaviorism: A seminal theory that allowed for a science of human and animal behavior (Baum, 2005; Malone, 2014; Skinner, 1945; Watson 1913)

Coaching: A type of professional development that typically includes feedback, mentoring, observation, and reflection (Dunst, 2015)

Cognitive Theory of Multimedia Learning: A set of 12 principles that guide the creation of effective multimedia instructional materials (Mayer, 2005)

Content Acquisition Podcasts: Brief (5-15) minute videos that use a combination of audio and visuals as form of instruction

Controllability: The cause is either controllable (effort) or uncontrollable (ability)

Locus of Causality (Locus): The cause is either internal (disability) or external (instruction) (Weiner, 1986)

Maladaptive Attributional Tendencies (or Patterns or Traits): Attributing cause to uncontrollable, stable, and, often, internal variables

Methodological Behaviorism: A theory of behavior that rejected states of being, thoughts, feelings, and other internal events, and only included observable events in the analysis of behavior (Watson 1913; 1924)

Molar Behaviorism: A sub-theory of radical behaviorism that considers behavior as an aggregate of events that occur over time, and that behavior is dependent on past events, not just present events. Private events are just an extended series of public events. (Baum, 2002: Rachlin, 1992)

Private Events: Thoughts, feelings, and other internal responses that occur within a person, and are unobservable (Cooper et al., 2020)

Professional Development: Improves skills, knowledge, practices, and dispositions of practitioners through coaching, workshops, and other strategies (Sheridan et al., 2009)

Radical Behaviorism: A philosophy of behaviorism from B.F. Skinner that includes private events in the analysis of human behavior. Also, the guiding theoretical framework for Applied Behavior Analysis (Johnston, 2014; Skinner 1945).

Stability: The cause is either stable (background) or unstable (strategy) (Weiner, 1986)

CHAPTER TWO

LITERATURE REVIEW

Chapter two contains an overview of the literature for four primary strands. The first strand is attribution theory. Literature includes studies on attribution theory, and the attributional tendencies of parents and practitioners. The second strand is on the behavior theories that guided this dissertation. Literature includes theoretical pieces on behaviorism and the fundamental aspects of radical behaviorism and molar behaviorism, as well as literature on how young children respond to cues from others and make trait inferences and predictions at a young age. The third strand is on AR. Literature includes an overview of AR, and several studies demonstrating the efficacy and use of AR. The fourth strand is coaching professional development and content acquisition podcasts. A brief review of the literature is provided on coaching professional development followed by literature on content acquisition podcasts.

Attribution Theory

A systematic review of the attribution theory literature was conducted across four databases and the Journal of Applied Behavior Analysis. Additionally, a prior literature review on attribution theory was included as well. The review included three separate searches. A search for ECE literature, a search for autism literature, and a search for applied behavior analysis literature that included attribution theory. 953 records were identified through database searches, 8 articles were identified from the Journal of Applied Behavior Analysis, and 8 articles were identified through a prior literature review. After applying a year limiter of 2003-2023, and limiting to peer reviewed journals, 521 records were reviewed. These records were narrowed down to 23 records after excluding records with no ECE and/or no AT and/or no ASD. Twenty three total records were included in the final review.

Weiner's Attribution Theory

People attempt to explain, or give meaning, to why behavior occurs through attribution. Attribution in education and behavioral psychology is rooted in attribution theory. The creation of attribution theory is attributed to Fritz Heider who presented it in his book, *The Psychology of Interpersonal Relations* (Heider, 1958). Heider made the following claim: "the result of an action is felt to depend on two sets of conditions, namely, factors within the person and factors within the environment" (Heider, 1958). Since then, there have been several iterations of attribution theory all which focus on causality. The focus of this dissertation is Bernard Weiner's theory of attribution (Weiner, 1985; Weiner, 1986).

Weiner's attributional theory of achievement motivation and emotion (1985), most commonly known as attribution theory, emphasized achievement as its theoretical focus while also identifying three causal dimensions of attribution. Weiner (1985) stated that there are almost an endless number of possible causal ascriptions available at any given time, but that effort and ability are the most common causes based on empirical research. Weiner (1985) then discussed the three dimensions of attribution and why it is necessary to have this structure. This type of logical structure allows for quantitative comparisons between outcomes rather than qualitative subjectivity (Weiner, 1985).

The first causal dimension was the internal and external dimension of causality, or the locus of causality which came about due to the dominant nature of internal and external comparisons in psychology (Rotter, 1966). Locus of causality categorizes causes as either internal to the individual or external to the individual. Weiner (1971) then established the second causal dimension of stability. The reasoning was that some factors, whether internal or external, are constant over time while others tend to change over time. Factors such as luck and effort

were unstable, while ability was stable (Weiner, 1971). However, Weiner (1983) noted some flaws in this second dimension such as aptitude could be considered unstable if learning took place, while effort is sometimes viewed as stable as it relates to an attribute like laziness. Weiner (1983) suggested that aptitude, temporary effort, objective task characteristics, and chance were possibly less confusing compared to ability, effort, luck, and task difficulty; however, the latter four persist today when discussing Weiner's attribution theory.

The third level of causality was derived from Rosenbaum's (1972) observation that mood, exhaustion, and effort are often changed due to internal and unstable causes. However, mood and exhaustion are distinguishable from effort due to the much more controllable nature of effort. Often, a person can choose to give more effort, but it is significantly less likely that a person can control their mood or exhaustion levels this way (Rosenbaum, 1972). Thus, controllability, the third dimension of causality, was created. Weiner (1985) notes that external and internal locus and control are separate dimensions, and that locus should be referred to as locus of causality, rather than locus of control. Locus of causality, controllability, and stability are used today when discussing Weiner's attribution theory.

The next major component in Weiner's theory was future expectancy. The idea was that past results will lead to expectations of similar outcomes in the future if the causal dimensions do not change. For example, if a learner with ASD engages in a maladaptive behavior, and ASD, which is internal, uncontrollable, and stable, is perceived as the cause, then it is likely that there will be an expectation for more maladaptive behaviors in the future.

Expectations of success and failure of outcomes were influenced by the stability of the cause of the outcome and three propositions were formed: 1) if an outcome was due to a stable cause, then expectations that a similar outcome will occur again in the future increase 2) if an

outcome was due to an unstable cause, then expectations may not change or be different in the future and 3) outcomes with stable causal attribution were anticipated to happen again at a higher rate compared to outcomes with unstable causes. Although research on expectancy shifts is lacking in ECE and ASD, there is substantial research in the field of learning disabilities (LD) that will be discussed.

Finally, Weiner (1985) stated how attribution impacts emotion, or private events. It was stated that causal attribution plays a role in the emotional process, and that dimensions of causality are related to certain feelings. Pride and self-esteem were linked with locus of causality. Pity, anger, guilt, shame, and gratitude were linked with controllability. Hopelessness or hopefulness, expectations, were linked with stability. The emotions of a person making a causal attribution are attribution dependent.

Weiner (1985) summarized his complete theory using a boy playing baseball. When the boy failed at baseball, a causal search was then underway with the boy posing the question, "why did I perform poorly?" The boy attributed his failure to a lack of ability which was an internal, stable, and uncontrollable cause in that moment. The stability of this cause leads to the boy expecting more baseball failure in the future. The attribution dependent emotions, or private events, impacted self-esteem and pride. The internal cause potentially reduced his self-esteem, while the stability of the cause potentially led to feelings of hopelessness.

There has been minimal change to Weiner's theory since its inception. Sandra Graham, an attribution theory scholar, wrote an article in 2020 titled, "An Attributional Theory of Motivation." This piece reiterated and reinforced the ideas that Weiner originally stated, and emphasized the importance of the simplicity in the approach as it relates to policy and practice (Graham, 2020). However, Graham (2020) also went into detail regarding attributional

antecedents and attributional retraining which are discussed later, as well as attributional consequences. Attributional consequences described how causal attribution impacted future thoughts, feelings, and other behavior (Graham, 2020). For example, individuals feel pride following success as a result of internal causes. Individuals were also prone to deliberately increasing their chances of failure to avoid low ability attribution. This was known as self-handicapping and is backed by decades of research (Szabo & Toth, 2018).

Practitioners

Attribution theory research often focuses on causal attribution of one's own behavior. This type of self-attribution, according to Weiner (2001), is considered intrapersonal attribution. Valdivieso-Leon and Roman-Sanchez (2020) conducted a systematic literature review on Weiner's Attribution Theory from 1970-2019 and found numerous examples of intrapersonal attribution of primary and secondary students related, although almost no research existed in ECE or that focused on interpersonal attribution. However, Valdivieso-Leon (2015) showed that attributional tendencies take shape at an early age and that the educational context affects these tendencies. This dissertation will examine attribution of the behavior of others, or interpersonal attribution, specifically from the viewpoint of early childhood practitioners, including autism practitioners like behavior technicians and future behavior analysts. A systematic review of the literature by Wang and Hall (2018), which reviewed articles starting from the 1970s, identified 79 articles related to teacher interpersonal causal attributions of student performance and misbehavior. However, of those 79 articles, only three were at the kindergarten grade level, and only three focused on the attribution of special educators. 10 of those articles were qualitative or included a qualitative component like an interview. Additionally, none of the articles above were mixed methods studies highlighting the need for more qualitative and mixed method research in

attribution. With that said, findings from the 79 articles indicated attributional tendencies of teachers corresponded with teaching-related emotions, instructional behaviors, and outcomes in students, however, attribution research at the early childhood level is sparce. This dissertation contributed quantitative research that was lacking in the field through the examination of attribution by ECE practitioners, including those who are currently teaching at the kindergarten and preschool levels.

Research on attributional tendencies of exceptional students is largely focused on children with learning disabilities (LD) in elementary schools. Most of that research is derived from Clark's (1997) study of elementary school general education teachers' responses to failure outcomes of boys with and without LD which was derived from Weiner and Kukla's seminal study in 1970. These studies are all quantitative. A total of 803 preservice teachers, 153 early childhood teachers, and 760 in-service general education teachers participated in the following research. Overall, findings indicate that educators tend to respond to children with disabilities who fail differently than children without disabilities. Educators demonstrate more sympathy, experience less frustration, and hold higher expectations of future failure for students with a disability who experience failure.

Clark's study examined 97 general education classroom teacher responses to eight vignettes about a hypothetical student who took, and failed, a classroom exam. The vignettes provided statements regarding the student's ability, effort, and key ideas identifying the boy as having LD or not. The vignettes and were pilot tested in separate stages prior to implementation. After reading the vignettes, teachers answered four questions regarding evaluative feedback, their anger level, their pity level, and their expectations of failure. Quantitative data were collected during 1-hour sessions with participants. Results indicated that LD influences teacher

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responses to failure. Teachers rewarded boys with LD more than boys without LD. Teachers also reported feeling less angry, but more pity, following failure. Additionally, the teachers expected the children with LD to fail again in the future more often compared to their peers without LD.

Following Clark (1997), Stuart Woodcock replicated Clark's study several times using adapted vignettes from Clark's original study. Woodcock and Vialle (2010, 2011, 2016) examined 803 preservice teachers using eight vignettes adopted from Clark's research. Participants were then presented with closed-ended questions on feedback, frustration, sympathy, and expectations. Results indicated that when learner ability decreased, feedback became more positive, while the amount of sympathy given, and expectations of future failure, increased. As effort increased, frustration decreased, and feedback given was more positive, sympathy levels increased, and failure expectations in the future decreased. The LD status influenced response to test failure. Whenever the cause of failure was controllable, feedback was more positive, sympathy levels increased, and frustration decreased towards students with LD compared to non-LD students. Preservice teachers indicated low ability and low effort as clear causal factors in failure of non-LD students, but for students with LD ability and effort became less pronounced indicating LD as a causal factor in itself. Participants responded to failure of students without LD in a way that indirectly informed them that expectations are high and that they could succeed in the future. However, pre-service teachers responded to students with LD in a way that informed students that there were low expectations, and that they were most likely going to fail again in the future.

Woodcock and Moore (2018) examined stigmatization of LD through the attribution of 154 elementary school teachers in London. The instrument used was Clark's original instrument used in 1997, but pilot tested again prior to the study. Results indicated that the amount of

experience a teacher had had no influence on attributional tendencies towards students. These findings are consistent with a contradictory body of research that indicates experience does, and does not, have an impact on outcomes and attribution. Participants viewed effort as more important than ability. Feedback from participants to students with LD tended to be more positive compared to students without LD and feedback from teachers directed at students with high effort was more positive compared to students with low effort tendencies. Participants reported their frustration levels were lower towards students with LD compared to students without LD. Frustration levels were highest towards non-LD students with high ability and low effort. Expectations of future failure were lower for non-LD students, and higher towards low ability students and low effort students. Expectations were highest towards students with low ability, low effort, and LD. Results were consistent with previous findings that indicated LD was viewed as a cause of failure that was internal, stable, and uncontrollable.

Woodcock and Jiang (2012, 2013, 2018) examined attribution of LD of Chinese preservice and in-service teachers compared to Australian teachers. These studies surveyed 305 Chinese teachers who had just read several vignettes of a student who had just failed an exam. Findings indicate that culture may play a role in attribution. LD had a lesser impact on Chinese teachers in terms of attribution, and results indicated that Chinese teachers may view LD as more unstable partly due to the emphasis placed on effort in Chinese culture. The 2018 study indicated that expectations of future failure were higher in Australian teachers compared to Chinese teachers, while effort was much more significant to Chinese teachers than ability. Additionally, Frohlich et al, (2020) examined the relationship between teacher attribution and self-efficacy of teachers. 151 practicing teachers answered survey questions related to their own efficacy and their attributions of student behavior for students with ADHD and LD. Results indicated that

teachers commonly attributed behavior to skills, genetic factors, teaching, and the environment, but the perceived causes were numerous. Teachers also indicated that LD was a less stable cause when compared to ADHD which was viewed as more stable.

Woodcock's work, along with his colleagues, presents a thorough quantitative look at attribution of practitioners as it relates to students with LD. What this research is lacking is a qualitative or mixed method analysis of these attributional tendencies that practitioners consistently possess. For example, there is an opportunity to explore why practitioners believe that LD is less stable compared to ADHD, and what stability might mean to practitioners in the context of the learning environment. There is also a lack of intervention targeting behavior change in the prior studies. This dissertation will add that component through AR which will be discussed later.

Aside from Woodcock and his colleagues, Toevali and Kikas (2016) examined the association between attributional tendencies of teachers and math performance of students. A total of 760 children were tested at the end of second grade and the end of third grade. A total of 53 teachers were asked two questions about attribution and success and two questions about attribution and failure. The teachers responded using a Likert rating scale. Results indicated a negative relationship between teacher help attributions and math performance in success situations, and a negative relationship between teacher ability attribution and children's math performance in a failure situation. The better the performance in math, the more likely it was that success was attributed to ability rather than the help of the teacher. The higher the math performance, the less likely that failure was attributed to ability. Teachers that attributed failure to ability were more likely to demand less, and express more sympathy or pity, consistent with Weiner's findings. Furthermore, the more persistent the child was, the more teachers attributed

success in math to the child's ability. The implications of the study indicated failure to low ability and success to the help of a teacher can have a negative impact on future math performance of children. It is likely that attributional cues of sympathy or pity contribute to this finding.

Carter et al. (2014) examined attributions of 153 early childhood teachers across 423 children. At the time of writing the article, the authors found no other research on behavioral attribution of three-year-old and four-year-old children. Using an adapted vignette-style measure, teachers were asked to think about a time that a child in the classroom engaged in maladaptive behavior in one of the following ways: aggression towards peers, noncompliance with requests or routines, and aggression or disrespect towards teachers, interruption. A scale ranging from strongly disagree to strongly agree was used to rate several dimensions including controllability, stability, motivation, blame, negative intent, and purposefulness. Descriptive statistics were used to analyze data. Findings indicated that teacher attributions may be related to how teachers handle maladaptive behavior. Teachers who believed maladaptive behaviors were stable and internal, and that the child served blame and punishment, were more likely to use negative or punitive discipline. It is likely that teachers who hold negative attributional beliefs are more likely to respond to "bad" behavior in a negative or inappropriate manner. Additionally, these teachers tended to respond in ways that were less sensitive to the child's needs.

Ultimately, there was evidence that how an ECE teacher attributes behavior may contribute to how the teacher responds to the behavior and the child. But the research is limited. For one, most of the research is done by the same researcher (Woodcock) or team of researchers. Second, this research mostly involves pre-service teachers and LD. Third, this research is all quantitative research; this dissertation addressed this issue with a qualitative thematic analysis

following semi-structured interviews. Finally, the research lacks interventions aimed at changing

maladaptive attribution and further exploration of the practitioners who are involved in the

research. This dissertation sought to expand attribution research in ECE by using in-service

practitioners and focusing on ASD instead of LD, implementing an AR intervention, and

conducing a qualitative study in an effort to capture perspectives and personal experiences of

practitioners that quantitative data can often miss.

Radical Behaviorism

Attributional tendencies influence the behavior of practitioners. The following section

will discuss a radical, molar view of practitioner behavior, specifically private events which

include thoughts and feelings like sympathy, frustration, and expectations. A radical, molar view

of behavior views private events no different than public events, other than the observability of

the behavior event in question. It also views private events as an aggregate of public events, such

as attributional cues, which occur over time, and which young learners begin to react to and

internalize at a young age.

The primary idea governing behaviorism is that a science of behavior is possible (Baum,

2005). John B. Watson is credited with establishing behaviorism as a science, although Edward

Thorndike, prior to Watson, pushed for a more objective psychology and likely laid the

foundation for behaviorism (Malone, 2014). Watson rejected private events, states of mind, and

mental processes as behavior and focused on only observable phenomena. Watson's behaviorism

was known as stimulus-response psychology and did not factor in consequences as controlling

variables of behavior (Watson, 1913; Watson, 1919; Watson, 1924). Radical behaviorism was

not so much a response to Watson's behaviorism as it was an expansion on the ideas that Watson

presented.

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B.F. Skinner began his work on radical behaviorism as a postgraduate at Harvard in the 1930s (Schneider & Morris, 1987). Skinner, in his seminal article, The Operational Analysis of Psychological Terms (1945), stated that "verbal responses to private stimuli can arise as social products through the contingencies of reinforcement arranged by verbal communities." Through this quote, Skinner summarized what separated radical behaviorism from Watson's methodology: an operational account of verbal behavior, acknowledgement that private events are behavior in the same way that public events are behavior, and that behavior is changed through consequences thus expanding on Watson's two-term S-R contingency with a three-term contingency of S-R-S.

Watson's brand of behaviorism is more commonly referred to as methodological behaviorism in part due to Skinner's (1974) analysis which concluded "methodological behaviorists acknowledge the existence of mental events but do not consider them in the analysis of behavior." The term, "methodological behaviorism", is somewhat problematic in itself, and is often used to describe a variety of theories and authors, and Skinner himself has been described as a methodological behaviorist despite founding radical behaviorism (Martin 1978; Strapasson & Araujo, 2020; Woolfolk, 1983) Behaviorism is littered with conflicting viewpoints such as this, and Skinner's radical behaviorism is no different. However, Skinner's radical behaviorism is the foundation of modern day Applied Behavior Analysis, and, more recently, Positive Behavior Support (Singer & Wang, 2009) For this reason, Skinner's radical behaviorism is used pragmatically, in conjunction with molar behaviorism, in this dissertation to operationalize private events of ABA and ECE practitioners as public events.

Molar Behaviorism

Underlying radical behaviorism were two different ideas, both advocated by Skinner, on quantifying behavior as discrete responses, or as an aggregate of events over time. Molecular behaviorism considered behavior a series of discrete events in time which ultimately were chained together to produce complex behavior due to contiguity, while molar behaviorism viewed behavior as a continuous series of responses that occurred over an extended period of time linking past responses to present responses and future responses (Baum, 2004). While these ideas were not initially divisive, they have since generated two distinct camps of thinking about how to quantify and analyze behavior; however, Shimp (2014, 2020) argues that the separation of ideals is unwarranted, and that the two can coexist, and even from one singular analysis.

While there are several ideas relative to shaping and strengthening behavior that are tied to molar and molecular behaviorism, molar behaviorism applies in context due to how private events are defined by molar behaviorists. Molar behaviorism submits that private events are composed of a string of public, observable behaviors that happen across time (Baum, 2017; Rachlin, 1985). An educator who experiences frustration with a student does not experience frustration for a single moment in time; instead, those feelings of frustration often persist and alter the educator's public behavior over time through the way the teacher speaks, acts, or engages with the student publicly (Sutton, 2007). A person is not said to be confident, nervous, or charismatic based merely on assumptions, but rather by the way they carry themselves, engage with others, and react to environmental changes over time.

Cues and Traits

Causal attribution often leads to attributional cues from practitioners indicating different levels of ability and effort to students (Graham, 2020). Studies have identified the following as common

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cues of low ability attribution: increased sympathy following a failure outcome, teachers offering unsolicited help to students, placing of blame following failure, and delivery of praise following success (Graham et al., 1990; Graham & Chen, 2020; Lam et al., 2008; Miller & Hom, 1997). Additionally, Brummelman et al. (2014) and Haimovitz and Dweck (2017) identified that praise that was chosen based on causal attribution like person-centered praise, "you are smart", can lead to decreased persistence or avoidance, as opposed to process praise. "You worked hard." These public cues that reflect private events are sometimes referred to as collateral behaviors by behaviorists.

The following studies included a total of 914 children who ranged from infants to 10 years old. The results of the following studies indicate that young children are adept at making behavioral and trait inferences. Children as young as four made trait inferences based on characters in a story and were able to make trait-to-behavior predictions at multiple points in time. Children as young as 5 years old were able to use body language to identify mutual friendships between others and were able to identify different emotions based on vocal sounds alone. Children as young as 3 were able to make negative attributions towards negative behaviors and were able to identify traits of others accurately. Children as young as 3 and 4 were able to discriminate between low- and high-power individuals using nonverbal behavior and this ability improved dramatically in children who were 5 and 6 years old. Similarly, 5-year-olds were able to identify competence and trustworthiness based on facial features. Finally, infants were able to infer the future behavior of other individuals based on the individual's interaction with others.

Liu et al. (2007) analyzed whether young children were able to make trait inferences based on behavior, and if they were able to make behavior predictions based on traits. Sixty-four

4- 5- 7- and 9-year-olds participated in the first study, and heard four stories of four traits: nice, mean, shy, and selfish. The main character in each story either engaged in behavior consistent or inconsistent with each trait, and participants were tasked with inferring each trait based on the behavior of the character in the story. The results of the experiment indicated that children from all groups were able to make behavior-to-trait inferences regardless of how many examples of each behavior were provided prior to making inferences. The second experiment included 48 4-, 5-, and 7-year-old children who were each presented with two trials where the traits of the protagonist were explicitly labeled, and two trials where trait-relevant behavior were shown. Participants were then asked to predict if the character would behave in a way that aligned with their trait, or if they would behave in a different way. Results from experiment 1 and 2 indicated that participants were able to make behavior-to-trait inferences and trait-to-behavior predictions but were unable to predict the behavior or the character based on prior behavior. The final study involved 32 4- and 5-year-olds replicated experiment 2 but asked the participants to predict behavior at two different points in time, rather than at only a single point in time. Participants were able to make trait-to-behavior predictions for two different points in time.

Nurmsoo et al. (2012) investigated whether 4- 5- and 6-year-olds were able to use eye gazing to identify friendships in others. A sample of 96 children were first encouraged to identify their own best friend after a brief discussion on friendship, and then were told to identify who were 'best friends' in a series of animations of three children that featured a target (the friend in question) who appeared alone initially, an avoider, and a reciprocator. After watching the animations, participants were asked, "who is best friends with [target child]." Two control trials were also used where participants were only asked "who looked at [target] the greatest number of times?" Results indicated that the all three age groups were able to identify gazes when asked

to specifically monitor gazes, but only 5- and 6-year-olds were able to use gazes to identify

mutual friendships. A follow-up study using a new sample of only 5 and 6-year-olds had

participants watch six similar animations except for the target did not appear alone, the target

was not identified, and the target was positioned in all three spots an equal number of times.

Participants were asked, "which two children are best friends with each other?" and "how do you

know?" Once again, both age groups were able to identify who were friends in the animations,

but 5-year-olds struggled to give an explicit explanation of why they chose who they chose. A

third experiment which again included 4-year-olds altered the animations to include a portion

where the target and avoider looked at one another, but never simultaneously, compared to the

target and reciprocator who engaged in a mutual gaze with one another. Every group of children

were able to identify mutual eye gaze, but 6-year-olds performed significantly better than the

other two groups at identifying relationships.

      Sauter et al. (2012) sampled 48 children between the ages of 5 and 10 years old to

analyze recognition of emotional cues in vocal expression. Participants were divided into a

younger group (up to 7 years 5 months) and an older group (starting at 8 years 3 months). Prior

to intervention, participants were given a definition and scenario of each emotion label and were

asked to give a scenario when someone might feel this emotion and how it might sound.

Participants were presented vocal sounds from both male and females and asked to choose which

emotional label matched the sound. Overall, participants chose the correct emotion 78.1% of the

time for the young children, and 83.9% of the time for older children. Results indicated that

children at the age of 5 are able to distinguish between different vocal emotions.

      A study from Boseovski et al. (2013) conducted an experiment regarding trait attributions

and behavioral predictions of children 3- to 6-years-old with respect to frequency of exemplars

and behavioral intention. The experiment included 128 3- to 7-year-olds who were presented with negative behavior outcomes. Results indicated that participants were able to make negative attributions towards negative behaviors but required more exemplars to make the negative attribution as age increased. Participants were also quicker to predict that negative events would happen again in the future compared to positive events which needed to be presented multiple times in order to evoke a positive prediction. Additionally, participants quickly identified accurate traits, but required multiple exemplars to predict positive behavior.

Brey and Schutts (2015) conducted four different studies on young children's use of nonverbal communication to make judgements on social power. The first study involved 96 3- to 6-year-old children who were tasked with identifying who was "in charge" during a meeting between two people based on four trials of a recording of an interaction between four different pairs of actors. The second study replicated the first study with 24 3- to 4-year-old children, and added a component where "low-power" individuals asked the "high-power" individuals for direction, and the "high-power" individuals provided the direction in order to test whether younger participants performed worse than older participants in study 1 due to limited attention or an inability to answer questions about adult engagement. 3- and 4-year-olds performed better in study 2 and were able to accurately answer questions about adult interactions. The third study replicated the first study with 24 3- to 4-year-old children but removed all sound from the videos to analyze whether or not the 3- and 4-year-olds were affected by the actor's conversation. This time, participants performed similarly to study 1. The fourth study worked to control what nonverbal cues were on display in the first three studies by using static images in order to display a single power cue at a time, rather than multiple power cues all at once. Once again, the 5- and 6-year-olds reliably gave accurate answers regarding power based on nonverbal cues and

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performed significantly better than the 3- and 4-year-old participants. The aggregate results from this study indicated that young children were able to use nonverbal behavior to discriminate between low and high-power individuals, and that results significantly improved between the 3- and 4-year-old group and the 5- and 6-year-old group.

A study from Repacholi et al. (2016) examined if a sample of 72 15-month-olds consider someone else's emotional disposition to be stable across situations. Participants were randomly assigned to an anger group, or a neutral group. Each group featured an agent, who would manipulate a test object which would produce a consequence (i.e., pressing a button with a stick would create a buzzing sound). For the anger group, an "emoter" would respond angrily whenever the agent manipulated the object, while the neutral emoter would remain relaxed with a neutral tone of voice and minimal facial expression. Infants observed these interactions, the emoter left the room, and then the agent showed the infant a toy and talked about the toy with a pleasant voice, before the emoter reentered and participated in the personal engagement condition where the emoter engaged in tasks and play with the infant using a neutral expression and tone. The results indicated that the infants in the anger group expected the adult to become angry again in a different social scenario and inferred future behavior about the emoter based on their interaction with another person. Participants in the angry group were less likely to engage with objects in the task compared to the neutral group in the personal engagement phase and were more likely to give their toys to the emoter compared to the neutral group. Participants in the anger group appeared to anticipate an angry response from the emoter even after the context was changed.

A similar study from Repacholi et al. (2016) examined the predictive power of 15-month-olds of the emotions of others. A sample of 270 infants observed an adult engage with a series of

objects, and observed a different adult react angrily or with a neutral disposition. The experiment then gave the infants the objects and observed whether or not the imitated the actions of the experimenter. An additional trial was run where the experiment engaged in a novel manner with a novel object to which the emoter responded either angrily or not. Regardless of the information presented in the generalization trial, the participants hesitated when asked to perform an action in front of the angry emoter indicating a predictive generalization regarding the affective behavior of the angry adult.

Finally, a study from Palmquist and DeAngelis (2020) asked 60 4- and 5-year-olds to analyze faces based on faces that represented competence traits or trustworthiness traits. Children in the prediction condition were asked a question about which face could draw a better picture, a question about which face could use a certain common object more proficiently, and which face would be better at sharing. Children in the association condition were shown to drawings and asked what face drew the better picture as identified by the participant. Then, they were shown an object and were told that one face described the right way to use the object, and one described the wrong way, and were asked to pick which was which. Lastly, the experimenter indicated one face was a good sharer, and one was not, and asked the participants which face was good sat sharing. Results indicated that 5-year-olds were better at identifying the more competent face, and the more trustworthy face, in the majority of conditions, although 4-year-olds selected the more competent face at nearly the same percentage level for picture-drawing questions. Five-year-olds, however, were able to identify the competent faces for the object questions 69% of the time compared to 56%, and the trustworthy face for the sharing questions 72% of the time compared to 58.5%.

Attribution Retraining

A systematic review of the AR literature was conducted across four databases (Academic Search Premier, Child Development, ERIC, and APA PsycInfo) and the Journal of Applied Behavior Analysis. Additionally, Graham's (2022) AR literature review was used for comparison when compiling articles. The review included three separate searches. A search for ECE literature, a search for autism literature, and a search for applied behavior analysis literature that included attribution theory. However, results were limited, and a broad search for AR in the same four databases was conducted. Two Hundred Ninety-Five records were identified. After limitations and removal of duplicates, 38 records remained. A total of 21 records were included. The following section will provide insight into what AR is, what typically occurs during AR, the common populations that are used in AR, and the efficacy of AR. Although AR has proven to be successful, the populations are limited, and the ability to generalize AR and incorporate it into a classroom has drawn criticism. This dissertation used a new population and used an intervention designed with generality and accessibility in mind.

The bulk of current AR research (2003-2023) focuses on college students and is quantitative in nature. Participants in the following research were made up of 3084 college students, 29 second grade students, 281 third to eight graders, and 59 seventh, eight, and ninth graders with mild disabilities. Attribution retraining procedures were successful with college students. Through AR, final course grades improved, cumulative GPA improved, and motivation improved. There was a reported increase in hopefulness, a reported decrease in shame, and a reported increase in feelings of success and control. Students, on average, received higher letter grades than groups that did not receive AR, and voluntary course withdrawals decreased. Students who received AR increased their adaptive attributional tendencies and attributed

outcomes to controllable factors like strategy while reducing their attribution to uncontrollable factors such as the instructor of their course. College students who received AR had higher expectations for their grades and held greater responsibility for their outcomes. Results from AR intervention in younger populations showed an increase in test scores, and social skills, and a decrease in attribution to uncontrollable factors. There was also an increase in motivation, and a temporary increase in knowledge acquisition.

Hall et al., (2004) examined the impact of AR on motivation and achievement for college students who used, and did not use, elaborative learning strategies. Elaborative learning strategies were defined as strategies that incorporated active learning while making new connections between existing knowledge and new knowledge. The study was a 3-phase longitudinal study consisting of first year college students. The sample included 131 female students and 70 male students, and two students who did not list their gender, primarily between the ages of 17 years and 22 years. Attribution retraining was delivered using a video that lasted 8 minutes. The video depicted two psychology graduate students discussing controllable causal attributions after taking an exam. A professor then reiterated the points with an emphasis on how interpretation of causal events can influence future outcomes i.e., if failure is unstable, then failure can be controlled and changed. A writing assignment followed which required students to summarize the video in their own words, and then list reasons why students don't perform well in their courses, and how they might apply the video tape to their studies. An aptitude test and an elaborative learning scale was also administered. Results indicated that activities following AR can enhance the effects of AR. Attribution retraining improved final course grades for all groups and cumulative GPA for elaborative learners, and improved motivation (perceived control and perceived success). Participants reported an increase in hopefulness, a decrease in shame, and an

increase in feelings of success and control. The students who received AR also scored one full letter grade higher, on average, than those who did not.

Hall et al. (2007) explored the efficacy of AR using a cognitive strategy and an affective elaboration strategy for low-elaborating and high-elaborating students. The study began with 749 students from a mid-western university recruited from a two-semester psychology course. AR was presented in one of two formats, either through an oral presentation or a handout, which was followed by a writing assignment which included cognitive or affect-oriented content. Phase 1 consisted of a questionnaire, which was followed by phase 2 and the AR intervention for the intervention group. During phase 3, grades and cumulative GPAs were obtained. Writing-based AR proved effective for both low- and high-elaborating students. Significant improvements were observed in cumulative and course-specific performance.

Ruthig et al. (2004), using a longitudinal study, examined how optimism and AR influenced test anxiety, achievement, and persistence over a full college academic year. A sample of 256 first-year college students participated in the three-phase study. For phase 1, all participants completed the surveys and questionnaires. During phase 2, participants were assigned to an AR condition or to a no-AR condition. For phase 3, participants completed a questionnaire on test anxiety. Attribution retraining was presented via an 8-minute video, a video followed by a discussion, or through a handout. During AR, attribution to effort was emphasized over ability, and students were encouraged to attribute their success and failure to variables within their control. Results indicated that AR not only positively impacted student outcomes in the course, but also their cumulative GPAs and voluntary course withdrawals. Additionally, findings indicated that more optimistic students experienced great benefit from AR.

A similar longitudinal study from Haynes et al. (2006) evaluated the efficacy of AR on over-optimistic students in the context of transitioning from high school to college. After identifying students based on a measure of optimism, and a measure of perceived success, a sample of 162 students from a Canadian university remained. Phase 1 of the study involved a questionnaire, phase 2 of the study involved AR intervention, and another questionnaire. Phase 3 of the study involved a questionnaire regarding students' attributional tendencies. During the final phase, grades were obtained from the course, as well as overall GPAs. The AR procedure consisted of five parts. The first two components were pre-testing and causal search activation, which prompted thoughts regarding causal attribution. The third and fourth components of AR were induction and consolidation which consisted of a handout composed of two lists of possible attributions for poor performance (maladaptive and adaptive, respectively). An instructor explained the handout, the difference in attribution patterns, and then participants completed a written exercise summarizing the main points of the handout, and listing reasons why students perform poorly, and how it relates to their academic experience. The fifth component was a post-test which consisted of questions designed to assess academic attribution. Results showed that every student who received the AR intervention increased their attribution to controllable causes. Over-optimists who received AR outperformed all other groups in their course and in overall GPA compared to over-optimists who did not receive AR who performed no better than low optimists.

Another study on first-year college students from Haynes et al. (2008) examined the efficacy of AR on motivation and academic achievement. A sample of 336 first-year college students participated in a pre-post study design that took place over the entire academic year. Participants were randomly assigned to either the AR or no-AR group. Baseline data was

collected on performance and mastery motivation, followed by an AR treatment, followed by a posttest that came 5 months after the AR treatment. Academic achievement data was also collected. The AR treatment involved AR induction and consolidation. Induction involved introducing the basic components of causal attribution through the use of a video showcasing two students in an undergraduate program discussing their academic performance in their first year, and how its attributional tendencies affected performance. After the video, students were given a handout with a list of adaptive and maladaptive attributions. A consolidation exercise followed induction which consisted of a writing assignment summarizing main points, listing reasons for underperformance, citing examples of how they could apply the strategies to their studies, and discussing an instance in which they performed poorly and how it made them feel. Results indicated that AR increased mastery motivation, but not performance motivation. Additionally, increased academic performance was also observed indicating a possible relationship between AR, mastery motivation, and academic performance.

Perry et al. (2010) also looked at the transition to new achievement settings which lead to unanticipated failures and maladaptive attribution patterns, and how AR can improve on those patterns. 457 students from an introductory psychology course participated in a three-part study, the procedure was repeated three times, which randomly assigned AR conditions or no-AR conditions in which a questionnaire was completed, followed by AR if in the AR condition. Prior to the start of intervention, three initial performance groups, low, average, and high, were created based on student scores on the first-class test. Attribution retraining consisted of causal search activation, attribution induction, and attribution consolidation. The activation component used a task designed to facilitate thinking about causes of success and failure where students responded to items that assessed their attributional tendencies. The attribution induction portion consisted of

a 10-minute video which encouraged adaptive causal attribution in the presence of poor performance. The video showed two students discussing how poor performance can be changed and how they could improve their performance with dialogue that focused on controllable attribution. At the end, a professor emphasized that focusing on controllable causes can modify academic behavior and improve future performance. Attribution consolidation was made up of two tasks. The first task was a difficult aptitude test consisting of verbal, quantitative, and sentence completion sections. Students completed the sections and then rated their performance. The second task was a discussion of the video by the experimenter who highlighted adaptive and maladaptive attribution. A handout was then given to participants with a list of adaptive and maladaptive attributional patterns. Results indicated AR improved adaptive attribution in students and led to an increase in positive course-specific and overall outcomes. Students who were in the AR group emphasized controllable factors, like strategy, and deemphasized uncontrollable factors, like professor quality. Students who performed poorly, or average, on an initial test performed better than students who receive no AR across different subsequent tests across multiple formats including multiple-choice, short answer, essay, and more. Finally, AR improved overall GPAs for low-performing and average students substantially more than high-performing students.

A study by Boese et al. (2013) examined the transition to college for first-year students who were at-risk due to high failure-avoidance orientations. Participants were sampled from the Motivation and Academic Achievement database which contained psychosocial data from over 15,000 students between the years of 1992 and 2008. The sample consisted of 126 introductory psychology students who completed a questionnaire measuring attributional tendencies, self-worth, and cognitions related to achievement. Then, students completed a second survey a few

months later and were assigned to either an AR treatment condition or a no-AR condition. All participants watched the same supply and demand lecture. Participants than took a test based on the supply and demand video followed by a questionnaire. The students then completed another follow-up questionnaire before consenting to providing grades from course records and institutional records. The AR treatment consisted of AR induction and AR consolidation. The induction component introduced causal attribution and provided a video of two students discussing their performance while emphasizing the importance of controllable attributions. A professor followed and reviewed the important aspects of the training. Students then had small group discussions in which they discussed the three most important reasons, in their opinion, for poor performance outcomes. They then reported the reasons they came up with to the researcher. The reasons were then compiled by the researcher into a list which was used to highlight the differences between adaptive attributions and maladaptive attributions. Consolidation consisted of note-taking training. Participants who received AR had higher expectations of grades and possessed greater responsibility for their academic outcomes. Additionally, students were more likely to attribute failure to uncontrollable causes if their failure-avoidance levels were high, and AR was more likely to improve the performance of these participants, not necessarily low failure-avoidance students who may already possess adaptive causal attribution traits.

Haynes Stewart et al. (2011) examined the effects of AR on course failure for college students. Attribution retraining was typically used to promote positive achievement, but there were limited studies on AR and preventing negative achievement outcomes. 661 participants were recruited from a first-year psychology course and participated in three phases of the experiment. The first phase consisted of a questionnaire where students also provided background characteristics, study habits, and motivation. Phase two consisted of a pre-test to

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assess initial performance in the course. Phase three consisted of a post-test to assess final

performance in the psychology course. Attribution retraining was provided during phase two of

the study and consisted of AR induction and AR consolidation. During induction, basic causal

attribution was introduced through a video where two students discussed their first-year college

experiences, and how their academic performance was affected by causal attribution, followed

by a professor who summarized the main points of AR. Three methods were used in the

consolidation phase to encourage processing of AR induction including a writing assignment, a

GRE-type aptitude test, and a group discussion. The results of the study indicated that AR was

associated with a reduction in course failure, and that students who received AR were 73% less

likely to fail the psychology course compared to the no AR group. Additionally, AR was

consistent across participants from different backgrounds and who possessed different learning

characteristics.

One of the few AR studies that took place during a lesson inside a classroom was from

Horner and Gaither (2004) when they embedded an AR intervention into a second-grade

mathematics lesson. The sample consisted of 29 second grade students, and the effects on

attribution and math scores were evaluated. One group (n=18) received AR embedded into their

instruction, while the other group (n=11) received math-only instruction. Attribution retraining

sessions consisted of specific strategy review, modeling and guided discussion which involved

analyzing errors and attributing the cause to effort, luck, difficulty, or ability, individual practice

using the specific strategy modeled and modeled self-talk, and finally feedback on success and

failure of each student with an emphasis on attributing outcomes to effort (i.e. "You got that

right, that means you tried hard!" Results indicated that math scores increased, and attributions to

uncontrollable factors decreased, but to a lesser extent than hypothesized by the researchers. The

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math-only group who did not receive AR increased their math scores, but the increases were not significant.

Dresel and Haugwitz (2008) also intervened during regular instruction but took a different approach to AR and designed a computer-based quasi-experimental design for 151 sixth graders using a math learning software program. Using a quasi-experimental design and a longitudinal design over one school year, the study examined the effectiveness of computer-based AR training on motivation and knowledge acquisition, as well as the effects of the design on planning, goal setting, and monitoring. During training, and the first phase, students would choose different math exercises, complete the exercises, receive a notification regarding percentage answered correctly, and then receive attributional feedback. The math program contained 142 different attributional feedback statements based on success ability or failure effort (e.g., "This good result can be traced back to the high level of effort you gave"). The program would predict whether or not to provide success attribution, failure attribution, or both, depending on student performance. The second phase provided attributional feedback along with self-regulation training through the program. Longitudinal results indicated that AR had a positive effect on motivation and led to improved knowledge acquisition during the first half of the school year. The effect was not persistent through the rest of the year, however, which possibly indicated the need for continuous or sustained AR. Both Horner and Gaither (2004) and Dresel and Haugwitz (2008) highlight the importance of expanding AR into natural settings.

An AR study by Berkeley et al. (2011) sampled seventh, eight, and night grade students with mild disabilities, including LD, to examine the effects of reading comprehension strategy instruction (RCS) on reading outcomes in both an AR condition and a condition without AR. The final sample consisted of 59 students receiving special education services through their school.

The study featured an RCS condition, an RCS + AR condition, and a read naturally (RN) condition. All participants in all conditions received instruction over 4 weeks for a total of 360 minutes. Students in the RCS and RCS/AR condition were taught 20 minutes of reading comprehension strategies. Students in the RCS/AR condition were taught 10 minutes of AR which involved developing adaptive beliefs about success and failure, and lessons on positive self-talk. The AR procedure consisted of concrete examples involving sports. Researchers trained teachers and met with teachers every day of the study in order to provide necessary feedback and answer any questions that may have come up during intervention. The AR intervention consisted of the following: positive vs negative thoughts; using self-talk; using self-talk (complex); using self-talk (promoting persistence and flexible strategy use); attribution feedback following comprehension questions. Results from the study showed the RCS and RCS/AR group outperformed the comparison group, but the RCS/AR group maintained the large effect and displayed higher adaptive attribution for reading success at post-test and delayed post-testing.

Morris (2013) investigated the effectiveness of AR on "real event" attributions and performance measures including an end of semester examination, exam results and grades from a different semester, and grade point averages of participants. Participation in workshops consisted of 134 students enrolled in an undergraduate psychology course who volunteered. The participants were assigned into groups. One group received no AR. One group received AR in accordance with the Learned Helplessness Model, and one group received stability retraining information. Students choosing not to participate in the workshops were used as the control group. The AR intervention consisted of a video which featured an actor discussing inadequate performance in terms of difficulty, tutor quality, and factors of luck, and who also stated that his

performance was not due to ability. Another actor then explained their performance across additional subjects compared to psychology, how psychology differed from her other subjects, the skills she needed for psychology, and that she performed poorly because she did not know what was expected of her which led to inadequate skills. Workshops took place over three consecutive weeks. During week one, students watched videos. During week two, students watched the videos again, and then wrote down what they thought were the most critical components of the video. This was followed by a discussion. Students who attended workshops performed significantly better on the long-term measures compared to the students who did not attend workshops. However, within the workshop groups, effects on attribution patterns did not persist over time, potentially due to the small sample size, and there were no significant differences in achievement outcomes.

A study which focused on African American boys from third to fifth grade, and who were labeled as aggressive, utilized an intervention targeting social skills and academic motivation designed by Graham (2015). The intervention, *Best Foot Forward,* was comprised of 32 lessons over 12 consecutive weeks and involved 31 boys in the intervention group, and 35 boys in the no-treatment group. Half of the lessons were grounded in attribution theory and focused on academic motivation skills including goal setting, mastery focus, and AR. Half of the lessons focused primarily on social skills. The AR intervention had participants read hypothetical outcome scenarios involving failure and then participants generated possible causes of the failure outcomes. A discussion was then held about the different causes and why some were considered adaptive, and some were not. Participants then worked on tasks that required persistence and were taught the usefulness of identifying controllable factors while avoiding factors outside of their control. Through the combination of social skills interventions and AR interventions, the

boys in the intervention group exhibited an increase in social skills, academic motivation skills, and were identified as more cooperative and persistent compared to the boys outside the intervention group.

Finally, Cue and Taylor (2020) implemented an AR intervention with the intent to change causal beliefs associated with academic failure among African American middle school students. 64 students met the eligibility criteria, agreed to participate, and were randomly assigned to an experimental group of a waitlist-control group. The AR procedure took place during lunch, twice a week, for three weeks. Lessons lasted 20 minutes and were given to groups of 8-10 students. The lessons were culturally sensitive and included an introduction to the program which consisted of thinking about goals and aspirations, the AR lessons where students were taught that how they approach failure outcomes has an effect on their future outcomes. Students defined effort and created strategies they could use to reach short-term goals based on effort and controllable causes. Then, students were shown real-life examples of how individuals of the same race used goals and adaptive attributions to succeed. At the end of each lesson, students completed a self-application assignment outside of the intervention which contained a task or question that encouraged students to continue thinking about the material that they just learned. The results indicated increases in adaptive attribution patterns for the treatment group. Males, in particular, increased attribution to lack of effort and decreased attributions to discrimination.

Attribution retraining research is relatively thorough, but it focuses primarily on attribution of self, rather than attribution of others. Specifically, there is a research gap involving ECE practitioner attribution towards learners, including learners with ASD. Attribution retraining is an intervention that targets a way of thinking along with other private events. A full analysis of the effects of AR should include a qualitative portion in order to capture the

perspectives and beliefs of practitioners and how those perspectives and beliefs might change during retraining.

Professional Development in Early Childhood Education

This section will examine professional development (PD) offered in early childhood education (ECE), specifically coaching, and will then present a specific look at technology-based instruction, specifically content acquisition podcasts (CAP), a term popularized by Michael Kennedy (2012). A scoping review was not conducted given the extensive review database that already exists on coaching PD in ECEC, and the homogenous nature of CAP instruction and research. Although coaching is generally accepted as the leading form of PD in ECEC, it is often time and resource intensive as observation, feedback, reflection, training, and goal setting are typically included in a coaching PD, although a lack of consensus exists on both the structure and process of coaching. The correct dosage of training, in particular, is of note as there is no conclusive evidence that indicates the correct and incorrect amount of PD necessary to evoke lasting change. Intense, brief training provided through short audio/video mediums like CAPs may offer flexibility of PD while also working to supplement existing ECEC curricula or existing ECEC coaching PDs.

Professional development in ECEC is implemented in order to increase the skills, knowledge, practices, and dispositions of ECEC providers, and to enhance systems and individuals through promoting a culture of growth (Sheridan et al., 2009). Compared to other quality indicators of ECEC like teacher to child ratios or increased educational requirements for educators, PD is often seen as a more cost effective and scalable way to improve practitioners, and improve learner outcomes (Brunsek et al., 2020). There are three critical components to PD according to the National Professional Development Center on Inclusion (2008). The "who"

focuses on the practitioner engaging with the PD with respect to their intersectionality, the "what" encompasses the knowledge, skills, and overall content that will make up the PD, and the "how" emphasizes the approach and delivery of the PD with a recommendation to remain content-specific and intense in delivery. These components are used as a framing device throughout the ECEC PD literature. There are several ways to execute the "how." Coaching and mentoring were by far the most prominent form of PD according to a literature review from Aikens et al., (2016). Out of the 122 articles reviewed, coaching took place in 73 articles while mentoring took place in 32 articles. Workshops were the second most common form of PD and were featured 39 times. However, a review from Brunsek et al. (2020) identified 61 studies that reported using either a workshop, a lecture, a seminar, or the presentation of training materials during PD. Forty-eight of those studies included supervision which included either coaching, mentoring, feedback, or support. This discrepancy indicates a problem in defining ECEC PD which was highlighted in the Aikens et al. (2016) literature review.

One of the most common issues facing effective ECE PD, including coaching, is the need for time and resources. This dissertation created short-form PD videos that are usable as stand-alone trainings or incorporated into classrooms. This provides flexibility in how the PDs are delivered and used. Additionally, the materials can work as supplements to larger-scale PDs when applicable.

Coaching

Coaching is often considered the most effective way to deliver PD when compared to other strategies, and consists of an expert providing feedback, mentoring, and suggestions based on observations of practitioners in real-life settings (Dunst, 2015; Yang et al., 2021). Yang et al. (2021) conducted a systematic review analyzing the traits of coaching, and the impact coaching

has on instruction and child development in ECEC and identified 33 studies for review. Out of the 33 studies, 29 analyzed teacher outcomes. Gains in knowledge were present in 7% of the studies, teacher-child interaction quality in 41% of the studies, classroom environment quality in 14% of the studies, language, and literacy instruction in 31% of the studies, and teacher confidence in 7% of the studies, while some studies failed to find any significant effects of coaching on teacher outcomes. Nineteen of the studies analyzed child outcomes relative to coaching. Improvements were found in language and literacy in 69% of the studies, social and emotional development in 16% of the studies and academic skills in 11% of the studies. The most common factors effecting coaching according to Yang et al. (2021) are teacher availability, the relationship between the coach and the learner, the focus of the coaching, the use of technology, and characteristics of the teacher and classroom.

Elek and Page (2019) conducted a literature review in an attempt to identify more thoroughly what are the essential features of a coaching PD and identified 53 articles through the systematic review process. Results indicated that aspects of coaching PD can differ dramatically from one intervention to the next. The number of participants ranged from 3 to 440 with the larger studies focusing on language and literacy, while the smaller studies focused on teacher-child interaction and were more likely to support individual or small groups of children with disabilities or developmental delays. The dosage of intervention was anywhere from 1 week to 3 years, with smaller studies leaning more on shorter interventions. The most common variable in coaching PD according to Elek and Page (2019) was feedback which was included in all but two of the studies. Feedback was followed by observation (91% of studies), training (83% of studies), and goal setting (68% of studies). The findings were broken into structure, or the dose and format, and process, or the delivery of coaching (Powell & Diamond, 2013). Dosage was

critical in 40% of the studies, but there is no universally accepted dosage. Labone and Long

(2016) recommend that PD be sustained for at least six months, while Hemmeter et al. (2011)

were able to achieve results, and maintain those results, in just a few 30-minute PowerPoint

training sessions followed by feedback via e-mail. The dosage of the PD may depend on what is

being taught and what the goals are relative to the learners' skills (Dunst, 2015; Wasik et al.,

2013). Content that is distinct with a clear beginning and end may take less time to teach

compared to complex content like literacy instruction (Hindman et al., 2015; Ota & Austin,

2013). Process results indicated two major features of coaching to achieve goals and positive

outcomes: individualization of coaching where the expert responds to the learner's specific traits,

and active engagement in the learning process where the learner helps to guide the coaching

process (Elek & Page, 2019).

Content Acquisition Podcasts

There is limited research on the use of short-form video-based multimedia instruction in

teaching practitioners. Although the intervention was short-form videos, those videos do not

replicate CAPs. Rather, CAPs were designed based on Mayer's cognitive theory of multimedia

learning and provides an empirical basis on which to develop different types of video-based

multimedia instruction. The intervention videos adhered to the principles established by the

empirical research, but, again, did not replicate CAPs.

The following research included 823 preservice practitioners and 29 special education

administrators. Students who received instruction through CAPs outperformed students who

learned through traditional textbook-based instruction. However, when additional teaching from

an instructor was available, CAPs did not outperform the textbook group. This may indicate that

short-form multimedia should complement coursework, but, if there are constraints on time, then

short-form multimedia may be a better option. There was also a significantly higher level of knowledge acquisition for the CAPs groups which generalized to applied knowledge compared to a lecture-only group.

Kennedy (2011) first introduced CAPs into the literature in a study focused on teaching vocabulary to high school students with and without disabilities. Content acquisition podcasts are short (5-15 minute) videos that combine audio podcasts with visuals based on empirically validated instructional methods (Kennedy et al., 2015). A detailed explanation of how CAPs are produced was provided by Kennedy et al. (2015). Although there is not a single way to produce CAPs, it is stressed that the final product should reflect Mayer's (2005) Cognitive Theory of Multimedia Learning. Kennedy et al. (2015) recommends three phases: preparation, production, and publishing. During the production phase, a single topic is identified, and a typical PowerPoint presentation is created. Then, those slides are replaced with images representing the topic and limited text that coincides with the narration. It is recommended to present the picture on three consecutive slides, with text only on the second slide, and aligning the presentation of the second slide to the vocals. Narration is then recorded based on a script and rehearsed timings. Recent literature started referring to CAPs as CAP-Ts for teacher-based CAPs, CAP-TVs for teacher-based CAPs that have embedded videos of models demonstrating the particular skill being taught, and CAP-PDs which is a comprehensive method that includes CAP-TVs, coaching, and CAPs for students. This review concentrated on CAP-Ts which are referred to as CAPs.

A study from Kennedy and Thomas (2012) expanded research on CAPs to preservice teachers and their acquisition of knowledge of positive behavior supports. The CAPs, and CAPs in subsequent studies, were created based on Mayer's (2008) cognitive theory of multimedia learning (CTML). This theory recommends five principles for limiting extraneous processing,

three principles for managing essential processing, and two principles for fostering generative

processing. A summary is provided in Table 1.

Table 1

Mayer's Instructional Design Principles

Mayer's Principles (Mayer, 2008, 2009)	Implementation
Coherence Exclude irrelevant material	Only essential terms and ideas were used; no extra narrative was added to the slides; no extra color or distractors were added
Signaling Highlight essential words and ideas	PowerPoint allows the use of a pen function to draw attention to key ideas
Redundancy Limit on-screen text	Text was limited to 35 or fewer words per slide
Spatial Contiguity Place associated words and pictures close together	All images were presented side by side, or top to bottom, with associated text
Temporal Contiguity Present corresponding narration and animation together	Narration focused on the current slide, and only the current slide
Segmenting Allow the learner to pace the segments	Segmenting was not allowed due the limitations of Qualtrics and PowerPoint
Pretraining Provide pretraining of key material	Keywords were provided in a list prior to the video
Modality Use narration to present text, rather than printed text	Text was limited to 35 or fewer words per slide
Multimedia Present words and pictures, rather than just words	Images were used on every slide other than the first slide
Personalization Narrate using a conversational style	No script was used

A sample of 164 preservice teachers were randomly assigned into either a CAP group, or

a group who read a book chapter on PBIS. Participants in the PBIS group were given as much

time as they needed, a graphic organizer with key information, and an outline of major headings

and sections in the chapter. The CAP was created based on the PBIS chapter, was 7:29 minutes long, and was created based on Mayer's CTML (Mayer, 2008). Participants first completed an untimed pretest of 16 multiple choice questions. Participants then either read their chapter section, reviewed the outline and graphic organizer if they were in the PBIS group, or they watched the CAP one time if they were in the CAP group. Participants then completed a posttest, and a maintenance probe. Results indicated students in the CAP group significantly outperformed the students in the PBIS group despite the perceived advantages of the PBIS group.

A similar study from Kennedy et al. (2014) examined the efficacy of CAPs on teaching preservice general education teachers about the characteristics of students with LD, and the characteristics of students with high-functioning autism, and if learning was maintained after intervention was finished. A total of 164 preservice teachers from two universities were randomly assigned to the CAP group or the textbook group known as the Text-GO group. The content that was taught was pulled from published textbooks on LD and ASD. Both groups took a pre- and post-test knowledge test consisting of 30 multiple choice questions on basic facts and concepts of LD and ASD. The Text-GO group was given the reading material and the graphic organizer and were allowed to take what time they needed before moving to the posttest. The CAP group watched the CAP and then took the posttest. The findings indicated that students in the CAP group from university 1 performed better in post-test and maintenance. The results did not replicate to university 2 where students in the Text-GO group received additional training from an instructor. The findings suggest that CAPs should supplement course material, but if time constraints exist, CAPs may be a better option compared to reading from a textbook.

By 2016, there were 12 published studies on the efficacy of using CAPs to teach preservice teachers' facts and concrete knowledge which adhered to the model of CAP versus a more traditional form of text-based knowledge acquisition, but there was limited research on teaching actionable skills and implementation of those skills using CAPs (Kennedy et al., 2016). A study from Kennedy et al. (2016) investigated how CAPs affected preservice practitioner ability to create and interpret graphs for oral reading as well as practitioner engagement with each learning condition. A total of 270 participants were randomly assigned to the CAP group or the text-based group. The CAP was produced based on the text and featured images, graphs, and text with an audio recording. Following a pre-test, students in the CAP group watched the CAP a week later and were given the chance to pause the CAP and take notes as needed. Participants also filled out the engagement probe during each pause. The text-only group were given the text and informed they could take notes as they went. There were built in "pause points" that coincided with the CAPs so that participants could also complete the engagement probes. Each group was given an hour to complete their material, and then took a posttest. Results indicated an increase in knowledge for both groups, but a significantly higher level of knowledge acquisition for the CAP group, as well as more positive motivation. An assessment of applied knowledge reflected these results as well. Participants from the CAP group included more features in their graphs, made more accurate statements when interpreting data, and used the appropriate formula with more accuracy.

Another study from Kennedy et al. (2016) compared CAPs to a typical lecture for teaching functional behavior assessments to 56 students enrolled in an introduction to special education course. The CAP consisted of video 8:05 minutes long comprised of definitions, and a video 11:42 minutes long comprised of specific details on functional behavior assessments. The

lecture was 37:15 minutes long and was delivered using a PowerPoint presentation, but content was identical. Upon completion of either condition, participants received a 45-minute lecture on an unrelated topic prior to completing the posttest. Results indicated that all students increased their knowledge, but the CAPs group performed significantly better than the lecture group on the posttest and reported lower levels of cognitive load.

A study on using active embedded questions versus passive embedded questions in CAPs to teach functional behavior assessments was conducted by Hirsch et al. (2020). Active embedded questions were questions that required an answer throughout the video, while passive questions were written into the presentation. The sample included 94 preservice teachers from multiple public universities enrolled in an introductory special education course. Participants were randomly assigned into two groups. Group 1 watched two CAPs, while Group 2 watched two CAPs with active questions. A 25-minute CAP on functional behavior assessment was divided into two CAPs for segmenting purposes. A pre-test and post-test were completed prior to, and following, the CAPs. Unlike prior studies on CAPs, there was no significant difference between groups, although both groups increased their knowledge. While prior CAPs studies typically compared CAPs to more traditional learning methods, this study used CAPs in both conditions. Additionally, there were no explicit instructions for the group who had to complete the active questions.

Mcnamara et al. (2021) investigated the effectiveness of CAPs for teaching students how to instruct students with visual impairments in a physical education setting, and the impact on self-efficacy of participants. Eighty-four participants were split into a CAPs group, a textbook group, and a control group. Participants in the CAPs group and the textbook group were enrolled in an adaptive physical education course, while students in the control group were enrolled in a

motor learning course. Participants were given one week to listen to the CAPs, or read the textbook, following a pre-test, and then a post-test was administered. Results indicated that there was knowledge acquisition in both the CAPs group and the textbook group, but that the CAP was significantly more effective at distributing knowledge compared to reading a textbook, however there were no significant difference in self-efficacy gains, although self-efficacy did increase in both the CAPs and textbook condition.

Mcnamara et al. (2022) then sampled 29 special education administrators and used a CAP to teach adapted physical education service delivery to the administrators. A pre-test, post-test, and maintenance tests were given to participants on federal laws, best teaching practices, and inclusion in physical education. Pre-test scores indicated limited understanding of the topic prior to watching the CAP, and even though knowledge gain was significant, post-test scores were also exceptionally low with the majority of participants scoring less than 50%. The results indicate that prior knowledge of a topic may be a critical factor in knowledge acquisition through CAPs, and that knowledge acquisition through CAPs could depend on the presenter and presentation of the CAPs. Integration of CAPs into an existing course may also increase the efficacy of CAPs. However, participants reported that they enjoyed the CAPs and that they thought CAPs was an effective learning tool.

There is a growing body of research demonstrating the efficacy of short-form multimedia instruction. This dissertation used short-form video instruction, similar to CAPs, to change the attributional tendencies of ECE practitioners. Although these short-form videos were not replicas of CAPs, the videos will adhere to the same principles, including the principles set out by Mayer (2005).

CHAPTER THREE

METHOD

The research plan included exploring attributional tendencies, AR, and the beliefs towards attribution of success and failure held by ECE practitioners. The quantitative portion of this study was a randomized control study with the purpose of examining the efficacy of AR on ECE practitioners. The qualitative portion of this study was a thematic analysis with the purpose of exploring the beliefs of ECE practitioners relative to attribution of success and failure. Table 2 provides an overview of the research questions, data sources, and data analyses.

Table 2

Research Question Breakdown

Research Question	Data Source	Analysis
What is the efficacy of attribution retraining for developing adaptive attributional tendencies in early childhood practitioners?	Randomized Control Pre-Test Randomized Control Post-Test	Multivariate Analysis
What beliefs do practitioners hold regarding attribution of success and failure?	Semi-Structured Interview Protocol	Thematic Analysis

Quantitative

The purpose of the quantitative portion of this study was to analyze the effects of an AR intervention on attributional tendencies of preservice early childhood practitioners using a quantitative randomized control study. A randomized pre-test/post-test design was used to

evaluate the efficacy of AR with early childhood practitioners. Repeated measure analysis of

variances were used to analyze the results. Participants were asked to consent to a follow-up

interview during this portion of the study. Those participants who consented were then emailed

with an invite to participate in a semi-structured interview. The research question guiding the

quantitative portion of the study was, "What is the efficacy of AR for developing adaptive

attributional tendencies in early childhood practitioners?'

Participants

Participants were sampled from five master's-level ECE classes and seven undergraduate

ECE courses. Courses included: investigations in ECE; science and math for young children;

early language and learning; ECE field experience; and family education in ECE. Courses took

place in the Fall 2023 Semester at a minority-serving public university located in the western

United States. Approximately 125 total students were expected to enroll in the courses, but some

of these were students likely enrolled in two or more of the courses, which likely lowered the

possible number of participants. G*Power 3.1.9.7 was used to compute the recommended sample

size for this study. G*Power recommended 105 participants in each group, and a total of 210

participants. All students were asked to consent and participate in the study. A total of 35

respondents started the intervention, and 20 respondents completed the entire intervention

including both the pre-test and post-test (refer to Table 3 for full demographic breakdown).

Table 3

Randomized Control Demographics

Information	n
Race	
White	12
Hispanic/Latino	8
Other	6
Black/African American	3
Asian	3
Native Hawaiian/Other Pacific Islander	1
Gender	
Female	20
Age	
18-24 years old	11
25-34 years old	3
35-44 years old	3
55-64 years old	2
45-54 years old	1
Degree	
ECE degree	15
Degree related to ECE/Non-degree	5
Employment Status	
Other	12
Teachers	4
Daycare/Preschool	4

Note. N=20

Setting

This intervention took place via a Qualtrics link that was provided to the participants by their instructors during class. Classes were held either online or on campus and took place on different days and times during the week. Students either sat at individual desks or at communal tables, depending on the classroom layout, if in-person. Online courses took place using web

conferencing software and Canvas, a learning and teaching management platform. The instructor for each course was present while participants completed the intervention if the intervention took place during the class. Students who could not, or did not, complete the intervention in the classroom were given an opportunity to complete the intervention in the setting of their choice and at the time of their choice.

Design

The study was a randomized pre-test/post-test design with one intervention group and one control group. Participants were randomly assigned to a group when they started the Qualtrics survey. Qualtrics automatically assigned the participant to one of the two groups and group assignments were balanced in order to maintain an equal number of participants in each group. This is possible using the Qualtrics randomize feature which sorts participants into random groups and then the Qualtrics "evenly present elements" feature which ensures groups are equal. The intervention group received an AR video while the control group did not. Both groups received a brief informational video on the characteristics of ASD prior to the AR video, if applicable. Additional details about each video are below in the "independent variables" section.

Dependent Variables

Participants' attributional patterns were measured using an ordinal ranking system. The events that participants ranked included ability, effort, disability, and environment (See appendix E for survey instrument). Participants responded to each vignette by ranking the possible causes from first to fourth, with the first being the most influential cause and the fourth being the least influential cause. Participants' attribution dependent events were measured using a Likert scale. Attribution dependent events included the type of feedback given, the frustration felt towards the child, sympathy felt towards the child, and how likely it would be that the child would fail again.

Feedback was rated on a scale from -5 (most negative) to 5 (most positive) and was preceded by the question, "What type of feedback would you give this child?" Frustration and sympathy were rated on a scale from 1 (very little) to 7 (very much) and was preceded by the questions, "How much frustration do you feel towards the child?" and "How much sympathy do you feel towards the child?" Expectations of failure were rated on a scale from 1 (very unlikely) to 7 (very likely) and was preceded by the question, "How likely is it this child will fail again?" These events and scales were drawn from prior attribution research by Clark (1997) and Woodcock and Vialle (2011).

Independent Variables

The survey instrument was adapted from Woodcock and Vialle's (2010) study, which examined attributional beliefs related to a student with and without a learning disability and who had varying levels of effort and ability. The vignettes used in this study were adapted to describe eight boys, four with ASD, and four without, and reflected the tone used in the original vignettes to indicate the varying levels of effort and ability and were the same vignettes used in Study 1. A prompt was given prior to the vignettes indicating that the boy just failed an assessment, but no specific reason for the failure was given. Each vignette described the boy's level of ability, the boy's level of effort, and details explicitly stated if the boy had an ASD diagnosis. In total, half of the vignettes described a boy with ASD, half a boy without ASD, half with high effort, half with low effort, half with high ability, and half with low ability. As a result, the following vignettes were created: ASD/ low ability/low effort or no ASD/low ability/low effort; ASD/low ability/high effort or no ASD/low ability/high effort; ASD/high ability/high effort or no ASD/high ability/high effort; ASD/high ability/low effort or no ASD/high ability/low effort. For example, the no ASD/low ability/high effort vignette is:

Blake just entered kindergarten but is lagging behind his peers in reading due to his limited ability compared to the rest of the class. He always works hard and attempts to complete assignments when told to, but his work is frequently wrong, prompting help from his teacher.

Training videos were modeled after Kennedy's (2012) Content Acquisition Podcasts (CAP) research but were not exact replicas. Videos adhered to Mayer's (2008) principles of multimedia instruction (see Table 1). Two different training videos were created for use in the intervention. All videos included a presentation of audio, visuals, and text lasting 5-10 minutes. Videos were created using Microsoft PowerPoint and recorded using Zoom which allowed the presenter to draw on the slides using a digital pen. The researcher was the narrator and creator for both videos. The videos were embedded into Qualtrics and appeared prior to the post-test and after the pre-test. The first training video taught the basic characteristics and diagnostic criteria for ASD. Information for the ASD video was sourced from the DSM-5 and the CDC's list of ASD characteristics (Centers for Disease Control and Prevention (2022a; 2022b). Information in this video was presented in a factual but conversational tone. This video was eight slides long, 5 minutes and 33 seconds in length, and featured one image per slide, along with one sign of ASD (for example, social communication deficits) followed by four symptoms (for example, does not share interests with others, does not show different emotions through facial expressions, does not gesture, like waving goodbye or point at objects, and does not join others in play). See appendix F for example slide and full video.

The second training video taught attribution through AR instruction. The AR video included AR induction in the form of the training video (Haynes et al., 2009). The video introduced causal attribution, explained the different dimensions of attribution, gave examples of

adaptive and maladaptive causal attribution relative to students, and briefly described why adaptive attribution is important. The video was 11 slides long and 7 minutes and 6 seconds in length. Each dimension of attribution had a slide, followed by the two associated components. For example, A slide was shown with "Locus" and underneath "internal or external" with accompanying images. See appendix G for example slide and full video.

Procedures

Pre-Test

Participants attended class at normally scheduled times and were provided with a Qualtrics link by their instructors. Participants navigated to the Qualtrics link that was distributed the day of class. Participants were reminded that the study had no bearing on their grade or standing in the class and that they were to work alone. Participants read through the consent form and gave consent. Participants then provided demographic data based on several questions and were asked to consent to a follow-up interview. If participants gave consent, they then provided an email address that they could be contacted through to schedule a follow-up interview. The pre-test then began (refer to Appendix E for the survey instrument). Participants read the following instructions: "read each short paragraph carefully, then answer each question based on your initial instinct." Each vignette was presented sequentially, and the next vignette only appeared after the previous Likert scale questions were completed. Participants were not able to backtrack once they had answered the questions for a vignette. Backtracking was prohibited in an attempt to control for any learning effect that took place while completing the intervention. For example, if a participant started to assume what the researcher was looking for, they could possibly go back and change their answers in an attempt to better fit the criteria.

Intervention

Once the pre-test was complete, participants entered the intervention phase. The control group watched the characteristics of ASD video, while the AR group watched the characteristics of ASD video and the AR video (refer to Appendix F and G for the videos). Following the video(s), participants were prompted to complete the post-test.

Post-Test

Participants were provided access to the post-test, which contained the same vignettes from the pre-test (see Appendix E). Participants followed the same procedure and worked through the vignettes at their own pace. Participants who were unable to attend class or who could not complete the post-test for any reason were given one week to complete the post-test in their own time. Data were then compiled, cleaned, and input into SPSS, the data analysis software.

Data Analysis

All pre-test and post-test data were taken from complete responses (n=20). Pre-test attribution dependent events of frustration, sympathy, expectations, and feedback were analyzed within and between groups using repeated-measure ANOVAs. Attributional pattern rankings were averaged together and then analyzed within and between groups using repeated-measure ANOVAs.

Post-test attribution dependent events of frustration, sympathy, expectations, and feedback were analyzed within and between groups using repeated-measure ANOVAs. Attributional pattern rankings were averaged together and then analyzed within and between groups using repeated-measure ANOVAs.

Qualitative

The purpose of the qualitative portion of this study was to examine the personal thoughts of ECE practitioners regarding attribution, success, and failure using semi-structured interviews and a thematic analysis. A sample of participants were interviewed following their participation in the intervention. These interviews were then analyzed thematically. The research question guiding this portion of the study was, "What beliefs do practitioners hold regarding attribution of success and failure?"

Participants

Participants in the qualitative portion were selected using a convenience sample of participants who completed the quantitative intervention and expressed willingness to participate in follow-up interviews. The original intent of this study was to use a purposeful sample, but there was a lower than anticipated response rate to the recruitment emails in large part due to the events that transpired at the university during recruitment which ended the semester early and paused recruitment for nearly 6 weeks until the Spring 2024 semester began. Any participant who gave consent to be contacted following the intervention was contacted about participation in an interview, regardless of what group that participant was in, or the results of their responses. Consenting respondents were contacted four separate times in an attempt to recruit as many participants as possible. Once participants responded to the initial email, a time and date was set for each individual interview. A total of 13 respondents out of the 20 who completed the intervention consented and were contacted, and 4 of those respondents participated in an interview (refer to Table 4 for full demographic breakdown.

Table 4

Interview Demographics

Information	n
Race	
Hispanic/Latino	3
White	2
Other	2
Black/African American	1
Gender	
Female	4
Age	
25-34 years old	2
25-34 years old	1
55-64	1
55-64 years old	2
Degree	
ECE degree	3
Non-degree	1
Employment Status	
Teachers	2
Daycare/Preschool	1
Early intervention	1
Experience	
Over 5 years	2
Over 10 years	2

Note. N=4

Setting

All participant interviews took place using web conferencing software. The researcher

conducted online meetings in a private, secluded location inside the researcher's home to

preserve anonymity. Participants were allowed to participate in the online meeting in the setting

of their choice and were not asked where they were prior to the interview starting, but

participants were asked to remove all distractions prior to answering questions. An in-person option was available for participants who were willing and able to meet in-person, but no participants exercised this option. These interviews were set to take place on the university's campus in a private room without distractions.

Design

The qualitative portion involved semi-structured interviews followed by a thematic analysis. The semi-structured interviews were conducted with participants who 1) consented to a follow-up interview and 2) currently work with children. The interview consisted of two rapport building questions, followed by questions regarding participant experience with attribution, student success and failure, and their approach in the classroom (see Appendix F for complete interview protocol). Interviews were recorded, transcribed, and coded using NVivo coding software. Thematic analysis guided the qualitative analysis and was based on Braun and Clarke's (2006) approach. Two strategies were used to improve trustworthiness of data. First, memo writing was performed following each interview. Memos are considered "the narrated records of a theorist's analytical conversations with him/herself about the research data" (Lempert, 2007). Second, an independent auditor read through the interviews and assessed the codes and themes against their own set of codes and themes.

Procedures

Interviews took place one to three months after the conclusion of the intervention. A convenience sampling method was used to identify interview candidates. Any respondent who consented to an interview, and then scheduled a follow-up interview, was included in the sample. All respondents who consented to an interview and who provided an email address were contacted by the researcher through email. A total of four emails, including the initial email,

were sent to all respondents who consented to interviews during the intervention. Upon receiving a reply from a respondent, a date and location for the interview was set and agreed upon by the participant and the researcher. One day prior to the interview, a reminder email was sent out to the participant. If the participant did not show up on time, the researcher sent a follow-up email 5-10 minutes later asking about the status of the participant. If the participant then joined the meeting, the interview took place as scheduled. Otherwise, a different date and time were chosen, and the interview was rescheduled. This happened with one of the four participants.

The interviews were semi-structured and lasted 30 minutes to one hour. Participants were asked to provide consent prior to the recording of interviews. If consent was given, interviews were recorded using web conferencing software. The interview portion began with rapport building questions that included "Can you tell me a little bit about your background and why you chose early childhood education?" and "What has been your experience so far working with young children both with and without disabilities.." Then, questions examined the participants' experience with attribution, and their beliefs about attribution of success and failure of young learners, and their willingness to change their approach in practice. These questions were:

1. In your experience, why do you think students succeed? What might contribute to a student's success? What role do early educators or professionals have in these successes?

2. Can you think of a scenario where you've seen a learner fail? What do you think leads to young learners failing? What can early educators or professionals do to prevent further failure once a learner has experienced failure?

3. In your own experience, how well do educators or professionals respond to failure in early childhood classrooms or settings?

4. How willing are you to change your own approach when one of your learner's experiences failure?

Finally, there were brief questions that were focused on the professional development experience, what could have changed about the PD, and how their views may have changed following the PD. These questions were:

1. What were your experiences with professional development prior to your participation in this study? What were your impressions of this professional development?

2. Is there anything you would have changed about the video(s) you watched during the professional development?

3. What were your experiences with children with autism prior to this professional development?

4. What were your experiences with attribution, or attribution of success and failure, prior to this professional development? In what ways have your views on what causes success and failure changed following this professional development?

5. How important is it for early childhood educators to identify the reasons for success and failure in their classroom or program? Why? How would you typically respond to a learner that just experienced failure? Has the way you respond to success and failure changed following professional development? If so, in what way?

Interviews were transcribed word-for-word by a human using Rev, an online transcription service. Following each interview, the researcher engaged in memo-writing, and recruited an independent auditor to analyze the interviews as well, in an effort to enhance the credibility of the research (Nowell et al., 2017). A thematic analysis then took place.

Data Analysis

Interviews were transcribed verbatim using a transcription service, Rev. Transcriptions were then coded using line by line coding using the data analysis software, NVivo. A thematic analysis approach was used for data analysis (Maguire & Delahunt, 2017). The thematic analysis approach was modeled after Braun and Clarke's (2006) six-phase guide to thematic analysis. First, data familiarization took place followed by initial coding. Data familiarization and initial coding involved reading through the interviews several times while taking note of similarities, differences, or consistencies throughout the separate interviews. Then, each line of each interview was analyzed and sorted into several codes based on the association between the quote and the code. Following the creation of initial codes, a search for themes took place using the codes and data. Codes were first consolidated to eliminate redundancy or overlap. These codes were analyzed and separated into three themes and two subthemes. Finally, the themes were reviewed, defined, and explained in the results and discussion section.

Positionality

The lead author is a white male born into a middle-class family. He is a former athletic coach for elementary, middle school, and high school children. He is currently a licensed Board-Certified Behavior Analyst and has nine years' experience working with, and training others to work with, young children with autism, particularly children with severe challenging behavior. The author believes that proper attribution of cause is critical if practitioners are to respond to learner outcomes in a way that is beneficial to both the learner and associated stakeholders.

Trustworthiness

To promote confidence in the qualitative findings, three trustworthiness techniques were used: (a) personal reflection through the construction of a positionality statement and through

memo writing, (b) member checks which were conducted through the distribution of the findings to, and solicitation of feedback from, interview participants, and (c) external auditing of data using an outside auditor who analyzed the data and then compared their analysis to the researcher's findings.

First, memo writing took place following the interviews. Memo writing is a reflective process that helps direct the analysis, answer possible questions about the data or interview process, and create connections (Saldaña, 2016). The process involved reflecting on thoughts that were had during each interview and while reading the transcript of the interviews. These thoughts were then summarized, recorded, and assessed prior to analysis. The main takeaway from the first interview was the aversion to the word "failure" or mention of "failure" experienced by the interviewee. As a result, questions around failure were framed differently in the subsequent interviews in an attempt to reduce tension and produce better results. As a result of the second interview reflection, it became apparent that the interview needed more structure. The second participant was a fountain of insight and personal anecdotes, but often engaged in tangents which moved away from the purpose of the interview. As a result, the researcher attempted to steer the third participant back towards the main topic more quickly. The third reflection started to crystallize the idea that experience is critical in ECE, especially when working with children with disabilities. The fourth interview participant was not a teacher, but rather an early interventionist, so the researcher made the decision to approach this interview as if it were the first one, and not make modifications based on prior interviews. As a result, the memo from the fourth interview showed a strong indication that there is a substantial difference in the way success and failure are discussed by ECE teachers and ECE clinicians.

Next, since the data were analyzed and coded by only the primary researcher, an external auditor was brought in in an attempt to reduce bias and add credibility to the analysis. The external auditor had a professional background in special education, applied behavior analysis, and qualitative research. The auditor was provided with the full transcripts of the interviews along with the codes and themes that were created prior to the audit. The auditor read through the transcripts in their entirety and then used an open coding technique to identify common themes and keywords. The auditor compared their results to the primary researcher's results. Initially, the auditor disagreed with what qualified as a "child factor," but, after discussion, the auditor and researcher agreed to keep this subtheme unchanged.

Finally, once the data were analyzed and agreed on, and after the discussion was finalized, member checks were conducted. This process involved emailing all four participants the qualitative themes, results, and discussion, asking the participants to read through the data, and then asking if they agreed or disagreed with the findings, and why. Participants were also asked to provide any final thoughts or suggestions. Only one participant responded and said, "Yes, I agree. Very well written."

CHAPTER FOUR

RESULTS

This section of the dissertation will provide the results from the quantitative portion of the study first followed by the results of the qualitative study. The quantitative study was guided by the following research question, "What is the efficacy of AR for developing adaptive attributional tendencies in early childhood practitioners?" The quantitative analysis of attribution dependent events is presented first followed by the quantitative analysis of attribution rankings.

Attribution Dependent Events (Quantitative)

A within-subject and between-subject repeated measures analysis of variance was conducted for each attribution dependent event (feedback, sympathy, frustration, and expectations of failure) for each of the eight vignettes. The purpose of each analysis was to analyze the significance and effect size of the change in the response means from pre-test to post-test for all participants, and the significance and effect size of the change in response means from pre-test to post-test between the intervention group (N=10) and the control group (N=9). The main effects for the within-subject results, and between-subject results are provided for each attribution dependent event. Partial eta squared was used to report the effect size with .01 representing a small effect size, .06 representing a medium effect size, and .14 and higher representing a large effect size.

Low Ability/High Effort/Autism

For the within-subject results for the low ability/high effort/autism vignette, there was not a significant change in sympathy pre-test to post-test for the two groups, but the high effect size indicated the video condition may have had a large impact on the decrease in sympathy for both groups, $F(1,18) = 3.53$, $p = 0.08$, $\eta_p^2 = 0.16$. There was not a significant change in frustration for

the groups, but the medium effect size indicated a possible moderate impact of the video condition on the increase in frustration, $F(1,18) = 1.65$, $p = 0.22$, $\eta_p^2 = 0.08$. There was not a significant change for feedback, $F(1,18) = 0.23$, $p = 0.64$, $\eta_p^2 = 0.01$ or for expectations of failure, $F(1,18) = 0.31$, $p = 0.59$, $\eta_p^2 = 0.02$, and the low effect size indicated a minor impact on the decreases for both groups pre-test to post-test, (see Table 5).

Between the control and intervention group, there were no significant differences in the post-test results for feedback, $F(1,18) = 0.01$, $p = 0.91$, $\eta_p^2 = 0.001$, for sympathy, $F(1,18) = 0.24$, $p = 0.63$, $\eta_p^2 = 0.01$, for frustration, $F(1,18) = 0.96$, $p = 0.34$, $\eta_p^2 = 0.05$, and for expectations of failure, $F(1,18) = 0.31$, $p = 0.59$, $\eta_p^2 = 0.02$. The small effect size for all four variables indicated that any differences between the groups were likely due to random chance (see Table 5). See Table 6 for mean changes pre-test to post-test.

Table 5

Low Ability/High Effort/Autism Dependent Event Main Effects

	Within			Between		
	F	η_p^2	*p*	*F*	η_p^2	*p*
Feedback	0.23	0.01	0.64	0.01	0.001	0.91
Sympathy	3.53	0.16	0.08	0.24	0.01	0.63
Frustration	1.65	0.08	0.22	0.96	0.05	0.34
Failure	0.31	0.02	0.59	0.31	0.02	0.59

*Note. *p<0.05*

Table 6

Low Ability/High Effort/Autism Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Feedback	2.67 (2)	2.56 (2.51)	3.91 (1.76)	3.73 (1.49)
Sympathy	4.89 (1.27)	4.11 (1.76)	5.64 (1.62)	5.18 (1.89)
Frustration	1.56 (1.01)	2.22 (1.09)	1.45 (1.51)	1.55 (0.69)
Failure	3.56 (0.88)	3.56 (1.01)	2.91 (1.76)	3.27 (0.90)

Note. Feedback is on a -5 to 5 scale with -5 being the most negative.
Note 2. Frustration and sympathy are on a 1 to 7 scale with 1 being very little and 7 being very much
Note 3. Failure is on a 1 to 7 scale with 1 being very unlikely to 7 being very likely

Low Ability/High Effort/No Autism

. For the within-subject results for the low ability/high effort/no autism vignette, there was not a significant change pre-test to post-test for the two groups for feedback, $F(1,18) = 0.90$, $p = 0.36$, $\eta_p^2 = 0.05$, for sympathy, $F(1,18) = 0.04$, $p = 0.85$, $\eta_p^2 = 0.002$, for expectations of failure, $F(1,18) = 1.53$, $p = 0.23$, $\eta_p^2 = 0.08$, or for frustration, $F(1,18) = 0.10$, $p = 0.75$, $\eta_p^2 = 0.01$, and the low effect sizes for each variable indicated the videos had a minor impact, at best, on the decrease pre-test to post-test for both groups for feedback and sympathy, the small decrease in frustration for the control group and the small increase for the intervention group, and then the small increase in expectations of failure for the control group and the decrease in expectations of failure for the intervention group (see Table 7).

Between the control and intervention group there was a significant difference in the post-test results for expectations of failure, $F(1,18) = 5.01$, $p = 0.04$, $\eta_p^2 = 0.22$, as the control group's expectations increased, while the intervention group's expectations decreased The high effect size indicated the intervention may have had a large impact on this difference between groups.

There was not a significant difference in frustration between the two groups, $F(1,18) = 4.35$, $p = 0.05$, $\eta_p^2 = 0.19$, but the high effect size indicated the intervention may have led to the differences that did exist as the control group's frustration decreased and the intervention group's frustration increased. There was no significant difference for feedback, $F(1,18) = 0.29$, $p = 0.63$, $\eta_p^2 = 0.02$, and for sympathy, $F(1,18) = 0.44$, $p = 0.52$, $\eta_p^2 = 0.02$, and the small effect size indicated that the differences in these groups were likely due to random chance (see Table 7). See Table 8 for mean changes pre-test to post-test.

Table 7

Low Ability/High Effort/No Autism Dependent Event Main Effects

	Within			Between		
	F	η_p^2	*p*	*F*	η_p^2	*p*
Feedback	0.86	0.05	0.36	0.24	0.01	0.63
Sympathy	0.04	0.002	0.85	0.44	0.02	0.52
Frustration	0.10	0.01	0.75	4.35	0.19	0.05
Failure	0.29	0.02	0.59	5.01	0.22	**0.04***

*Note. *p<0.05*

Table 8

Low Ability/High Effort/No Autism Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Feedback	2 (2.59)	1.89 (2.80)	3.18 (1.60)	2.82 (2.26)
Sympathy	5 (1.73)	4.67 (1.5)	4.82 (2.04)	5 (2.05)
Frustration	2.44 (1.51)	2.11 (1.45)	1.73 (0.90)	2.18 (1.17)
Failure	4 (1.12)	4.44 (1.51)	4.18 (0.60)	3.45 (1.21)

Note. Feedback is on a -5 to 5 scale with -5 being the most negative.
Note 2. Frustration and sympathy are on a 1 to 7 scale with 1 being very little and 7 being very much
Note 3. Failure is on a 1 to 7 scale with 1 being very unlikely to 7 being very likely

Low Ability/Low Effort/Autism

For the within-subject results for the low ability/low effort/autism vignette there was not a significant change for frustration pre-test to post-test for the two groups, $F(1,18) = 1.12$, $p = 0.06$, $\eta_p^2 = 0.30$, and the medium effect size indicated the video condition may have had a moderate impact on the increase in frustration for the two groups. There was not a significant change for feedback, $F(1,18) = 0.25$, $p = 0.62$, $\eta_p^2 = 0.01$, sympathy, $F(1,18) = 0.04$, $p = 0.84$, $\eta_p^2 = 0.002$, or expectations of failure, $F(1,18) = 0.01$, $p = 0.92$, $\eta_p^2 = 0.001$, and the low effect indicated the decrease in sympathy for the control group, decrease in feedback given for the intervention group, and the increase in expectations of failure for both groups were not likely due to the video condition (see Table 9).

Between the control and intervention group, there was not a significant difference in post-test results for the groups for frustration, $F(1,18) = 1.12$, $p = 0.30$, $\eta_p^2 = 0.06$, and the medium effect size indicated the intervention may have had a moderate impact on any difference that was present. There were no significant differences between groups for feedback, $F(1,18) = 0.25$, $p =$

0.62, $\eta_p^2 = 0.01$, $\eta_p^2 = 0$, sympathy, $F(1,18) = 0.04$, $p = 0.84$, $\eta_p^2 = 0.002$, and expectations of

failure, $F(1,18) = 0.92$, $p = 0.35$, $\eta_p^2 = 0.05$, and the small effect size indicated any differences

were likely due to random chance (see Table 9). See Table 10 for mean changes pre-test to post-

test.

Table 9

Low Ability/Low Effort/Autism Dependent Event Main Effects

	Within			Between		
	F	**η_p^2**	**p**	**F**	**η_p^2**	**p**
Feedback	0.25	0.01	0.62	0.24	0.01	0.62
Sympathy	0.04	0.002	0.84	0.04	0.002	0.84
Frustration	1.12	0.06	0.30	1.12	0.06	0.30
Failure	0.01	0.001	0.92	0.92	0.05	0.35

Note. *p<0.05

Table 10

Low Ability/Low Effort/Autism Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Feedback	1 (3.12)	1 (3.46)	1.64 (2.50)	1.18 (3.09)
Sympathy	4.56 (1.51)	4.44 (1.33)	5.09 (1.58)	5.09 (1.58)
Frustration	2.78 (1.64)	2.78 (1.39)	2.27 (1.10)	2.64 (1.63)
Failure	4.33 (1.32)	4.55 (0.93)	4.11 (1.36)	4.82 (1.17)

Note. Feedback is on a -5 to 5 scale with -5 being the most negative.
Note 2. Frustration and sympathy are on a 1 to 7 scale with 1 being very little and 7 being very much
Note 3. Failure is on a 1 to 7 scale with 1 being very unlikely to 7 being very likely

Low Ability/Low Effort/No Autism

For the within-subject results for the low ability/low effort/no autism vignette there was not a significant change in feedback pre-test to post-test for both groups, $F(1,18) = 3.14$, $p = 0.09$, $\eta_p^2 = 0.15$, but the high effect size indicated that the video condition may have impacted the decrease in the control group and the increase in the intervention group. There was not a significant change for expectations of failure, $F(1,18) = 1.93$, $p = 0.18$, $\eta_p^2 = 0.10$, and for frustration, $F(1,18) = 2.03$, $p = 0.17$, $\eta_p^2 = 0.10$, and the medium effect sizes indicated the video condition may have moderately impacted the decrease for the control groups and the intervention groups. There was not a significant change for sympathy, $F(1,18) = 0.87$, $p = 0.36$, $\eta_p^2 = 0.05$, and the small effect size indicated the decrease in sympathy for the control group was likely not due to the video condition prior to the post-test (see Table 11).

Between the control and intervention group, there was not a significant difference for feedback between the two groups, $F(1,18) = 4.58$, $p = 0.05$, $\eta_p^2 = 0.20$, but the high effect size indicated the intervention may have had a large effect on the existing differences as feedback in the control group decreased, while feedback increased for the intervention group. There was not a significant change for expectations of failure, $F(1,18) = 0.55$, $p = 0.47$, $\eta_p^2 = 0.03$, frustration, $F(1,18) = 0.18$, $p = 0.68$, $\eta_p^2 = 0.01$, and for sympathy, $F(1,18) = 0.87$, $p = 0.36$, $\eta_p^2 = 0.05$, and the small effect size indicated any differences between the groups were likely due to random chance(see Table 11). See Table 12 for mean changes pre-test to post-test.

Table 11

Low Ability/Low Effort/No Autism Dependent Event Main Effects

	Within			Between		
	F	η_p^2	*p*	*F*	η_p^2	*p*
Feedback	3.14	0.15	0.09	4.58	0.20	0.05
Sympathy	0.87	0.05	0.36	0.87	0.05	0.36
Frustration	2.03	0.10	0.17	0.18	0.01	0.68
Failure	1.93	0.10	0.18	0.55	0.03	0.47

*Note. *p<0.05*

Table 12

Low Ability/Low Effort/No Autism Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Feedback	0.33 (3.24)	0.22 (3.73)	-0.27 (3.00)	0.91 (2.74)
Sympathy	4.56 (1.51)	4.11 (1.62)	5 (2)	5 (1.67)
Frustration	3.44 (1.88)	3.11 (1.97)	3.45 (1.81)	3.27 (1.85)
Failure	4.78 (1.48)	4.56 (1.74)	5.82 (0.98)	5.09 (1.38)

Note. Feedback is on a -5 to 5 scale with -5 being the most negative.
Note 2. Frustration and sympathy are on a 1 to 7 scale with 1 being very little and 7 being very much
Note 3. Failure is on a 1 to 7 scale with 1 being very unlikely to 7 being very likely

High Ability/High Effort/Autism

For the within-subject results for the high ability/high effort/autism vignette, there was not a significant change for frustration pre-test to post-test for the two groups, $F(1,18) = 2.46$, $p = 0.13$, $\eta_p^2 = 0.12$, and the medium effect size indicated the video condition may have had a moderate impact on the increase in frustration for the two groups. There was not a significant change for feedback, $F(1,18) = 0.96$, $p = 0.34$, $\eta_p^2 = 0.05$, sympathy, $F(1,18) = 0.76$, $p = 0.40$,

$\eta_p^2 = 0.04$, or for expectations of failure, $F(1,18) = 0.58$, $p = 0.46$, $\eta_p^2 = 0.03$, and the low effect

sizes indicated the minor decreases in the type of feedback given for both groups, minor

decreases in sympathy for both groups, and a minor increase in expectations for the control

group were likely not caused by watching the videos(see Table 13).

For the comparison between the two groups, there was a no significant difference for

frustration, $F(1,18) = 1.08$, $p = 0.31$, $\eta_p^2 = 0.06$, and the medium effect indicated that any

difference between groups may have been moderately affected by the intervention. There was no

significant change for feedback, $F(1,18) = 0.22$, $p = 0.64$, $\eta_p^2 = 0.01$, sympathy, $F(1,18) = 0.02$,

$p = 0.90$, $\eta_p^2 = 0.001$, or expectations of failure, $F(1,18) = 0.58$, $p = 0.46$, $\eta_p^2 = 0.03$, and the low

effect indicated any differences were likely due to randomness (see Table 13). See Table 14 for

mean changes pre-test to post-test.

Table 13

High Ability/High Effort/Autism Dependent Event Main Effects

	Within			Between		
	F	η_p^2	*p*	*F*	η_p^2	*p*
Feedback	0.96	0.05	0.34	0.22	0.01	0.64
Sympathy	0.76	0.04	0.40	0.02	0.001	0.90
Frustration	2.46	0.12	0.13	1.08	0.06	0.31
Failure	0.58	0.03	0.46	0.58	0.03	0.46

*Note. *p<0.05*

Table 14

High Ability/High Effort/Autism Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Feedback	3.44 (1.88)	3.22 (2.05)	4.55 (0.93)	3.91 (2.17)
Sympathy	4.56 (2.13)	4.22 (1.79)	4.64 (2.62)	4.18 (2.52)
Frustration	1.78 (0.97)	1.89 (1.27)	1 (0)	1.55 (1.04)
Failure	2.44 (1.13)	2.89 (1.36)	1.91 (1.04)	1.91 (1.38)

Note. Feedback is on a -5 to 5 scale with -5 being the most negative.
Note 2. Frustration and sympathy are on a 1 to 7 scale with 1 being very little and 7 being very much
Note 3. Failure is on a 1 to 7 scale with 1 being very unlikely to 7 being very likely

High Ability/High Effort/No Autism

For the within-subject results for the high ability/high effort/no autism vignette there was no significant change for expectations of failure pre-test to post-test for the two groups, $F(1,18) = 3.14$, $p = 0.09$, $\eta_p^2 = 0.15$, but the high effect size indicated the video condition may have had a large impact on the increase in expectations of failure for the two groups. There was no significant change for sympathy, $F(1,18) = 1.41$, $p = 0.25$, $\eta_p^2 = 0.07$, and the medium effect indicated the increase in sympathy for the two groups may have been moderately affected by the videos. There was not a significant change for feedback, $F(1,18) = 0.34$, $p = 0.57$, $\eta_p^2 = 0.02$, or for frustration, $F(1,18) = 0.07$, $p = 0.80$, $\eta_p^2 = 0.004$, and the low effects indicated the videos likely had no effect on the changes (see Table 15).

When comparing the control group and the intervention group, there was not a significant difference in frustration between the groups, $F(1,18) = 1.17$, $p = 0.29$, $\eta_p^2 = 0.06$, and the medium effect size indicated the intervention may have had a moderate effect on the difference that was present. There were no significant differences between groups for feedback, $F(1,18) =$

0.02, $p = 0.89$, $\eta_p{}^2 = 0.001$, sympathy, $F(1,18) = 0.08$, $p = 0.78$, $\eta_p{}^2 = 0.004$, and expectations of

failure, $F(1,18) = 0$, $p = 0.98$, $\eta_p{}^2 = 0$, and the low effect sizes indicated any differences present

were likely due to randomness (see Table 15). See Table 16 for mean changes pre-test to post-

test.

Table 15

High Ability/High Effort/Autism Dependent Event Main Effects

	Within			Between		
	F	$\eta_p{}^2$	*p*	*F*	$\eta_p{}^2$	*p*
Feedback	0.34	0.02	0.57	0.02	0.001	0.89
Sympathy	1.41	0.07	0.25	0.08	0.004	0.78
Frustration	0.07	0.004	0.80	1.17	0.06	0.29
Failure	3.14	0.15	0.09	0	0	0.98

*Note. *p<0.05*

Table 16

High Ability/High Effort/Autism Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Feedback	3.22 (1.92)	3.33 (1.87)	4 (1.84)	4.18 (1.25)
Sympathy	3.56 (1.94)	4 (1.73)	4 (2.65)	4.27 (2.41)
Frustration	1.89 (1.27)	2 (1.5)	1.27 (0.65)	1.09 (0.30)
Failure	2.22 (1.39)	2.67 (1.32)	1.64 (1.12)	2.09 (1.92)

Note. Feedback is on a -5 to 5 scale with -5 being the most negative.
Note 2. Frustration and sympathy are on a 1 to 7 scale with 1 being very little and 7 being very much
Note 3. Failure is on a 1 to 7 scale with 1 being very unlikely to 7 being very likely

High Ability/Low Effort/Autism

For the within-subject results for the high ability/low effort/autism vignette there was a significant change pre-test to post-test for the two groups for sympathy, $F(1,18) = 6.10$, $p = 0.02$, $\eta_p^2 = 0.25$, indicating the decrease in sympathy felt from both groups from pre-test to post-test was likely not a random occurrence but rather a potential result of the video(s). A post-hoc test using a Bonferroni correction indicated a significant difference between the intervention and control groups for sympathy, mean difference = 0.60, 95% CI [0.89, 1.10], $p = 0.02$. There was no significant change for expectations of failure, $F(1,18) = 0.14$, $p = 0.71$, $\eta_p^2 = 0.01$, feedback, $F(1,18) = 0.64$, $p = 0.44$, $\eta_p^2 = 0.03$, and frustration, $F(1,18) = 0.24$, $p = 0.63$, $\eta_p^2 = 0.01$, and the low effect sizes indicated that these changes were unlikely due to watching the videos (see Table 17).

For the comparison between the two groups, there was no significant difference between the groups for frustration, $F(1,18) = 2.33$, $p = 0.14$, $\eta_p^2 = 0.12$, and the medium effect indicated that the intervention may have moderately influenced any observed differences. There was no significant change for feedback, $F(1,18) = 0.18$, $p = 0.67$, $\eta_p^2 = 0.01$, sympathy, $F(1,18) = 0.02$, $p = 0.87$, $\eta_p^2 = 0.002$, or for expectations of failure, $F(1,18) = 0.001$ $p = 0.97$, $\eta_p^2 = 0$, and the low effect sizes indicated that any differences were likely due to randomness (see Table 17). See Table 19 for mean changes pre-test to post-test.

Table 17

High Ability/Low Effort/Autism Dependent Event Main Effects

	Within			Between		
	F	η_p^2	*p*	*F*	η_p^2	*p*
Feedback	0.64	0.03	0.44	0.18	0.01	0.67
Sympathy	6.10	0.25	**0.02***	0.02	0.002	0.87
Frustration	0.24	0.01	0.63	2.33	0.12	0.14
Failure	0.14	0.01	0.71	0.001	0	0.97

Note. *p<0.05

Table 18

High Ability/Low Effort/Autism Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Feedback	1.33 (2.87)	1.22 (3.03)	2.18 (21.4)	1.82 (2.89)
Sympathy	4.33 (1.5)	3.78 (1.39)	5 (1.34)	4.36 (2.06)
Frustration	2.67 (1.32)	3 (1.58)	2.82 (1.72)	2.18 (1.33)
Failure	4 (1.12)	3.89 (1.17)	3.55 (0.82)	3.45 (1.13)

Note. Feedback is on a -5 to 5 scale with -5 being the most negative.
Note 2. Frustration and sympathy are on a 1 to 7 scale with 1 being very little and 7 being very much
Note 3. Failure is on a 1 to 7 scale with 1 being very unlikely to 7 being very likely

High Ability/Low Effort/No Autism

For the within-subject results for the high ability/low effort/no autism vignette, there was a significant change for the two groups pre-test to post-test for sympathy, $F(1,18) = 13$, $p = 0.002$, $\eta_p^2 = 0.43$, indicating that the decrease in sympathy felt from both groups pre-test to post-test was likely not a random occurrence, but rather influenced by watching the videos. A post-hoc test using a Bonferroni correction indicated a significant difference between the intervention

and control groups for sympathy, mean difference = 1.08, 95% CI [0.45, 1.70], p = 0.02. There were no significant changes for expectations of failure, F (1,18) = 0.89, p = 0.36, η_p^2 = 0.05, feedback, F (1,18) = 0.52, p = 0.48, η_p^2 = 0.03, and frustration, F (1,18) = 0.43, p = 0.52, η_p^2 = 0.02 (see Table 19), and the low effect sizes indicated any change was unlikely due to watching the videos.

For the between-group comparisons, there was no significant differences between the two groups for expectations of failure, F (1,18) = 4.19, p = 0.06, η_p^2 = 0.19, but the high effect size indicated the intervention may have contributed to the observed differences. There was no significant differences for feedback, F (1,18) = 0.89, p = 0.36, η_p^2 = 0.05, sympathy, F (1,18) = 0.75, p = 0.39, η_p^2 = 0.04, and for frustration, F (1,18) = 0.14, p = 0.71, η_p^2 = 0.01 (see Table 19), and the low effect sizes indicated that any observed differences were likely due to random chance. See Table 20 for mean changes pre-test to post-test.

Table 19

High Ability/Low Effort/No Autism Dependent Event Main Effects

	Within			Between		
	F	η_p^2	*p*	*F*	η_p^2	*p*
Feedback	0.52	0.03	0.48	0.89	0.05	0.36
Sympathy	13	0.43	**0.002***	0.75	0.04	0.39
Frustration	0.43	0.02	0.52	0.14	0.01	0.71
Failure	0.15	0.01	0.70	4.19	0.19	0.06

*Note. *p<0.05*

Table 20

High Ability/Low Effort/No Autism Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Feedback	1.67 (2.78)	1.78 (2.44)	2.27 (2.05)	1.60 (2.68)
Sympathy	5 (1.22)	3.67 (1.73)	4.64 (1.8)	3.81 (2.18)
Frustration	2.22 (.97)	2.56 (1.33)	2.54 (1.36	2.64 (1.29)
Failure	4.11 (1.05)	3.44 (1.01)	3.44 (1.01)	3.9 (.83)

Note. Feedback is on a -5 to 5 scale with -5 being the most negative.
Note 2. Frustration and sympathy are on a 1 to 7 scale with 1 being very little and 7 being very much
Note 3. Failure is on a 1 to 7 scale with 1 being very unlikely to 7 being very likely

Attribution Rankings (Quantitative)

Participants ranked the cause of failure for each vignette. The causes were: ability, effort, environment, and disability. Participants ranked these 1 through 4, with 1 being the biggest reason for failure. The rankings for each potential cause were averaged across participants for each vignette, and then compared pre-test to post-test using a within-subject and between-subject repeated measures analysis of variance. The main effects for the within-subject results, and between-subject results are provided for each attribution dependent event. Partial eta squared was used to report the effect size with .01 representing a small effect size, .06 representing a medium effect size, and .14 and higher representing a large effect size.

Low Ability/High Effort/Autism

For the within-subject results for the low ability/high effort/autism vignette failure rankings there was no significant change pre-test to post-test for disability, $F(1,18) = 3.16$, $p = 0.09$, $\eta_p^2 = 0.15$, but the high effect size indicated the video condition likely contributed to the decreased in attribution that did occur for the groups. There was no significant change for ability,

F (1,18) = 1.59, p = 0.08, η_p^2 = 0.22, and the medium effect size indicated the video condition

may have had a moderate effect on the increase in attribution for both groups. There was no

significant change for effort, F (1,18) = 0.36, p = 0.55, η_p^2 = 0.02, and for environment, F (1,18)

= 0.11, p = 0.75, η_p^2 = 0.01, and the low effect size indicated the video condition likely had no

impact on the increased in attribution pre-test to post-test for the groups (see Table 21).

For the between group comparisons, there was no significant difference between groups

following the intervention for ability, F (1,18) = 0.02, p = 0.89, η_p^2 = 0.001, disability, F (1,18) =

0.31, p = 0.59, η_p^2 = 0.02, or effort, F (1,18) = 0.36, p = 0.55, η_p^2 = 0.02, and the low effect sizes

indicated any differences that were present were likely not caused by the intervention. There was

no significant difference for environment, F (1,18) = 0.001, p = 0.97, η_p^2 = 0.00, and the effect

size of 0 indicated the intervention had no effect on the differences that do exist (see Table 21).

See Table 23 for mean changes pre-test to post-test.

Table 21

Low Ability/High Effort/Autism Ranking Main Effects

	Within			Between		
	F	η_p^2	p	F	η_p^2	p
Ability	1.59	0.08	0.22	0.02	0.001	0.89
Effort	0.36	0.02	0.55	0.36	0.02	0.55
Disability	3.16	0.15	0.09	0.31	0.02	0.59
Environment	0.11	0.01	0.75	0.001	0.00	0.97

*Note. *p<0.05*

Table 22

Low Ability/High Effort/Autism Ranking Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Ability	2.56 (0.53)	2.33 (0.71)	2.36 (.80)	2.1 (0.83)
Effort	3.33 (1.12)	3.33 (0.87)	3.45 (.93)	3.18 (1.17)
Disability	1.56 (1.01)	1.89 (1.36)	1.45 (0.82)	2.09 (1.22)
Environment	2.56 (1.13)	2.44 (1.13)	2.73 (1.01)	2.64 (1.03)

Note. Rankings were from 1 to 4 with 1 being the most likely cause of failure and 4 being the least likely cause of failure

Low Ability/High Effort/No Autism

For the within-subject results for the low ability/high effort/no autism vignette failure rankings, there was no significant change pre-test to post-test for ability, $F(1,18) = 0.53$, $p = 0.48$, $\eta_p^2 = 0.03$, disability, $F(1,18) = 0.45$, $p = 0.51$, $\eta_p^2 = 0.02$, effort, $F(1,18) = 0.71$, $p = 0.41$, $\eta_p^2 = 0.04$, and for environment, $F(1,18) = 0.71$, $p = 0.41$, $\eta_p^2 = 0.04$, and the low effect sizes indicated any change that occurred was likely not due to watching the videos. For ability, both groups saw an increase in attribution; for effort, the control group decreased attribution, for disability, the control group increased attribution while the intervention group decreased attribution; and, for environment, the control group decreased attribution while the intervention group increased attribution. (see Table 24).

For the between group comparison, there was no significant difference between the groups for disability, $F(1,18) = 1.93$, $p = 0.18$, $\eta_p^2 = 0.10$, and environment, $F(1,18) = 1.63$, $p = 0.22$, $\eta_p^2 = 0.08$, and the medium effect sizes indicated the intervention may have had a moderate effect on the differences that did exist post-test. There were no significant differences for ability, $F(1,18) = 0.09$, $p = 0.76$, $\eta_p^2 = 0.01$, and effort, $F(1,18) = 0.71$, $p = 0.41$, $\eta_p^2 = 0.04$, and the low

effect sizes indicated the differences that existed were likely due to random chance (see Table

24). See Table 25 for mean changes pre-test to post-test.

Table 23

Low Ability/High Effort/No Autism Ranking Main Effects

	Within			Between		
	F	η_p^2	P	*F*	η_p^2	P
Ability	0.53	0.03	0.48	0.09	0.01	0.76
Effort	0.71	0.04	0.41	0.71	0.04	0.41
Disability	0.45	0.02	0.51	1.93	0.10	0.18
Environment	0.71	0.04	0.41	1.63	0.08	0.22

*Note. *p<0.05*

Table 24

Low Ability/High Effort/No Autism Ranking Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Ability	1.89 (0.78)	1.67 (0.71)	1.73 (0.79)	1.64 (0.67)
Effort	2.89 (1.05)	3.22 (0.83)	3.18 (0.98)	3.18 (1.17)
Disability	2.89 (1.27)	2.67 (1.41)	2.45 (1.37)	3.09 (0.83)
Environment	2.33 (1.23)	2.44 (1.01)	2.64 (0.92)	2.09 (1.04)

Note. Rankings were from 1 to 4 with 1 being the most likely cause of failure and 4 being the least likely cause of failure

High Ability/High Effort/Autism

For the within-subject results for the high ability/high effort/autism vignette failure

rankings, there was a significant change pre-test to post-test for the groups for effort as both

groups saw decrease in attribution after watching the videos, $F(1,18) = 8.57$, $p = 0.009$, $\eta_p^2 = 0.32$. The high effect size indicated that the decrease in attribution to effort from both groups pre-test to post-test was likely not a random occurrence. A post-hoc test using a Bonferroni correction indicated a significant difference in change for the intervention and control groups for effort, mean difference = -0.60, 95% CI [-1.02, -0.17], $p = 0.009$. There was no significant change for disability, $F(1,18) = 2.05$, $p = 0.10$, $\eta_p^2 = 0.17$, and the medium effect size indicated the video condition may have moderately contributed to the increase in attribution. There was no significant change for ability, $F(1,18) = 0.42$, $p = 0.52$, $\eta_p^2 = 0.02$, and for environment, $F(1,18) = 0.01$, $p = 0.93$, $\eta_p^2 = 0$, and the low effect sizes indicated the changes were likely not due to watching the video (see Table 25).

For the between group comparison, there was no significant difference in the groups post-test for disability, $F(1,18) = 1.19$, $p = 0.29$, $\eta_p^2 = 0.06$, and the medium effect size indicated the intervention may have moderately affected the differences that did exist. There were no significant differences between the groups for ability, $F(1,18) = 0.26$, $p = 0.62$, $\eta_p^2 = 0.02$, for effort, $F(1,18) = 0.04$, $p = 0.85$, $\eta_p^2 = 0.002$, and for environment, $F(1,18) = 0.69$, $p = 0.42$, $\eta_p^2 = 0.04$, and the low effect sizes indicated any differences were likely due to random chance (see Table 25). See Table 26 for mean changes pre-test to post-test.

Table 25

High Ability/High Effort/Autism Ranking Main Effects

	Within			Between		
	F	η_P^2	p	F	η_P^2	p
Ability	0.42	0.02	0.52	0.07	0.004	0.79
Effort	8.57	0.32	**0.009**	0.04	0.002	0.85
Disability	2.05	0.10	0.17	1.19	0.06	0.29
Environment	0.01	0	0.93	0.69	0.04	0.42

*Note. *$p<0.05$

Table 26

High Ability/High Effort/Autism Ranking Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Ability	2.67 (1.23)	2.56 (0.53)	2.64 (1.21)	2.36 (0.92)
Effort	3.11 (0.78)	3.67 (0.71)	2.55 (1.29)	3.18 (0.98)
Disability	2.44 (1.33)	1.78 (1.09)	2.36 (1.12)	2.27 (1.35)
Environment	1.78 (0.83)	2 (1.12)	2..45 (1.04)	2.18 (1.08)

Note. Rankings were from 1 to 4 with 1 being the most likely cause of failure and 4 being the least likely cause of failure

High Ability/High Effort/No Autism

For the within-subject results for the high ability/high effort/no autism vignette failure rankings, there was not a significant change pre-test to post-test for environment, $F(1,18) = 1.20$, $p = 0.29$, $\eta_P^2 = 0.06$, and the medium effect size indicated the videos may have had a moderate effect on the decrease in attribution. There were no significant changes for ability, $F(1,18) = 0.61$, $p = 0.45$, $\eta_P^2 = 0.03$, disability, $F(1,18) = 0.61$, $p = 0.45$, $\eta_P^2 = 0.03$, or effort, $F(1,18) = 0.24$, $p = 0.63$, $\eta_P^2 = 0.01$, and the small effect sizes indicated the increase in attribution to ability,

the decrease in attribution to effort, and the increase in attribution to disability were likely not a result of watching the videos (see Table 27).

For the between group comparisons , there were no significant differences in attribution for disability, F (1,18) = 0.01, p = 0.94, η_p^2 = 0, effort, F (1,18) = 0.24, p = 0.63, η_p^2 = 0.01, environment, F (1,18) = 0.10, p = 0.75, η_p^2 = 0.01, or ability, F (1,18) = 0.04, p = 0.85, η_p^2 = 0.002, and the low effect sizes indicated the differences that did exist were likely due to random chance (see Table 27). See Table 28 for mean changes pre-test to post-test.

Table 27

High Ability/High Effort/No Autism Ranking Main Effects

	Within			Between		
	F	η_p^2	*p*	*F*	η_p^2	*p*
Ability	0.61	0.03	0.45	0.04	0.002	0.85
Effort	0.24	0.01	0.63	0.24	0.01	0.24
Disability	0.61	0.03	0.45	0.01	0	0.94
Environment	1.20	0.06	0.29	0.10	0.01	0.75

*Note. *p<0.05*

Table 28

High Ability/High Effort/No Autism Ranking Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Ability	2.89 (.60)	2.78 (.97)	2.82 (1.17)	2.64 (1.13)
Effort	2.89 (1.05)	2.89 (1.05)	1.91 (0.94)	2.18 (0.87)
Disability	2.67 (1.32)	2.44 (1.33)	3.55 (0.52)	3.27 (1.01)
Environment	1.56 (1.01)	1.89 (1.05)	1.73 (0.79)	1.91 (0.94)

Note. Rankings were from 1 to 4 with 1 being the most likely cause of failure and 4 being the least likely cause of failure

High Ability/Low Effort/Autism

For the within-subject results for the high ability/low effort/autism vignette failure rankings, there was no significant change pre-test to post-test for disability, $F(1,18) = 3.86$, $p = 0.06$, $\eta_p^2 = 0.18$, but the high effect size indicated the decrease in attribution may been highly impacted by the videos. There was no significant change for ability, $F(1,18) = 1.80$, $p = 0.20$, $\eta_p^2 = 0.09$, or effort, $F(1,18) = 1.41$, $p = 0.25$, $\eta_p^2 = 0.07$, and the medium effect size indicated that the increase in attribution may have been moderately affected by the videos. There was no significant change for environment, $F(1,18) = 0.01$, $p = 0.93$, $\eta_p^2 = 0$, and the low effect size indicated that the decrease in attribution from the control group, and the increase from the intervention group were likely not due to the videos (see Table 29).

For the between group comparisons, there were no significant differences between the groups post-test for ability, $F(1,18) = 0.59$, $p = 0.45$, $\eta_p^2 = 0.03$, effort, $F(1,18) = 0.08$, $p = 0.78$, $\eta_p^2 = 0.004$, environment, $F(1,18) = 0.85$, $p = 0.37$, $\eta_p^2 = 0.05$, and disability, $F(1,18) = 0.02$, $p = 0.90$, $\eta_p^2 = 0.001$, and the low effect sizes indicated any differences that did exist were likely due to random chance (see Table 29). See Table 30 for mean changes pre-test to post-test.

Table 29

High Ability/Low Effort/Autism Ranking Main Effects

	Within			Between		
	F	η_p^2	p	F	η_p^2	p
Ability	1.80	0.09	0.20	0.59	0.03	0.45
Effort	1.41	0.07	0.25	0.08	0.004	0.78
Disability	3.86	0.18	0.06	0.02	0.001	0.90
Environment	0.01	0	0.93	0.85	0.05	0.37

*Note. *$p<0.05$

Table 30

High Ability/Low Effort/Autism Ranking Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Ability	3 (0.87)	2.67 (0.87)	2.82 (0.98)	2.73 (1.19)
Effort	2.111 (1.27)	1.67 (1.12)	2.36 (1.21)	2.09 (1.22)
Disability	2 (1.22)	2.56 (1.01)	2.36 (1.12)	3 (1)
Environment	2.89 0(.93)	3.11 (1.17)	2.45 (1.29)	2.18 (0.98)

Note. Rankings were from 1 to 4 with 1 being the most likely cause of failure and 4 being the least likely cause of failure

High Ability/Low Effort/No Autism

For the within-subject results for the high ability/low effort/no autism vignette failure rankings, there was no significant change pre-test to post-test for disability, $F (1,18) = 3.83$, $p = 0.07$, $\eta_p^2 = 0.18$, but the high effect size indicated the decrease in attribution may have been largely influenced by the videos. There was no significant change for effort, $F (1,18) = 1.80$, $p = 0.20$, $\eta_p^2 = 0.09$, and the medium effect size indicated a moderate influence on the increase in attribution from the intervention group. There was no significant change for ability, $F (1,18) =$

1.39, $p = 0.25$, $\eta_p^2 = 0.07$, or for environment, $F(1,18) = 0.00$, $p = 1$, $\eta_p^2 = 0.00$ The low effect

size for ability indicated the videos likely did not contribute to the increase in attribution, while

the 0 effect size for environment indicated there was no influence from the videos at all(see Table

31),

For the between group comparisons, there was no significant differences in the groups for

effort, $F(1,18) = 1.80$, $p = 0.20$, $\eta_p^2 = 0.09$, and disability, $F(1,18) = 1.26$, $p = 0.28$, $\eta_p^2 = 0.07$,

and the medium effect sizes indicated the intervention may have moderately influenced

differences that did exist. There was no significant difference for ability, $F(1,18) = 0.01$, $p =$

0.91, $\eta_p^2 = 0.01$, and the low effect size indicated the difference was likely random. There was no

effect or significant difference for environment, $F(1,18) = 0.00$, $p = 1$, $\eta_p^2 = 0.00$, which

indicated the intervention had no effect on the differences between groups for environment

attribution post-test (see Table 31). See Table 32 for mean changes pre-test to post-test.

Table 31

High Ability/Low Effort/No Autism Ranking Main Effects

	Within			Between		
	F	η_p^2	*p*	*F*	η_p^2	*p*
Ability	1.39	0.07	0.25	0.01	0.01	0.91
Effort	1.80	0.09	0.20	1.80	0.09	0.20
Disability	3.83	0.18	0.07	1.26	0.07	0.28
Environment	0.00	0.00	1	0.00	0.00	1

*Note. *p<0.05*

Table 32

High Ability/Low Effort/No Autism Ranking Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Ability	3.22 (0.67)	3 (1.12)	3.27 (1.10)	3 (0.89)
Effort	1.89 (1.27)	1.89 (1.17)	1.8 (0.75)	1.3 (0.90)
Disability	2.78 (1.09)	3 (1)	2.64 (1.12)	3.45 (5.22)
Environment	2.11 (1.05)	2.11 (0.93)	2.27 (1.10)	2.27 (0.83)

Note. Rankings were from 1 to 4 with 1 being the most likely cause of failure and 4 being the least likely cause of failure

Low Ability/Low Effort/Autism

For the within-subject results for the low ability/low effort/autism vignette failure rankings, there was not a significant change pre-test to post-test for disability, $F(1,18) = 1.73$, $p = 0.20$, $\eta_p^2 = 0.09$, and the medium effect size indicated the videos may have had a moderate effect on the decrease in attribution. There were no significant changes for ability, $F(1,18) = 0.71$, $p = 0.41$, $\eta_p^2 = 0.04$, effort, $F(1,18) = 0.14$, $p = 0.71$, $\eta_p^2 = 0.01$, and environment, $F(1,18) = 0.20$, $p = 0.66$, $\eta_p^2 = 0.01$, and the low effect sizes indicated increase in attribution to ability form the control group, the decrease in attribution to effort from the control group, the increase in attribution to effort from the intervention group, the increase in attribution to environment from the control group, and the decrease in attribution to environment from the intervention group were likely not due to the videos (see Table 33).

For the between group comparisons, there were no significant differences between the groups for effort following the intervention, $F(1,18) = 4.57$, $p = 0.05$, $\eta_p^2 = 0.20$, but the large effect size indicated the differences that did exist were largely influenced by the intervention. There were no significant differences between the groups in attribution for ability, $F(1,18) =$

0.71, $p = 0.41$, $\eta_p{}^2 = 0.04$, disability, $F(1,18) = 0.31$, $p = 0.59$, $\eta_p{}^2 = 0.02$, and environment, F

$(1,18) = 0.60$, $p = 0.45$, $\eta_p{}^2 = 0.03$, and the low effect sizes indicated any differences that did

exist were likely due to random chance (see Table 33). See Table 34 for mean changes pre-test to

post-test.

Table 33

Low Ability/Low Effort/Autism Ranking Main Effects

	Within			Between		
	F	$\eta_p{}^2$	*p*	*F*	$\eta_p{}^2$	*p*
Ability	0.71	0.04	0.41	0.71	0.04	0.41
Effort	0.14	0.01	0.71	4.57	0.20	0.05
Disability	1.73	0.09	0.20	0.31	0.02	0.59
Environment	0.20	0.01	0.66	0.60	0.03	0.45

*Note. *p<0.05*

Table 34

Low Ability/Low Effort/Autism Ranking Mean Changes Pre-Test to Post-Test

Attribution	Pre-Test Control	Post-Test Control	Pre-Test Intervention	Post-Test Intervention
Ability	2.78 (0.67)	2.444(1.01)	2.91 (0.83)	2.91 (0.83)
Effort	2.33 (1.23)	2.78 (0.97)	2.91 (1.04)	2.27 (1.19)
Disability	2.22 (1.20)	2.44 (1.24)	1.82 (1.08)	2.36 (1.29)
Environment	2.67 (1.41)	2.333(1.41)	2.36 (1.29)	2.45 (1.21)

Note. Rankings were from 1 to 4 with 1 being the most likely cause of failure and 4 being the least likely cause of failure

Low Ability/Low Effort/No Autism

For the within-subject results for the low ability/low effort/no autism vignette failure rankings, there was a significant change from pre-test to post-test for effort, $F(1,18) = 5.51$, $p = 0.03$, $\eta_p^2 = 0.23$, and the high effect size indicated the decrease in attribution to effort from both groups pre-test to post-test was likely influenced by watching the videos. A post-hoc test using a Bonferroni correction indicated a significant change for the intervention and control groups for effort, mean difference = -0.54, 95% CI [-1.01, -0.06], $p = 0.03$. There was not a significant change for disability, $F(1,18) = 0.96$, $p = 0.34$, $\eta_p^2 = 0.05$, and the medium effect size indicated the videos may have had a moderate effect on the increase in attribution from the control group, and the decrease from the intervention group. There was not a significant change for ability, $F(1,18) = 0.34$, $p = 0.57$, $\eta_p^2 = 0.02$, and environment, $F(1,18) = 0.18$, $p = 0.67$, $\eta_p^2 = 0.01$, and the small effect sizes indicated that any change that occurred was likely not due to the videos (see Table 35).

For the between group comparisons, there was a significant difference between the groups' attribution for disability, $F(1,18) = 11.07$, $p = 0.004$, $\eta_p^2 = 0.38$, and the high effect size indicated that this difference was likely influenced by the intervention. There was no significant difference for effort, $F(1,18) = 1.64$, $p = 0.22$, $\eta_p^2 = 0.09$, and the high effect size indicated the difference that existed was likely influenced by the intervention. There was no significant difference between groups for environment, $F(1,18) = 1.55$, $p = 0.23$, $\eta_p^2 = 0.08$, and ability, $F(1,18) = 2.86$, $p = 0.11$, $\eta_p^2 = 0.14$, and the medium effect sizes indicated the intervention may have had a moderate effect on the differences that did exist (see Table 35). See Table 37 for mean changes pre-test to post-test.

Table 35

Low Ability/Low Effort/No Autism Ranking Main Effects

	Within			Between		
	F	η_P^2	*p*	*F*	η_P^2	*p*
Ability	0.34	0.02	0.57	2.86	0.14	0.11
Effort	5.51	0.23	**0.03**	2.41	0.12	0.14
Disability	0.96	0.05	0.34	11.07	0.38	**0.004**
Environment	0.18	0.01	0.67	1.55	0.08	0.23

*Note. *p<0.05*

Table 36

Low Ability/Low Effort/No Autism Ranking Mean Changes Pre-Test to Post-Test

Attribution	**Pre-Test Control**	**Post-Test Control**	**Pre-Test Intervention**	**Post-Test Intervention**
Ability	2.22 (0.67)	2.44 (1.01)	2.55 (0.69)	2.09 (0.83)
Effort	1.44 (0.73)	2.33 (1.22)	1.55 (0.93)	1.73 (1.19)
Disability	3.78 (0.44)	2.44 (1.24)	2.73 (1.27)	3.45 (0.82)
Environment	2.56 (1.13)	2.78 (1.20)	3.18 (0.98)	2.73 (0.90)

Note. Rankings were from 1 to 4 with 1 being the most likely cause of failure and 4 being the least likely cause of failure

Qualitative Results

Following the completion of the intervention, participants (n =4) were interviewed using a semi-structured interview format and asked about their thoughts and beliefs regarding success and failure. The qualitative portion of the interview was guided by the research question "What beliefs do practitioners hold regarding attribution of success and failure?" Participants were first asked about their background and experience in an effort to build rapport. Then, participants

were asked questions regarding success which included, "*In your experience, why do students succeed?" "What might contribute to a student's success?"* and "*What role do early educators have in these successes?"* Then, participants were asked about failure which included questions such as, "*What do you think leads to young learners failing?" "What can early educators do to prevent further failure?"* and, "*How well do educators respond to failure in an early child classroom or setting?"* Additional questions were also asked concerning the professional development intervention (refer to the procedures for full list of interview questions). However, all 4 participants either did not remember much about the intervention, or struggled to describe how the intervention affected them. Finally, participants were asked about the importance of identifying reasons for success and failure as early childhood educators. Interviews were transcribed, and then a thematic analysis was conducted using the protocol from Braun and Clarke's (2006) article. The protocol was as follows: familiarization of the data, generating initial codes, organizing codes to create themes, review of the themes that were generated, refinement of the themes, and then analysis and reporting of the data (refer to the qualitative data analysis section for in chapter 3 for complete protocol).

The thematic analysis resulted in three themes and two subthemes. The first theme was "factors influencing learners" and included two subthemes, "external factors" and "child factors." This theme and the associated subthemes included ideas around factors that led to success and failure for learners including the family system, social-emotional support and learning, experiences of children, effort, and internal motivation, amongst others. The second theme was "teacher and practitioner challenges" and revolved around issues practitioners faced when dealing with failure of learners including how to respond to failure, external motivation, and a lack of family involvement. The third and final theme was "supporting success." This

theme included ideas around how practitioners can facilitate success including diverse

instruction, flexibility, family collaboration, and practitioner education. What follows is the full

results of the thematic analysis from the thematic analysis (refer to Table 39 for themes,

subthemes, and quotes).

Factors Influencing Learners

The first theme that emerged was factors influencing learners. Interview participants

attributed learner outcomes, success and failure, to external factors (e.g., social-emotional

support and support at home) and to child factors (e.g., negative self-concept and self-

regulation), which were the subthemes to this theme (see figure 2). Participant 4 identified

several external factors that influenced learners, but zero child factors. Participant 3 identified

three external factors, the relationship with the educator, the child's experiences, and social-

emotional support while also identifying five specific child factors including behavior, a lack of

effort, and learners comparing themselves to others. Participants 1 and 2 identified both external

and child factors.

External Factors

The environment, broadly speaking, was identified only by participant 1 who said,

"Again, the environment. The teacher creates the environment. So, just somewhere that's really

positive where they feel a sense of belonging or their home life is also reflected with the teacher

and at home or in the classroom."

Participant 4, in response to "why do you think learners, zero to three, succeed?"

identified family and support systems:

"I feel like they succeed due to the support systems that they have in place. So, not only

just the parents but the rest of their family members, including siblings or anyone else

that's close, and even the parents having, as well, as far as that support. I find that when

families lack a lot of those support systems, that's when we start to see kiddos start to fail

or not hit the milestones that we want them to."

Similarly, participant 1 identified stability, and basic necessities, as critical external factors to

success: "Just having a positive life in terms of stability, like the basics, really, having love,

housing, food. I think those are the most important when they're at a young, young age."

Participant 1 then identified social-emotional support as one of the most important things

that helps young learners persevere after failure:

"A lot of emotional strategies because my friends can be very emotional and get very

frustrated when something's not working out for them. Just first of all, helping them find

ways to self-soothe and to calm down so that they can even think clearly. So, just deep

breathing. Or they might go to a cozy area and calm down with a book. And then, after

I'm able to talk to them, once they've calmed down, we can revisit and try again… I think

social emotional, being able to have them socialize and make friends, make connections.

I think that's a really important piece, especially when they enter kindergarten"

Participant 3 also emphasized the importance of social-emotional learning by stating, "…with

early childhood. I know about social-emotional and for me that at this age, that's the most

important." Social-emotional learning was also mentioned by participant 2 in the context of other

teaching strategies that can be used to help a child who is failing:

"super important that we know if the child is failing, having that teaching strategy's goal,

we can see where the child is failing five areas. We have the social-emotional, we have

the math, the reading, the literacy, the gross motor and the fine motor. So, we can see,

okay, is it the fine motor? Could it be hand-eye coordination? Could it be the speech, the

language?"

The child's experiences were mentioned by participant 1 who said, "their experiences at

home…all of their experiences…those direct experiences with people" in response to what leads

to success, and the following in response to attributing cause:

"Their experiences. It could be anything. It could be their experiences when they were in

the womb, their experiences prior to them coming to preschool or childcare. And then, of

course, it could be something in the classroom as well."

Participant 3 also discussed experiences in the context of failure,

"Really, that's something that's not even in our hands what their previous experience has

been, so we just have to work with where they are. It's really difficult but trying to just

you're creating new experiences. The kids are building on their knowledge, they're

scaffolding, you're getting them to the next step. Sometimes you have to go back a few

steps and be like even to be able to, how do we deal with failure? Because if all they've

experienced is negative things when they fail, then you need to give them some positive

experiences when they fail, as well as when they're successful."

Finally, the relationship with the educator was mentioned by participant 2, who said,

"you build a rapport with the child, is what I tell them from my knowledge, from having

the experience, I said, you'll have that child eating right out of your hand. You'll be able

to teach that child things that child what he could never, or she could never learn and it

will be mind-blowing."

And participant 3, who said,

"Again, I think that there's just so much pressure put on students at a younger and younger age, that I do think that as an educator, we need to try to also create that comfort and build those bonds. Building those bonds with the students and letting them know that they are safe. I always do think that those bonds between a student and yourself as an educator, it is one of the things that is going to help the kids succeed because then they trust you. They want to please you."

Child Factors

Child factors were more sporadic compared to external factors. Self-regulation and behavior were the only factors mentioned by more than one participant. Self-regulation was mentioned by three participants. Participant 1 stated, "Just teaching them how to communicate, how to self-regulate their own emotions and their feelings, and how to solve problems." in response to preparing leaners for the future, and participant 3 stated, "I focus a lot on emotional regulation and internally like, "Hey, how are you feeling? How's your body feeling? What is your body telling you?" Participant 2 mentioned self-regulation seven times, including the impact of self-regulation on behavior in response to being asked how behavior affects success and failure:

"Gosh, you know what, I'm going to tell you like I tell everybody. A lot of people want to teach their children. They want to fight with them. They want to tell them, you need to do this and you need to do that. And if you don't get the behavior under control, the child is not ready to learn. So self-regulation is so important. Self-regulation controls how the child can behave themselves, how the child can contain and say, "I have to wait my turn." How the child doesn't, because remember at that early age, everything is me, me, me, I, I, I, mine, mine, mine."

Additionally, participant 3 discussed the similarities of attribution with identifying the function of behavior:

"…or knowing the root cause really is what's going to help you find the solution. We talk about is the behavior attention seeking? Is it avoidance? That's the same stuff when it comes to success and failure. What is the reason? Then we'll address it properly just like we do behavior."

Participant 2 talked about a lack of belonging as a primary cause of failure:

I feel if it's an ELA student, I feel that student might not feel like he belongs. So that can make them want to say, "I'm done. I don't want to do this. I can get a job and do whatever… I always tell my students, "I'm glad you're here. Even if they come late, you say, you know what Johnny, I'm glad you're in school today. Boy, I missed you the other day." Because you know what that gives them the belonging."

While participants 1 and 3 talked about a lack of effort from learners:

"It's just I think that's what I've seen is one of the biggest indicators of whether we'll see progression and growth, is are they actually putting an effort into doing it… what bothers me is if I don't even see you trying, if you're not even picking up the pencil to make a mistake."

Participant 3 also discussed learners who compared themselves to others, "They're already comparing themselves to other people and they know what they're good at and what they're not good at." a learner's negative self-concept as it relates to effort, "I think a lot of it has to do with that trying, but then the underlying of why aren't they trying? I think some of it is just they already have this self-concept of like, "I can't do that." and the idea of internal motivation as it relates to effort:

"I think a lot of what leads to success or growth, a lot of it is just an internal motivation to

want to try. I think that the kids that you see a lot of progress is because they're trying."

Factors Influencing Learning Subthemes

Teacher and Practitioner Challenges

The second theme that emerged was teacher and practitioner challenges. These variables

were identified as common barriers or expectations facing educators when working with young

learners. How practitioners respond to failure was mentioned by both participants 3 and 4.

Similarly, participant 3 and 4 identified that educators should not place the blame on the learner.

Participant 3 stated,

"I think that also, again, it has to do with themselves and their own personal beliefs of

why kids fail. If you're the kind of person that thinks a kid fails because they don't care or

a kid fails because they don't know. Or you're looking at it from this deficiency of it's

their fault. I think it really depends on that… There's these biases that you already hold,

so then you don't make the effort. I think that's just one of the things as educators,

depending on your views and why you think kids fail or succeed."

While participant 4 said, "So, me, personally, I never think it's the child or the learner. I always

kind of feel like it's us." Participant 4 also had this to say when asked if she thinks practitioners

respond well to failure in general,

"I would say probably not. I don't think it's because out of lack of trying. I think it's,

again, kind of the systematic element of being burnt out, professionals being burnt out,

and again, just not having the experience and education. So, I feel like it's kind of throw

our hands up with the kid and just like, okay, we just have to pass them on to somebody

else because there's nothing else we can do here, which then, kiddos slip through the cracks."

Participant 3 mentioned external motivation as a challenge for practitioners:

"They're still little so a lot of the motivation at this age is still very much external, so we have to make them want to do it… if you can't get that motivation to want to get them to move… it makes them want to not even do it because they know it's hard"

Participant 3 also noted that a lack of family involvement can lead to frustration from teachers stating that teachers hold biases against families they perceive as unwilling to try: "Oh, it's because the family's just not even trying. We know they're not going to show up. We know they're not going to work with them at home." Practitioner 2 echoed this sentiment regarding young teachers,

"So a lot of the failure would be a lot of them just like, wow, I can't believe that I'm teaching him. I'm doing all this. The parents not being involved and they're not getting it, and I'm just being frustrated. I'm being told that I'm not doing a good job. I think that the frustration that's going on right now I think has a lot to do with the failure, the frustration…if the parent doesn't feel that it's important…they can feel like, "well, they don't care. Why should I care?"

Similarly, a lack of experience leads to struggles for teachers according to participant 2,

"And now the new teachers that we have now are just now beginning to learn. So there's a little bit of a failure because I think they, I wouldn't say because they're too young, but I would say the experience has a lot to do with it."

And participant 4,

"Well, I feel like experience is really important. We have all these theories on development and education, and theories without application is really nothing... I feel like educators need both experience in general and special education, looking into possible even behavioral management, looking into ABA strategies, asking around. I feel like that might be more of a symptomatic thing when it comes to our education and not having that exposure and practice. But I really feel like experience is kind of what is able to help educators, developmental specialists, early interventionists, all of the above, know how to adapt to different children, if that makes sense."

Supporting Success

The final theme that emerged was "supporting success." This theme was based on what respondents identified as critical components of support for early learners.

Participant 1 and 4 identified diverse instruction as a critical part of the learning environment. Participant 1 said, "Providing more means of representation. Just giving them more ways to try and learn that specific subject. Just more activities that are involved in it, just different ways for them to learn to try and reach every learner." Participant 4 also mentioned exposure to different environments as a contributor to success, in addition to diverse instruction:

"I would say exposure to different learning. I feel like it's hard for kiddos to even expand or even show any of their potential if they're not exposed to certain things...I think because often kiddos are exposed or have to go in different environments, whether that is daycare, they're at home, or they go into those preschool settings, or even, I also used to work at the YMCA as the kindergarten, like camp lead"

Participant 2 also stated accommodations were important in the learning environment:

"We have [to] accommodate the child. So accommodating a child and different ways helps the child. Once we know that this child needs more help and we see that it's something more than what we are used to as far as regular educators and not special educators, because I didn't go for special ed, even though I've been in it, then we start getting the school involved."

Participants 1 and 2 mentioned flexibility, or adaptability, as a critical aspect of the learning environment. Participant 1 said, "You got to be extremely flexible. So, I'll try anything, I'll seek out resources, I'll talk to other team members until I figure out something that works for that specific child.", while participant 2 stated,

"It's not just my way or the highway. It's a flexibility. And that's where I think we're going to succeed. Whereas before it was like, "Oh, my way or the highway, this is the way it is." I went to school for 30 years, I did research. You have to follow my way. Finally, finally, we're having them realize we need a change. We need the change. If we don't have the change there, you can bake the bread a hundred ways, but if you want to continue to do it the same way, same result. We need a change. We need to enrich education. We need to continue to enrich our education system and we need the change."

And participant 3 said,

"I am very much about constructive criticism and wanting I know that you're never done learning. Personally, I feel like I know that there's probably someone out there that's doing something in a better way than me. Even if we're doing this, this and these steps the same way, but that next step. I'm always open to learning new ideas and new and different ways of doing things."

Positivity was mentioned by participants 1, 2, and 3. Participant 2 said, "If you give a negative, you have to give five positives… with empathy, I contribute to letting them know that they are awesome, that they can make it", while participants and 3 said the following regarding responding to success and failure,

"So, always being positive, and the way that we speak, and the way that we work and socialize… in early childhood, I just think it should all be positive. I don't really think that we should focus on failure, rather just students that need more support and a little bit more help."

"Or point out the positives and it's like, "Okay, you know what? You didn't get the correct answer, but look, your numbers are right." I do a lot, especially in math right now, we're decomposing numbers. It's like, "You know what? The numbers you wrote are correct, but when you put them together, that's where the mistake was. Let's figure out that mistake. How can we fix it?" Showing them. It's not, "Yeah, maybe you did something wrong, but there's good that you did too."

Family collaboration was a big part of the practitioner's job as it was mentioned by participants 1, 2, and 4. Participant 2 discussed teaching the parents, "and then we teach parents too…we're a partnership. It takes a village to raise the child, and that's what we're doing", and "I always tell the parent that they're the first teacher." Participant 4 said,

"I feel like partnering with the families as kind of a community model. So, being able to communicate the education we have in a realistic, and what's the word I'm thinking of, a relevant way to families so that they're more likely to follow through with strategies when it comes to their child developing and/or when it comes to helping their kiddo in school, as well. So, education, being able to, like I said, communicate with families."

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While participant 1 said,

"Really asking the parents lots of questions, having them bring in the home so that the child feels like they can be at home while they're at school too. So, making those connections with the family… at a young age, a lot of times, it's their first experience being away from home. So, when they want to build a relationship with their teacher, they need to know that their parents trust the teacher or that their family trusts the teacher."

Participants 1 and 4 identified modeling as a responsibility of the practitioner. Participant 1 said, "Model it… they see us communicate with other staff members, with other children, so they're going to imitate what they see." Participant 4 said, "model or mold what we're trying to get across to the child in a way that is digestible, in a way for them to understand what we're doing." Similarly, participant 2 discussed being intentional in their approach:

"Everything we do is intentional in pre-K, everything we do is intentional in school… everything in every center that they choose, it's intentional…so we're there to be intentional and help them out so they can have a higher thinking process to be able to succeed."

Participant 4 said that it was the practitioner's responsibility to ask, "why isn't this working" and for the practitioner to remain educated:

"So, when we are reassessing what's kind of going on, my initial thing is, okay, why weren't these strategies working… I think, first, our own education on understanding development learning. I think we have to have a strong foundation in that. You can't kind of lead with what you don't know. So, us having our foundation"

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Table 37

Themes and Ideas

Themes	Ideas	Example Quotes
Factors Influencing Learners	<u>External Factors</u> Environment Family and Support Systems Stability and Basic Necessities Social-Emotional Support and Learning Experiences Relationship with Educator <u>Child Factors</u> Self-Regulation Lack of Belonging Lack of Effort Comparison to Peers Negative Self-Concept Internal Motivation	"Again, the environment. The teacher creates the environment. So, just somewhere that's really positive where they feel a sense of belonging or their home life is also reflected" "I feel like they succeed due to the support systems that they have in place. So, not only just the parents but the rest of their family members, including siblings or anyone else that's close" "A lot of emotional strategies because my friends can be very emotional and get very frustrated when something's not working out for them. Just first of all, helping them find ways to self-soothe and to calm down so that they can even think clearly" "their experiences at home…all of their experiences…those direct experiences with people"

Themes	Ideas	Example Quotes
Teacher and Practitioner Challenges	Responding to Failure Don't Blame the Learner External Motivation Lack of Family Involvement Lack of Experience	"Building those bonds with the students and letting them know that they are safe." "Self-regulation controls how the child can behave themselves, how the child can contain and say, "I have to wait my turn." "It's just I think that's what I've seen is one of the biggest indicators of whether we'll see progression and growth, is are they actually putting an effort into doing it" "They're already comparing themselves to other people and they know what they're good at and what they're not good at." "I think that also, again, it has to do with themselves and their own personal beliefs of why kids fail. If you're the kind of person that thinks a kid fails because they don't care or a kid fails because they don't know. Or you're looking at it from this deficiency of it's their fault." "They're still little so a lot of the motivation at this age is still very much external, so we have to make them want to do it" "So a lot of the failure would be a lot of them just like, wow, I can't believe that I'm teaching him. I'm doing all this. The parents not being involved and they're not getting it, and I'm just being frustrated."

Themes	Ideas	Example Quotes
Supporting Success	Diverse Instruction Exposure to Different Environments Accommodations Flexibility Positivity Family Collaboration Modeling Practitioner Education	"Providing more means of representation. Just giving them more ways to try and learn that specific subject. Just more activities that are involved in it, just different ways for them to learn to try and reach every learner." "We have [to] accommodate the child. So accommodating a child and different ways helps the child." "You got to be extremely flexible. So, I'll try anything, I'll seek out resources, I'll talk to other team members until I figure out something that works for that specific child." "If you give a negative, you have to give five positives" "and then we teach parents too…we're a partnership. It takes a village to raise the child, and that's what we're doing" "Really asking the parents lots of questions, having them bring in the home so that the child feels like they can be at home while they're at school too. So, making those connections with the family" "Model it… they see us communicate with other staff members, with other children, so they're going to imitate what they see." "I think, first, our own education on understanding development learning. I think we have to have a strong foundation in that. You can't kind of lead with what you don't know. So, us having our foundation"

CHAPTER FIVE

DISCUSSION

Attribution of causes of outcomes for learners can possibly affect the thoughts, feelings, and behaviors of practitioners over time (Clark & Artiles, 2000). Prior research indicates that practitioners will often attribute cause to uncontrollable or stable variables, rather than to controllable or unstable variables. Although there are numerous studies that demonstrated the efficacy of AR on students, and older students in particular, there is a limited research base aimed at the efficacy of AR for practitioners (Graham & Taylor, 2022). Furthermore, the majority of current attribution literature in education has been quantitative. Given the personal nature of attribution, and how attribution affects the private behaviors of practitioners, more qualitative research is needed to explore how the personal beliefs and lived experiences of practitioners relates to attribution of outcomes like success and failure, specifically in ECE because of the opportunity to influence future outcomes of early learners

The purpose of this study was to examine the efficacy of AR for practitioners and to explore the beliefs of practitioners regarding success and failure. Effort was identified as potentially the primary factor in attribution of outcomes along with the learner's disability, even when no disability was present. These findings were consistent with Woodcock and Vialle (2010, 2011, 2016) which found that a LD label influenced practitioner responses, however the ASD label did not seem as impactful in the current study, potentially due to the experience of the practitioners who participated. The quantitative portion of the study also demonstrated that attributional tendencies in practitioners can be potentially altered through training, although results were inconclusive. Results were not nearly as strong as some prior studies on AR like Boese et al. (2013) and Haynes Stewart et al. (2011), but results showed promise for future

research, nonetheless. Additionally, results indicated that short-form multimedia created using Mayer's (2008) framework may be an effective tool for AR, although modifications are needed for future research including pilot testing and the addition of an induction phase for the AR procedure. The qualitative results showed two key variables that practitioners associate with outcomes: social-emotional learning and family involvement. Interestingly, none of the practitioners that were interviewed discussed ability at any point, which was a surprise as ability is a common variable in attribution research including in the Carter et al. (2014) study that included ECE teachers. Together, through these findings, this study established a foundation that future studies can build upon in ECE attribution research.

Quantitative Discussion

The quantitative portion of the study examined the efficacy of AR on attribution dependent events (frustration, sympathy, feedback, expectations of failure) and attributional rankings (ability, effort, disability, environment) for early childhood practitioners in response to a child, with and without autism, and with varying levels of effort and ability, who had just failed an assessment. This portion of the study was guided by the following research question: what is the efficacy of AR for developing adaptive attributional tendencies in early childhood practitioners? The goal of the intervention was to improve attributional tendencies in the intervention group through a shift in attribution towards controllable variables like the environment or effort. The hypothesis was that the control group would experience a lesser change in their attributional tendencies and may even attribute cause to the disability more after watching their video, while the intervention group would be more likely to attribute cause to effort and environment following their training. A total of 20 participants, 9 in the control group and 11 in the intervention group, completed the intervention. Overall, results were mostly non-

significant. This could be due to a number of factors including sample size, the immediacy of the post-test, and the homogenous nature of the participants which will be discussed further in the limitations section. Given the non-significant findings, and the limitations, changes with a high effect size ($\eta_p^2 > 0.14$) were given more weight during interpretation even if the effect was not significant Thus, this discussion and the interpretations of the findings should be assessed with caution. Future replication is required. What follows is first a brief discussion regarding the participants' attribution dependent events, followed by a discussion of the attributional rankings between the two groups.

Attribution Dependent Events

Attribution dependent events included feedback, frustration, sympathy, and expectations of failure. For feedback, non-significant small to medium effects were produced both between the groups and within the groups aside from the low ability/low effort no autism vignette which produced a decrease in positive feedback for the control group and an increase in positive feedback for the intervention group. Prior attribution studies from Woodcock et al. (2010, 2012, 2013) and results from the preliminary study, indicated that pre-service practitioners were more likely to provide more negative feedback to students who demonstrated a lower amount of effort, and to students without a disability. Frustration also produced non-significant small to medium effects both between the groups and within the groups. Given these results it is unclear if AR has an effect on practitioner feedback or frustration. Further research is needed to identify if AR can lead to changes in feedback and frustration, or if there are other relevant factors related to frustration and feedback that should be identified instead.

Attribution retraining appeared to have a more significant effect on sympathy. There was a high effect increase for both groups for the low ability/high effort/autism vignette, and a high

effect significant decrease for both groups for the high ability/low effort/autism vignette in terms of sympathy felt towards the learner. Additionally, there was a significant decrease in sympathy for both groups for the high ability/low effort/no autism vignette. More research is needed to determine if these sympathy changes are due to the fact that AR can change how practitioners perceive effort relative to the learner's ability to control their effort.

Expectations of failure were also impacted by AR. A significant two-way effect was revealed for the low ability/high effort/no autism vignette as expectations increased for the control group, but decreased for the intervention group, while expectations decreased for the control group but increased for the intervention group for the high ability/low effort/no autism vignette. Expectations of failure also increased, with a high effect, for both groups for the high ability/high effort/ no autism vignette. It is unclear why expectations changed the way they did, but it is interesting to note that expectations only changed, with a large effect, for the learners without ASD. This may be due to the fact that experienced practitioners who have worked with children with ASD are more resistant to the effects of the ASD label as it relates to expectations of failure. Overall, respondents indicated their expectations of failure were consistent across various levels of effort and ability, regardless of ASD status, aside from the low ability/low effort/no autism vignette which produced noticeably higher expectations of failure which was consistent with the results from the preliminary study. Future research should further investigate the effects of experience on practitioner expectations of failure.

Attribution Rankings

Attribution rankings included the options of ability, effort, disability, and environment. Respondents were asked to rank the variables 1 through 4, with 1 being the variable that most likely caused the failure. I found no prior research that required participants to rank attribution in

this way. Attribution retraining (AR) appeared to have minimal effect on how respondents ranked ability. Ability produced all medium to low effects both within the groups and between the groups. Similarly, AR did not appear to affect how respondents ranked the environment variable, and only produced medium to low effects within and between groups, as well.

However, large effects for both effort and disability were observed. Following the intervention phase, both groups reduced their ranking of disability as a cause of failure in three groups: the low ability/high effort/autism group, and the high ability/low effort/autism and no autism groups. There was a significant increase in disability as the cause of failure in the control group, and a decrease in the intervention group, for the low ability/low effort no autism vignette. Additionally, effort decreased in ranking for both groups for the low ability/low effort/no autism vignette to a significant degree, and effort decreased for the control group, but increased for the intervention group to a significant degree. Effort also decreased in ranking for both groups for the high ability/high effort/autism vignette.

These results are consistent with both the preliminary study and the attribution dependent event results which indicated effort and disability as key attribution variables. Practitioners appear to heavily emphasize the amount of effort given when it comes to identifying a cause for failure. For the autism vignettes, if the learner demonstrated a high amount of effort, regardless of ability level, then disability was ranked as the leading cause of failure. However, if the learner in the vignette demonstrated low amounts of effort, then effort was listed as the leading cause of failure, with disability ranked as the second leading cause of failure the majority of the time. Similarly, for the non-autism vignettes, effort was always ranked first for the low effort learners. No clear pattern was noticed regarding ability and environment.

Overall, despite some significant changes, and some changes with a large effect, results of the quantitative portion of the primary study were inconclusive regarding the efficacy of AR for developing adaptive attributional tendencies in ECE practitioners. It is unclear the impact AR can have on attributional tendencies of practitioners when compared to a group that does not receive any retraining. However, findings do suggest that expectations of failure are potentially changeable with continued education. Findings also suggest that effort is highly influential when it comes to attribution and attribution dependent events, with disability and ability acting as modifiers for attribution dependent events and attribution rankings. It is also interesting to note that, compared to attribution studies that used pre-service teachers with limited experience with disabilities, that these practitioners who were experienced and who had worked with children with disabilities seemed less affected by the disability label as far as attribution was concerned. This potentially highlights the importance of fieldwork and in-person training opportunities during the course of practitioner training.

Qualitative Discussion

The qualitative portion of the primary study explored the thoughts and beliefs of attribution of success and failure of practitioners. Consistent with the literature on attribution theory, practitioners identified several external factors and child (internal) factors that contribute to success and failure in ECE. The focus for external factors was primarily on the family support systems and the child's experiences. The comments by the practitioners echoed prior research that found the experiences of young children in the first 2-3 years of their life, beginning at home, dramatically influence development, and that adversities prior to birth and in early childhood, including undernutrition, stress, and poverty can hinder development and affect the child throughout their life (Richter et al., 2019).

Practitioners also put an emphasis on social-emotional support and learning for early learners. Social-emotional learning was mentioned several times as both a child-based and external factor that affected learners. It is worth noting that practitioner 4 did not mention any child-based factors which was interesting given that practitioner 4 was not a teacher, but rather a practitioner who worked in early intervention. The emphasis by educators on social-emotional learning was not surprising given the current popularity of social-emotional learning in ECE practice and research (Denham, 2006; Zins et al., 2007). All three teachers explicitly discussed self-regulation as a critical factor in ECE which was consistent with prior research that identified self-regulation as a critical competency for early learners (Bodrova & Leong, 2006). Overall, practitioners consistently identified evidence-based practices when discussing factors that influence children's outcomes all while demonstrating an understanding of how past experiences influence future outcomes.

The attribution of outcomes to family involvement extended to the theme of practitioner challenges. Respondents stated that practitioners can start to harbor resentment towards families that they perceive as "not even trying" and this can lead to a lack of motivation on the part of the practitioner. Subsequently, when this motivation disappears, it can sometimes lead to a feeling that what is taking place in the learning environment is futile given that it will not carry into the home environment. It is well documented that the relationship between the teacher and the parent is an essential part of a successful ECE experience (Lang et al, 2013).

This sentiment was directed at young teachers by two of the respondents, in particular, and this was consistent with the idea that experience is something that, while necessary, is not sufficiently acquired prior to practitioners going into the teaching environment. One of the respondents described this as "symptomatic" of a system that does not provide enough exposure

and practice to practitioners. This was particularly insightful given the lack of retention of the professional development on the part of the participants in this study, and considering prior research on professional development that theorizes skills can only advance through practical application and experience in real-life contexts (Dall'Alba & Sandberg, 2006).

Finally, the practitioners had several different ideas on promoting success for their early learners. All the practitioners expressed an eagerness and willingness to adapt in situations that called for flexibility. This idea of flexibility was highlighted by the respondents' commitment to accommodations and diverse instruction, as well as providing access to a variety of environments. This type of flexibility is critical for proper attribution as proper attribution calls for targeting controllable and external variables. Additionally, this type of flexibility is important when teaching children with special needs. One practitioner mentioned that nearly half of her current class either has a confirmed disability or delay.

Although modeling and continuing education were also mentioned, the focus in this theme was once again on the family and on social-emotional learning. The idea of a "partnership" appeared this time in reference to family collaboration. The respondents were consistent throughout their discussion of family collaboration, reemphasizing how critical that partnership is for promoting success. As for social-emotional learning, respondents talked about staying positive with their students, and teaching positivity, in the face of adversity or failure, while demonstrating empathy to their students. Positivity is a key component of evidence-based social-emotional learning programs (CASEL, 2008).

As it relates to attribution, practitioners did discuss controllable and unstable variables like effort and the environment. A couple of the respondents also mentioned that we should never blame the child for failure. These are positive signs, in conjunction with the flexibility

demonstrated by all respondents, that these practitioners are searching for controllable variables in their learning environments. With that said, the respondents placed a heavy emphasis on the family. The importance of family cannot be overstated for young learners, but there are numerous variables that may factor into how involved a family is and what that family support system looks like for the learner. Family is often uncontrollable and is often stable. Similarly, social-emotional learning was the blanket under which all other ideas lived for these respondents. Although respondents expressed an eagerness to adapt, their core ideas appeared to tie into one singular teaching methodology.

Limitations

Regardless of the amount of planning that goes into a study, there will always be limitations. This section will discuss several limitations associated with this dissertation:

First, a convenience sample was used for both quantitative and qualitative data collection which led to a small sample size and a possible lack of diversity in respondents. The small sample sizes likely impacted the significance and the effect sizes of the quantitative data. Although the plan was to use a purposeful sample for the qualitative data, this plan was unfeasible given the circumstances around recruitment.

Additionally, recruitment for the qualitative portion of this dissertation was interrupted by an event that occurred on the university campus. This event led to the cancellation of the remainder of the Fall 2023 semester which is when recruitment took place. This cancellation brought recruitment to a standstill. Recruitment for interviews was not resumed until the following semester for participants who consented during the quantitative portion of the study.

Second, the two videos used in the intervention for the primary study were not pilot tested prior to intervention. The videos were grounded in research from Kennedy (2012), and

based on Mayer's (2008) framework, but several adaptations were made to fit the needs of the intervention and the preferences of the researcher. The survey instruments used in both quantitative portions of the study were based on instruments from Clark (1997) and Woodcock and Vialle (2010, 2011, 2016). These researchers did pilot test those instruments, but the instruments used in this dissertation were not identical to those, and the disability was explicitly stated within the vignettes for this dissertation. An additional ranking component was also added to the survey instrument for the primary study. There was also no time delay between the pre-test and the post-test during the primary study which may have led to replicated answers from participants.

Third, semi-structured interviews were used to collect qualitative data. The interviews were done by the researcher who also wrote the vignettes and made the videos for the intervention. Given that semi-structured interviews are already prone to bias (Alshenqeeti, 2014), it can be assumed that the researcher carried certain biases into the interview protocol and throughout the analysis and discussion of the data. Additionally, during the interviews participants were not asked about their willingness to use specific interventions or other strategies specific to student outcomes. Participants were only asked about their willingness to be flexible when it came to their approach with their learners. Finally, there was minimal prior research on this topic which may have limited the discussion portion of this dissertation. The initial intention was to use a mixed method design to integrate the quantitative and qualitative data and improve the overall analysis, but given the other limitations, an integration strategy did not make sense with the data that was collected. Also, using Creswell and Creswell's (2022) guidelines for an explanatory sequential design, the qualitative data were not associated closely enough with the quantitative data based on the facts that interviews were delayed, and

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participants struggled to remember the intervention. Due to this, this dissertation lent itself more to a pilot study in preparation for future research.

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Implications

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The three prior studies were all foundational studies for future attribution research in ECE. Given the limited amount of current research on attribution and AR in ECE, there are strands of research that are ready to be explored in the future. There are also implications for practitioners despite the limitations of these studies. Implications for future research and practice are discussed below.

Future Research

Regarding AR, future research should refine and expand the AR intervention. The current study used a modified and shortened version of AR which lacked a proper consolidation phase which may have contributed to a lack of retention on the part of participants. The participants in the follow-up interviews stated they did not remember much of the intervention, or that the intervention had little effect on their practice. Consolidation exercises are recommended as a way for participants to elaborate on the information portion of the intervention, a strategy which may lead to improved efficacy (Hall et al., 2006; Haynes et al., 2006). Broadly speaking, more AR research is needed with practitioners as most AR research involves older students. In addition to practitioners, AR research should strive to include parents and caregivers in future interventions. Practitioners during the interviews repeatedly made note of their reliance on the families of their students, in particular the parents and the home life of the students.

Regarding attribution of cause, future research should continue to explore attributional tendencies across different populations and with different participants, including parents, to better understand how student characteristics impact attribution of outcomes in ECE.

Additionally, attribution rankings should be further explored and expanded upon to better reflect the lived experiences of ECE practitioners. This study included ability, effort, environment, and disability as attribution variables, but future research could include variables like home environment, family involvement, and social-emotional support. Future research could also ask questions about specific interventions or strategies that practitioners may or may not be willing to try with their learners. Valdivieso-León and Román-Sánchez (2020) indicate that there may be additional ECE specific causal attribution categories. Attribution research should also start to examine how attribution affects the behaviors of practitioners and parents through observation of the classroom, home, or therapy environment. To this point, how attribution affects public behavior is largely speculative and based on indirect quantitative data.

Regarding research methods, future attribution research should strive to include qualitative data of some sort within attribution studies. Specifically, mixed methods approaches should be prioritized in the future as current research is limited in these two areas of methodology. Dawadi et al., (2021) provide several justifications for, and benefits of, using mixed methods in research such as expanded depth and breadth of research, a more complete and holistic view of the findings, and more effective and refined conclusions. Given the personal nature of attribution, and the often-homogenous workforce in ECE, it is important to explore the personal thoughts and beliefs of practitioners. Qualitative and mixed method attribution research should also extend to parents who, as previously noted, are a necessary and critical part of the ECE team.

Practice Implications

It is important for practitioners to continue assessing their own attributional tendencies as often as possible. Proper attribution may impact how practitioners respond to their learners. For

example, Carter et al. (2014) identified that teachers who attribute behavior to uncontrollable causes tended to respond with more punitive or harsh punishments. Additionally, interview participants pointed out that educators will sometimes give up on learners if those educators feel that they are not receiving enough outside support. On-going short-form AR may be an effective tool to use as a reminder of what proper attribution looks like in practice. Practitioners who participated in the interviews also consistently discussed the importance of social-emotional support in the classroom and the family support system as it relates to success and failure of their students. These two variables, while empirically supported and important to the development of the child, are often either difficult to observe and measure, or out of the control of the practitioner. Practitioners should start to include more controllable and measurable variables in their analysis of outcomes starting with the classroom environment and their instructional and behavior management strategies. Practitioners expressed a willingness to adapt to the needs of their students in the interviews, so it is important that practitioners continue to expand their own repertoires to serve the needs of all their learners. Based on my research and experience, practitioners should introduce more data collection and data-driven approaches into their repertoires. Practitioners should also conduct routine ecological assessments to better understand their own teaching environment and how it may be affecting their learners. Although practitioners may be using data to guide their decisions already, it was not mentioned in the interview portion of this dissertation. Data-driven practices may lead to a more objective and measurable approach for meeting the needs of all students.

As it relates to family collaboration, with parents and caregivers in particular, practitioners should continue striving for beneficial collaboration, while also acknowledging that, in many cases, the situation that the learner is born into is out of anyone's control. Although

parent training and involvement can improve outcomes, a lack of involvement should not influence how that practitioner controls their own environment or instruction. Practitioners should work to accept things that are out of their control in order to minimize the effect of those uncontrollable variables on their own behavior. Another example of an uncontrollable variable is a disability or delay. Practitioners in the interviews mentioned that once a delay or possible disability was identified then it was out of their hands and it was time to get support from the school. While additional support for students is beneficial, this approach shifts the responsibility of the student away from a practitioner due to an uncontrollable variable while introducing another variable that is often uncontrollable in support from the school. Practitioners should strive to acknowledge the delay or disability and then work to improve their own instruction and environment using data and objective observation.

Quantitative results indicated that the amount of effort shown was frequently associated with the attribution ranking given by practitioners, while there was no clear pattern regarding ability and environment. However, practitioners still demonstrated a tendency to attribute cause to a learner's disability even when the learner was not diagnosed with a disability. It was also mentioned in the interviews that some practitioners felt unprepared to deal with learners who had diverse needs when they first started in their careers. Practitioner training programs should strive to improve how they prepare practitioners for learners who have a disability or who have diverse needs. Practicing practitioners should continue to acknowledge any known disability or difference but should avoid attributing outcomes to these uncontrollable factors, especially when no diagnosis exists.

Conclusions

Although the small sample size, and other limitations, may impair the overall findings of this dissertation, this dissertation was able to construct a foundation on which future research can be built upon and established a starting point for future mixed methods research involving attribution by ECE practitioners, an area that is lacking in research. Although the efficacy of attribution retraining for practitioners was not established, results did indicate change in attribution is possible. Additionally, results indicate practitioners may attribute cause to a learner's disability, even if a disability is not present, while putting less stock in the controllable environment. The results from the thematic analysis supported the notion that practitioners may not give enough weight to what they can control in the education process. Practitioners discussed, at length, the importance of social-emotional support and family collaboration and how these two variables play a role in learner success and failure. Replications or modifications of this research should take these two variables into account as they play a significant role in ECE work. Future research should continue to explore the lived experiences and personal thoughts and beliefs of ECE practitioners and begin to explore the thoughts and beliefs of parents, regarding attribution of success and failure while also refining and reintroducing attribution retraining interventions to both practitioners and parents, alike. These three dissertation studies combined addressed the following gaps in research: attribution research in ECE, attribution research related to ASD, AR research relative to practitioners, specifically ECE practitioners, and qualitative research related to attribution. Results provide preliminary data on the effects of experience on attribution, the limitations of AR and how to correct those limitations, particularly in a real-world setting rather than a controlled environment, and the thoughts and beliefs that shape how ECE practitioners interpret and address outcomes.

APPENDICES

Appendix A: IRB Approval 1

<div align="center">

UNLV

ORI-HS, Administrative Review

Modification Acknowledgment

</div>

DATE: October 18, 2023

TO: Joshua Baker
FROM: Office of Research Integrity – Human Subjects

PROTOCOL TITLE: UNLV-2022-238 Attribution of a Student With and Without Autism
SUBMISSION TYPE: Modification

ACTION: Exempt 3(i)(A)
EFFECTIVE DATE: October 18, 2023
REVIEW TYPE: ADMINISTRATIVE REVIEW

Thank you for submission of amendment/modification materials for this proposal. ORI-HS has acknowledged your submission. No additional action is required at this time prior to moving forward with the acknowledged changes.

PLEASE NOTE:
Should there be any change to the proposal, it will be necessary to submit a modification for review. No changes may be made to the existing proposal until modifications have been approved/acknowledged.

Any non-compliance issues or complaints regarding this proposal must be reported promptly to this office.

If you have questions, please contact the Office of Research Integrity - Human Subjects at IRB@unlv.edu or call 702-895-2794. Please include your proposal title and proposal ID in all correspondence.

<div align="center">

Office of Research Integrity - Human Subjects
4505 Maryland Parkway . Box 451047 . Las Vegas, Nevada 89154-1047
(702) 895-2794.IRB@unlv.edu

</div>

Appendix B: IRB Approval 2

UNLV

ORI-HS, Administrative Review

Modification Acknowledgment

DATE: November 3, 2023

TO: Joshua Baker
FROM: Office of Research Integrity – Human Subjects

PROTOCOL TITLE: UNLV-2022-238 Attribution of a Student With and Without Autism
SUBMISSION TYPE: Modification

ACTION: Approved
EFFECTIVE DATE: November 3, 2023
REVIEW TYPE: ADMINISTRATIVE REVIEW

Thank you for submission of amendment/modification materials for this proposal. ORI-HS has acknowledged your submission. No additional action is required at this time prior to moving forward with the acknowledged changes.

PLEASE NOTE:
Should there be any change to the proposal, it will be necessary to submit a modification for review. No changes may be made to the existing proposal until modifications have been approved/acknowledged.

Any non-compliance issues or complaints regarding this proposal must be reported promptly to this office.

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Office of Research Integrity - Human Subjects
4505 Maryland Parkway . Box 451047 . Las Vegas, Nevada 89154-1047
(702) 895-2794.IRB@unlv.edu

Appendix C: Survey Instrument

Prompt: Each vignette describes a child in kindergarten who just failed an assessment. After reading each vignette, answer the 4 Likert-scale questions.

	No Autism	**Autism**
High Ability **Low Effort**	Richard is in a kindergarten classroom, and is intelligent for his age. He reads above grade level, but will often refuse to participate in class or complete his work even though is able to write independently.	James spends time in an inclusive autism kindergarten classroom. James can add and subtract two digit numbers in his head, and is considered above average compared to the other students, but he does not always respond when asked a question, and frequently lays his head on his desk when the teacher is talking. He receives accommodations for exams and state testing.
Low ability **High Effort**	Blake just entered kindergarten, but is lagging behind his peers in reading due to his limited ability compared to the rest of the class. He always works hard and attempts to complete assignments when told to, but his work is frequently wrong, prompting help from his teacher.	Grant, a kindergartner, was just diagnosed with autism and granted resource room time at his IEP meeting. He works hard, but also works slowly, and is given accommodations for his assignments. His parents are worried about his academic ability compared to his peers, and they routinely help him outside of school when he struggles to complete tasks independently.
High ability **High Effort**	Josh's ability is clearly above his peers. He routinely receives test scores at the 2nd or 3rd grade level even though he is only in kindergarten. He is always the first student finished with work, and offers to help other students who may need some assistance.	Edward spends the day in the general education classroom according to his IEP he received for his autism diagnosis. Although Edward works slower than his peers, his grades are always highest in the class, and demonstrates exceptional academic ability. Whenever Edward is taught strategies for overcoming difficulties, he attempts to use them right away.
Low ability **Low effort**	Matt is at the bottom of his class and is at risk of repeating kindergarten. He never pays attention, rarely completes his homework, and struggles	Charlie has low academic proficiency compared to his peers. He was recently diagnosed with autism, but is still taught in the general education

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	completing tests independently. Occasionally, Matt shows signs of progress, but then quickly goes backwards.	classroom. He never turns in his homework, rarely brings his materials to class, and refuses to participate in group activities. He will start receiving one-on-one resource time to help with his writing and reading.

Note: Each vignette will be followed by these four questions in Qualtrics.

1. **What type of feedback would you give this child? (-5 being the most negative, and +5 being the most positive)**

   -5   -4   -3   -2   -1   1   2   3   4   5

2. **How much frustration do you feel towards this child? (1 is very little and 7 is very much)**

   1   2   3   4   5   6   7

3. **How much sympathy do you feel toward this child? (1 is very little and 7 is very much)**

   1   2   3   4   5   6   7

4. **How likely is it this child will fail again? (1 is very unlikely and 7 is very likely)**

   1   2   3   4   5   6   7

Appendix D: Sample Vignette and Questions from Woodcock and Vialle (2010)

student in the classroom, and information on academic performance. The descriptions identified half of the boys as LD and half as NLD, half as high ability and half as low ability, and, half as expending high effort and half as expending low effort. The boys were matched on ability (high/low), on typical effort (high/low), and on the presence/absence of a LD (LD or NLD). Thus, eight vignettes, creating a two (ability) by two (effort) by two (LD/NLD) matrix were formed. The vignettes did not specifically use the terms high or low ability, high or low effort, or LD or NLD. The vignettes used language and explanations of the hypothetical boys that teachers would be familiar with in classroom contexts. An example of a vignette (high ability / low effort / NLD) is:

> *Phillip is a student in your class. He has greater aptitude for academic tasks than most children in the class. Although he occasionally does excellent work, he is usually off task and does not participate in class often. He rarely completes class assignments and does not do much of his homework.*

After respondents read the vignettes, they were presented with four questions which asked them (a) what feedback they would give to the child, (b) the degree of frustration that they would feel towards the child, (c) the degree of sympathy that they would feel towards the child, and, (d) their expectation of the likelihood of the boy's future failure.

Prompt: Each vignette describes a child in kindergarten who just failed an assessment. After reading each vignette, answer the 4 Likert-scale questions.

	No Autism	**Autism**
High Ability **Low Effort**	Richard is in a kindergarten classroom, and is intelligent for his age. He reads above grade level, but will often refuse to participate in class or complete his work even though is able to write independently.	James spends time in an inclusive autism kindergarten classroom. James can add and subtract two digit numbers in his head, and is considered above average compared to the other students, but he does not always respond when asked a question, and frequently lays his head on his desk when the teacher is talking. He receives accommodations for exams and state testing.
Low ability **High Effort**	Blake just entered kindergarten, but is lagging behind his peers in reading due to his limited ability compared to the rest of the class. He always works hard and attempts to complete assignments when told to, but his work is frequently wrong, prompting help from his teacher.	Grant, a kindergartner, was just diagnosed with autism and granted resource room time at his IEP meeting. He works hard, but also works slowly, and is given accommodations for his assignments. His parents are worried about his academic ability compared to his peers, and they routinely help him outside of school when he struggles to complete tasks independently.
High ability **High Effort**	Josh's ability is clearly above his peers. He routinely receives test scores at the 2nd or 3rd grade level even though he is only in kindergarten. He is always the first student finished with work, and offers to help other students who may need some assistance.	Edward spends the day in the general education classroom according to his IEP he received for his autism diagnosis. Although Edward works slower than his peers, his grades are always highest in the class, and demonstrates exceptional academic ability. Whenever Edward is taught strategies for overcoming difficulties, he attempts to use them right away.
Low ability **Low effort**	Matt is at the bottom of his class and is at risk of repeating kindergarten. He never pays attention, rarely completes his homework, and struggles	Charlie has low academic proficiency compared to his peers. He was recently diagnosed with autism, but is still taught in the general education

	completing tests independently. Occasionally, Matt shows signs of progress, but then quickly goes backwards.	classroom. He never turns in his homework, rarely brings his materials to class, and refuses to participate in group activities. He will start receiving one-on-one resource time to help with his writing and reading.

Note: Each vignette will be followed by these five questions in Qualtrics.

1. **What type of feedback would you give this child? (-5 being the most negative, and +5 being the most positive)**

   -5   -4   -3   -2   -1   1   2   3   4   5

2. **How much frustration do you feel towards this child? (1 is very little and 7 is very much)**

   1   2   3   4   5   6   7

3. **How much sympathy do you feel toward this child? (1 is very little and 7 is very much)**

   1   2   3   4   5   6   7

4. **How likely is it this child will fail again? (1 is very unlikely and 7 is very likely)**

   1   2   3   4   5   6   7

5. **What likely caused the failure? (Rank the following 1 through 4, with 1 being the most likely reason for failure)**
   Effort   Ability   Disability/Possible Disability   Environment

Appendix F: Characteristics of ASD Presentation

Signs and Symptoms of Autism

Sign:

Social Communication Deficits

Symptoms:

- Does not share interests with others

- Does not show different emotions through facial expressions

- Does not gesture, like waving goodbye or pointing at objects

- Does not join others in play

https://vimeo.com/827785197?share=copy (Full Video)

Appendix G: Attribution Retraining Presentation

Interview Protocol

Thank you for participating in an interview today. Before we begin, I would like to verify that you are okay with me recording the interview for research purposes with your verbal consent. (Once verbal consent is received, start the recording).

Thank you for consenting to participate in this research study and for your consent to record the interview. The goal of this interview is to learn about your experience with the professional development survey and video, and explore your thoughts around the causes of success and failure for the children you work with, or will work with in the future. Do you have any questions before we begin?

I have two sets of questions that I'm going to ask you but, first, I'm interested in learning more about your background.

Rapport Questions
The purpose of this section is to establish rapport with the interviewee, and to ease them into the interview. This will also serve the purpose of gathering additional information about the interviewees.

1. Can you tell me a little bit about your background and why you chose early childhood education?
2. What has been your experience so far working with young children both with and without disabilities?

Possible interview topics and examples of questions are included below. Please note that these will likely change based on the quantitative survey results.

Interview Question Topic A: Experiences with Attribution
The first set of questions are about attribution of success and failure based on your own personal experiences as a student and as a practitioner, so far.

5. In your experience, why do you think students succeed? What might contribute to a student's success? What role do early educators or professionals have in these successes?
6. Can you think of a scenario where you've seen a learner fail? What do you think leads to young learners failing? What can early educators or professionals do to prevent further failure once a learner has experienced failure?

7. In your own experience, how well do educators or professionals respond to failure in early childhood classrooms or settings?
8. How willing are you to change your own approach when one of your learner's experiences failure?

<u>Interview Question Topic B: Social Validity of Attribution Retraining</u>
The second set of questions are about the survey and videos that you completed as part of the professional development module.

6. What were your experiences with professional development prior to your participation in this study? What were your impressions of this professional development?
7. Is there anything you would have changed about the video(s) you watched during the professional development?
8. What were your experiences with children with autism prior to this professional development?
9. What were your experiences with attribution, or attribution of success and failure, prior to this professional development? In what ways have your views on what causes success and failure changed following this professional development?
10. How important is it for early childhood educators to identify the reasons for success and failure in their classroom or program? Why? How would you typically respond to a learner that just experienced failure? Has the way you respond to success and failure changed following professional development? If so, in what way?

Thank you for your time today (End recording at this time).

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    students with specific learning difficulties. *Learning and Individual Differences, 45,* 252–

    259. https://doi.org/10.1016/j.lindif.2015.12.021

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CURRICULUM VITAE

Alex J. Faucheux
PHD CANDIDATE AT UNIVERSITY OF NEVADA, LAS VEGAS
RESEARCH COORDINATOR AT UNIVERSITY NEVADA, LAS VEGAS
LICENSED BOARD CERTIFIED BEHAVIOR ANALYST
alex.j.faucheux@gmail.com

EDUCATION

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Ph.D   **Special Education**
       Autism and Early Childhood Education
       University of Nevada, Las Vegas
       Department of Early Childhood, Multilingual, and Special Education
       Committee: Dr. Gerilyn Slicker (Co-Chair), Dr. Joshua Baker (Co-Chair), Dr. Joseph Morgan, Dr. Stephanie Gerow, Dr. Katherine Feather
       Dissertation: Causal Attribution Tendencies of Early Childhood Practitioners and the Efficacy of Attribution Retraining: A Mixed Methods Study
       Spring 2024

M.Ed.   **Special Education**
       Concentration in Applied Behavior Analysis
       Penn State University

MBA   **Business Administration**
       University of Louisiana-Monroe

B.S.   **General Business**
       Minor in Communication Studies
       Louisiana State University

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PROFESSIONAL EXPERIENCE

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2023-Present   University of Nevada, Las Vegas
         Research Coordinator

2021-Present   ABA Exam
         Review Founder

2020-2023   University of Nevada, Las
         Vegas Graduate Assistant

2020-2023   Advanced Neuro Connections
         Board Certified Behavior Analyst (BCBA)

2018-2020	Advanced Neuro Connections
	Board Certified Assistant Behavior Analyst (BCaBA)
2016-2018	Southwest Autism and Behavioral Solutions
	Board Certified Assistant Behavior Analyst (BCaBA)
	Registered Behavior Technician (RBT)
2014-2016	Click Here Digital
	Executive Director Social Media Marketing
	Executive Account Consultant
2011-2014	Christian Life Academy
	Head Coach – 3rd-6th Grade Football
	Head Coach – High School Junior Varsity Baseball
	Assistant Coach – High School Varsity Baseball

TEACHING EXPERIENCE

University of Nevada, Las Vegas

Summer 2023	ESP 762	Ethics in Applied Behavior Analysis
Spring 2023	ESP 730	Parent Involvement in Special and General Education
Fall 2022	EDSP 411	Students with Disabilities in General Education Settings
Fall 2022	ECE 456	Positive Discipline in Early Childhood Programs
Summer 2022	ESP 762	Ethics in Applied Behavior Analysis
Spring 2022	EDSP 411	Students with Disabilities in General Education Settings
Spring 2022	EDU 203	Introduction to Special Education
Fall 2021	EDSP 423	Serving Individuals with Disabilities and Their Families
Fall 2021	EDU 203	Introduction to Special Education
Spring 2021	EDU 203	Introduction to Special Education

Fall 2020   EDU 203   Introduction to Special Education

PUBLICATIONS

Faucheux, A. & Weglarz-Ward, J. (2022). Expectations of Failure: A Review of International Perspectives on Teachers and Learning Disabilities. *Learning Disabilities: A Multidisciplinary Journal.* 27(2)

Manuscripts Under Review

Hustedt, J., Slicker, G., Kelly, C., **Faucheux, A.** (2023) Enrollment of Priority Populations and Child Demographic Diversity Profiles: Links with State Subsidy Policies. *Early Childhood Research Quarterly.*

Slicker, G., **Faucheux, A.**, Bengochea, A. (2023) A Nationwide Multidimensional Examination of Early Care and Education Access: Links between Access Profiles, Equitable Enrollment, and Public Funding Policies. *Early Childhood Research Quarterly.*

Manuscripts In Preparation

Faucheux, A. (In preparation) Behavior Analysis Practitioner Attribution of Student's with and without Autism.

Slicker, G., **Faucheux, A.**, Hustedt, J., Kelly, C. (In preparation) Center- and Community-Level Predictors of Enrollment of Priority Populations in Early Care and Education

Faucheux, A., Ain, J., & Baker, J. (Revisions). Practitioner Attribution of Student's with Autism: A
Pilot Study.

POLICY AND TECHNICAL REPORTS

Kelly, C., Hustedt, J., Slicker, G., **Faucheux, A.** (In preparation) *Enrollment of Priority Populations and Child Demographic Diversity Profiles.* A Policy Brief from Research Supported by the Administration for Children and Families.

CONFERENCE PRESENTATIONS

American Educational Research Association 2024 – Latent Profiles of Nationwide Early Education Access and Links with Equitable Enrollment and Center Funding

Conference on Learning Disabilities 2021 – *Poster Presentation* – Expectations of Failure: A Review of International Perspectives on Teachers and Learning Disabilities

FELLOWSHIPS

2022-2023   Nevada Institute on Teaching and Educator Preparation
                       Community Engagement Pathway Fellow
                       University of Nevada, Las Vegas

LICENSES AND CERTIFICATIONS

2020-Present   Board Certified Behavior Analyst, BACB #1-20-42498

2020-Present   Licensed Behavior Analyst, State of Nevada, LBA0329

SERVICE AND OTHER

2023   Graduate Student Teaching Award
                       University of Nevada, Las Vegas

2021-2022   UNLV Boyd Law School Educational Advocacy Law Clinic
                       University of Nevada, Las Vegas

2020-2021   Assisted in Developing the 5th addition Verified Course Sequence for the
                       Applied Behavior Analysis program at the University of Las Vegas, Nevada
                       University of Nevada, Las Vegas

SOFTWARE TRAINING

SPSS, Mplus, R, NVivo, Dedoose, Qualtrics