2022

Implicit Emotion in Decision-Making: Examining Emotional State Differences in Educational Leaders When Engaged in a Special Education Computer Simulation

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IMPLICIT EMOTION IN DECISION-MAKING: EXAMINING EMOTIONAL STATE DIFFERENCES IN EDUCATIONAL LEADERS WHEN ENGAGED IN A SPECIAL EDUCATION COMPUTER SIMULATION

by

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A dissertation submitted in partial fulfilment of the requirements
for the degree of Doctor of Philosophy
in the Department of Learning Sciences and Educational Research
in the College of Community Innovation and Education
at the University of Central Florida
Orlando, Florida

Summer Term
2022

Major Professor: Lisa A. Dieker

ABSTRACT

The researcher investigated 17 participant, ten novices' and seven experts', scores of facial emotion and decision-making while engaged in a special education simulated case conference, SchoolSims. Educational leaders' facial emotions during decision intervals were examined to determine if differences existed between novice and expert computer evidence scores of decision-making and facial emotion. Results indicated no significant differences between groups, but mean evidence scores of joy, surprise, anger, and disgust were expressed at higher levels by novice leaders. While expert leaders' scores of facial emotion were expressed less frequently scores of each emotion remained close to the group mean as indicated by standard deviation scores. Implications to identified facial emotion and decision-making differences provide initial exploratory findings in potential differences between novice and expert leaders' decision-making and emotional response when leading a simulated conference. This study created a structure for use of simulation and online facial tracking in an online environment. Further investigation of education leaders moving from simulation decision-making to real environments is needed. Future directions should include providing educational leadership with the effects of different facial emotions during decision-making in simulated learning environments as part of their preparation program to increase their capacities in effectively working with families and ultimately in improving outcomes for students with disabilities.

ACKNOWLEDGEMENTS

"You become. It takes a long time. That's why it doesn't happen often to people who break easily, or have sharp edges, or who have to be carefully kept. Generally, by the time you are Real, most of your hair has been loved off, and your eyes drop out and you get loose in your joints and very shabby. But these things don't matter at all, because once you are Real you can't be ugly, except to people who don't understand". -Margery Williams, *The Velveteen Rabbit*

I am sincerely honored to have been selected as a LEADNEXT scholar, to learn from innovative faculty, and to work alongside individuals to prepare the next generation of special educators to support improving outcomes for students with disabilities. The time I have spent in my doctoral program at the University of Central Florida (UCF) has been stricken by a series of unfortunate events. Losing some of my most influential family members, friends, and acquaintances while also enduring the various phases of a pandemic made me ever grateful for the community of supporters that helped me along the way.

To my family:

To my husband, Terry, you have been everything to me during my life's journey. No matter how far the miles are between us you support everything I do. Your perspectives keep me grounded and provide a view that I appreciate most about you. Thanks for keeping me laughing when I needed it most. You are my rock, and I love you dearly. Excelsior!

To my children -Valerie and Jacob, thank you for being flexible and understanding during this journey. Many life changes occurred during these three years, and I recognize it was

extremely difficult for you as well. I appreciate your willingness to persevere through it all. I have unconditional love for you and thank you for loving me through it all.

To my granddaughters – Addie and Johanna, thank you for being a beacon of light and source of joy. I know the future is bright with you in it!

To my sister and brother, thank you for taking on all the extras and everything you did for dad to fill in the gap until I could arrive. I appreciated all your updates and check-in calls throughout this journey. I love you dearly, and you all will be glad to know, the paper is finally done!

To my mom, thank you for always listening to my dissertation rambles even when you did not understand what in the world I was talking about. Thank you for believing in me, acknowledging my hard work and dedication, and your encouragement along the way. I love you so very much.

To my Dad and Grandpa Bill, I owe my work ethic and never give up attitude to you. Observing your persistence when the odds were stacked against you kept me motivated. You imparted in me a willingness to help others when they do not deserve it, or others do not see value in it. I am forever grateful for your example. I miss you both daily!

To the rest of my immediate and extended family, I love each and every one of you. You have each influenced me in some way molding me into the person I am today. I am beyond thankful to each of you for your love and support. I know I can count on you to be there if I ever need you.

To my North Putnam and ONT family, thank you for taking me in as a paraprofessional trying to navigate the waters of education over 20 years ago. You are the foundation to my journey and hold a dear place in my heart. You all continued to bless and cheer me on never letting the miles come between us. I am forever grateful to have been a part of the Cougar Nation community.

To my cohort and UCF family, I could not have made it without you all. Thank you for welcoming me with open arms. You each hold a special place in my heart I will always cherish our time together.

To my simulation development team and cast, Monica, Tahnee, Ashley, Christine, Kenneth, Rico, and Molly. Thank you for stepping up when I needed you most and sacrificing time and energy away from your own obligations to assist me. Your contributions and expertise were irreplaceable. I so appreciated the many laughs we shared during the recording sessions and promise to release the blooper scenes for you all to enjoy.

To my dissertation committee, Dr. Dieker, Dr. Hines, Dr. Taub, and Dr. Billingsley, thank you all so much for being such amazing role models and dedicating countless hours to my mentorship. I have truly benefitted from your investment and knowing each of you. The guidance and perspectives I gained from each of you is priceless. I am forever changed and cannot thank you all enough!

To my hiking buddies (Kiera, Sacha, and Lindsey), our seven-mile nature Saturday's will always be a cherished memory. Talking stats and research questions is so much better in the

beauty of the great outdoors. Thank you for providing me moments of sanity during this crazy time.

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LIST OF ABBREVIATIONS

ACR – Annual Case Review

ALT – Advanced Learning Technologies

CEC– Council for Exceptional Children

DDDM – Data Driven Decision Making

ELT – Experiential Learning Theory

ESSA – Every Student Succeed Act

FACS – Facial Action Coding System

FAPE – Free Appropriate Public Education

IDEA – Individuals with Disabilities Education Act

IEP – Individual Education Program

ISLS – International Society of the Learning Sciences

LEA– Local Education Agency

LRE – Least Restrictive Environment

ODC – Online Data Collection

OKGF – Objective Knowledge Growth Framework

PAR – Public Agency Representative

PSEL – Professional Standards for Educational Leaders

SVM – Support Vector Machine

SWD – Students With Disabilities

CHAPTER ONE: INTRODUCTION

The majority of the 270,200 (U. S. Bureau of Labor Statistics, 2020) employed educational leaders accountable for students with disabilities (SWD) lack the knowledge, skills, and preparation to effectively lead special education programming or potentially to make the best decision for effective programming (Lynch, 2012). With only 8 states (Colorado, Iowa, Maine, Minnesota, Nebraska, North Dakota, Ohio, and Vermont) containing language referencing special education in educational leadership certification requirements (Lynch, 2012; Rodl et al., 2018), a primary role of a leader is to serve as the local education agency (LEA) representative to ensure decisions made provide students with disabilities (SWD) appropriate services.

The Every Student Succeeds Act (2015) established new leader accountability requirements in districts with a focus on student outcomes, including SWD. The mandate of educating SWD in the least restrictive environment (LRE; IDEA, 2004) placed leaders in critical decision-making roles when attempting to meet student needs and equitably ensure a Free Appropriate Public Education (FAPE) (DeMatthews et al., 2020a; Demirdag, 2017). When leaders lack special education knowledge, well-intentioned decisions could violate legal mandates requiring students in special education to receive FAPE as mandated under the IDEA (2004) negatively affecting a student's educational progress in the LRE.

Educational leadership preparation programs are the primary means for providing school leaders with the knowledge and tools to ensure decisions result in effective outcomes (Grissom et al., 2019). A decade of research suggests preparation programs fail to impart the skill sets needed for pivotal leadership necessary to produce meaningful school change for student growth, achievement, and outcomes (Quinn et al., 2015). Programs tasked with producing educational

leaders for the 21st century often continue to lack key components and are ridiculed for being out of touch with day-to-day job challenges (Gilbert, 2017).

Use of advanced technologies and interdisciplinary methods within the learning sciences could help with educational leader preparation as they have furthered the development of new pedagogical knowledge in support of teacher performance and student outcomes (Guerriero, 2017). Expert panels from around the world acknowledge the changing nature of teaching and push for education to consider how the learning sciences could better impact practice (Guerriero, 2017; Kalil, 2017; McKenney, 2018). Despite 30 years of learning science advancements, the potential impact in educational leadership is sparse (Tokukama-Espinosa, 2019).

Educational institutions recognize the importance of various forms of emotion-affect, feelings, and mood in teaching and educational leadership (Crawford, 2007; Oplatka, 2011, 2017; Berkovich & Eyal, 2015). These feelings and moods exhibited by educational leaders are subjective impressions or sensations distinguished by intensity and identifiable by persistence and rationale of the percipient (Dale & James, 2015; James & Crawford, 2015). Affect plays an important role to the cognitive function of decision-making and is a collective term used to describe feeling states (Niven, 2013). Affect in combination with cognitive load has the potential to influence decision-making based on an educational leader's prior experiences (Blackley, et al., 2021). As seen in the study of teacher decisions by Blackley et al. (2021), understanding the relationship between cognitive load, affect, and decision-making allows preparation and professional development to target, shape, and equip individuals in the decision-making processes rather than correcting outcomes after decisions are made.

When inexperienced novice educational leaders lack background knowledge, experience, or skill and base their decisions on what they hope will happen rather than reasoning, they have allowed emotion to enter the judgement process (Duke, 2019). Novice educational leaders are susceptible to the phenomenon of emotional hijacking; when emotions overtake one's rational mind; causing impulsivity in actions while ignoring consequences of behavior (Roy, 2015). In contrast, according to Mumford and colleagues (2017) experts possess deep, well-organized, knowledge of which is key when performing in leadership domains. Mumford et al. (2017) identified nine key leadership skill domains cognitively needed and employed overtime: (1) problem definition, (2) cause/goal analysis, (3) constraint analysis, (4) planning, (5) forecasting, (6) creative thinking, (7) idea evaluation, (8) wisdom, and (9) visioning.

The aim of this research is to investigate differences between novice and expert educational leaders' expressions of facial emotion when engaged in simulated special education decision-making. The researcher attempts to bring together innovative research paradigms tapping into micro-level process differences within participants. Educational research studies often adopt a bird's-eye view through observation. Using observational data, the field of education frequently attempts to correlate individual differences in knowledge through ratings of teaching quality or student achievement scores. Consequently, these methods contribute limited understanding to the underlying cognitive processes (Nuckels, 2020).

Currently, educational leadership as identified in a systematic review of the literature, has limited use of innovative technologies as seen in the learning sciences. Using emerging technology (i.e. facial tracking, simulation) to understand differences in expert vs novice leaders could impact the preparation and understanding of educational leaders in making special

education decisions. Limitations in bridging theory to practice persist until a fuller understanding is recognized of the cognitive processing of educational leadership and the influence between expert and novice leaders with regard to emotions in decision-making (Wang, 2020).

Background

According to the U.S. Department of Education's 42nd Annual Report to Congress on the Implementation of the IDEA (2021), over 6 million school-aged students identified with disabilities received special education services under IDEA (USDOE, 2020). Yet, a lack of special education preparation for educational personnel who serve this population persists (Billingsley et al., 2019; DeMatthews et al., 2020b). Educational leadership preparation is critical as these individuals are expected to make difficult decisions in fulfilling IDEA's (2004) Public Agency Representative (PAR) role determining and serving in LEA high-stakes special education case conference meetings. A PAR, typically a school administrator, is responsible for collaboration between special education and general education teachers, students and families, and in bringing consensus of the ideas to the team using decision-making skills to commit to services for SWD. The development of a student's Individual Education Program (IEP) rests upon these services agreed upon at a minimum during a student's Annual Case Review (ACR) meeting led by the LEA. As a result, key questions have been raised about how pre-service and in-service programs prepare and support educational leaders in developing these critical responsibilities for SWD (Lytle, 2012; Morrison & Ecclestone, 2011; Wang & Bird, 2011). Consequently, a lack of special education knowledge or decision-making counter to parental values could result in costly case conference meeting disagreements (Mueller & Carranza, 2011; Mueller & Vick, 2019). Dispute resolutions are made

available to stakeholders as a requirement to receive IDEA funding (IDEA, 20 U.S.C. §300.500 et seq. (2004). Case conference committee meetings that reach an impasse may result in due process hearings filed by either party.

National data for the 2017-18 school year indicated, 19,337 disputes were filed through the dispute resolution process for children and students ages 3 through 21 served under IDEA, Part B. Of the special education dispute resolutions filed; 9.9% resulted in due process hearings with 30.5% of the 2017-18 complaints still pending at the end of the reporting period (U.S. Department of Education, 2020). Costs associated with due process hearing legal fees average $45,678, but the cost is not limited to just dollar amounts as the emotional toll on all involved is unknown, but costly (Pudelski, 2016).

Educational Leadership Preparation

Providing educational leaders with the knowledge and skills necessary to meet a variety of daily job demands is challenging (Grissom, et al., 2019), but their specific preparation as the LEA is not well-documented. Traditional leadership programs have long been condemned as insufficient in preparing leaders oriented towards special populations and marginalized groups (DeMatthews et al., 2020b; Skousen, 2020).

Currently, educational leadership preparation predominantly combines theory, research, and practice by relying on text, classroom-based discussions, and field experience (Dexter et al., 2020). Major trends appearing in educational leadership research involve individual exploration and all-inclusive empowerment-oriented approaches symbolic of transformational, distributive, and shared leadership themes (Majumdar, 2018). While these trends persist, most school leaders have limited direct experience with children with disabilities as part of their preparation

programs beyond their experiences as a teacher or in their teacher preparation programs (NASSP, 2021). A recent survey of more than 3,500 principals spanning various leadership approaches indicated only 12% felt prepared to support SWD when beginning their leadership role (Stelitano et al., 2020).

The Council for Exceptional Children (CEC) established standards to inform special educator preparation programs, accreditation organizations, and credentialing agencies. The CEC (2012) is an international community of educators who serve as the voice and vision to support improvement and quality of life for individuals with exceptionalities and their families. The CEC's research-based Advanced Professional Preparation Special Education Standards (2012) provide the specialized expertise educators must know and master for safe and effective practice to support individuals with exceptionalities. These advanced standards acknowledge special education specialists must apply expertise and decision-making skills to all stages and purposes of special education assessment. Concerning the CEC Assessment Standards (2012), leadership decisions are included during the following stages: pre-referral and screening, placement for special education eligibility, monitoring and reporting learning progress in the general education curriculum, and in evaluating other IEP goals. Leader decisions within this proposed research study focused on monitoring learning progress in the general education curriculum and evaluating IEP goals as executed through a special education case conference simulation.

Despite the lead agency in special education providing guidance for leadership decision-making, a review of research on the use of problem-based learning in educational leadership programs shows limited preparation in leadership areas of special education. Hallinger and Bridges (2017) identified 73 studies conducted between 1989 and 2016 on the use of problem-

based learning in educational leadership programs and found the current information consists of descriptive “immature” work (p. 256). Further substantiating Hallinger and Bridges findings is the fact that the Professional Standards for Educational Leaders (PSEL), makes only one reference to decision-making and no mention of problem-solving or judgment (National Policy Board for Educational Administration, 2015). Decision-making is part of the PSEL Standard 2 (Ethics and Professional Norms). As a result of the limited work in this area, problem-solving and decision-making have attracted the interest of faculty involved in preparation and development of educational leaders (Duke, 2019).

Learning from Experience

The transition from teacher to educational leader requires novice leaders to acclimate to greater responsibility and managerial decisions (Arar, 2018; Kılınc & Gumus, 2021). Arar (2018) describes the transition from teacher to leader as fierce, difficult, and filled with professional, educational, and managerial challenges. Educational leaders need not have expertise in leadership capacities but possessing fundamental decision-making skills is important. Consequently, in the absence of experience, intuitive thinking is less likely to lead to comprehensively sound decisions (Simon, 1976).

Developing educational leader decision-making and inductive thinking skills is a challenging task. Effective approaches, trends, and practices in educational leadership, identified by Huber (2013), include aspects of self-study; reciprocal exchange; feedback; reflection and planning; and concrete experiences as practiced in simulation. For learning to be most effective, social experiences for the learner should be situated within authentic problem-solving contexts that entail cognitive demands relevant for coping in real-life situations (Campbell, 2013; Sepp et

al., 2019). Stewart et al. (2011), for example, sought to examine how different pedagogical approaches within leadership might impact the application of learning and effectiveness. The authors found modeling pedagogies through practice prepares leaders to comprehend theories in use, and better prepares them for organizational knowledge and creation opportunities in the workplace. Knowledge creation is important when considering simulation as an effective, meaningful approach within educational leadership preparation to bridge active learning of theory to practice (Dexter et al., 2020).

Simulation Training

Given the persistent and pervasive challenges in preparing educational leaders, even with performance-based job-embedded models, many scholars call for the use of simulation to practice decision-making (Anderson, 2014; Johnson et al., 2011; Johnson et al., 2016). Gilbert (2017) reinforced immersive simulations as an innovative and effective tool for leadership preparation based on a pre-post research study of changes in the legal literacy of 43 aspiring administrators after participation in an immersive simulation experience. This type of tool can help educational leaders enter the field prepared to transfer theoretical learning to the rapid pace of on-the-job decision-making (Oplatka, 2009).

Simulation as a learning environment is widely recognized for presently realistic situations or problems to assist participants in learning decision-making and problem-solving skills within a situational context (Issenberg et al., 2005). Simulation is a standardized practice in the medical field. However, the use for educational leaders is just emerging (Volante et al., 2020).

Educational leadership practices of the past used concrete experiences within problem-based learning to bridge theory to practice (Huber, 2013). Hallinger and Bridges (2017) published a review on problem-based learning in school leadership preparation, highlighting the need for rigorous empirical research and other innovative approaches to educational leadership preparation.

Limited critical research has been published examining the impact of simulation use on critical thinking skills, cognitive processes, and problem-based learning for leaders (Mann et al., 2011). Simulation training, conscious of emotional learning theory, employs the activation of stress in learners to improve cognitive performance (Babin et al., 2019). Simulations present context while engaging emotionally triggered cognitive memories allowing participants to practice new skills and behaviors in safe environments without fear of repercussion (Spero, 2012).

Overall, simulations are a practical tool available at various points along a leader's developmental pathway (Mendels, 2012). Simulations afford the opportunity to change training dynamics for leaders and provide meaningful learning opportunities in real-time (DeJong & Grundmeyer, 2018). Meaningful learning in computer-based simulations includes the following characteristics: (a) experimental, (b) experiential, (c) emotional, (d) socio-constructive, (e) self-directed, (f) collaborative, (g) competency-based, (h) goal-oriented, (i) individual, (j) reflective, (h) contextual, (j) critical, (k) active, and (l) responsible (Poikela, 2017). The use of simulation creates parameters for the next generation of problem-based learning environments in educational leadership (Mann et al., 2011). Gaining a deeper understanding of specific effects of different emotions related to learning and knowledge generation within the simulation is

important in designing learning environments and intervention programs and could further advance knowledge and understanding of educational leaders' decision-making processes (Vogl et al., 2019).

Emotion in Educational Decision-Making

Creating intersectionality between leadership decision-making and emotions could be beneficial in the preparation of leaders and in their impact on student learning outcomes. The science of emotion has emerged over time in the fields of philosophy (Solomon, 1993), neuroscience (Phelps et al., 2014), and psychology (Ekman, 2007). According to Lerner et al. (2015), the number of scholarly papers published on emotion and decision-making rarely appeared in the 1970's. Publications on the topic doubled yearly from 2004 to 2007 and then again from 2007 to 2011, indicating growth in the field by various disciplines (Lerner et al., 2015) (See Figure 1). Educational leadership, a field within the education sciences has yet to see the same scholarly momentum as the learning sciences, with regard to emotion and decision-making (Tokuhama-Espinosa, 2019).

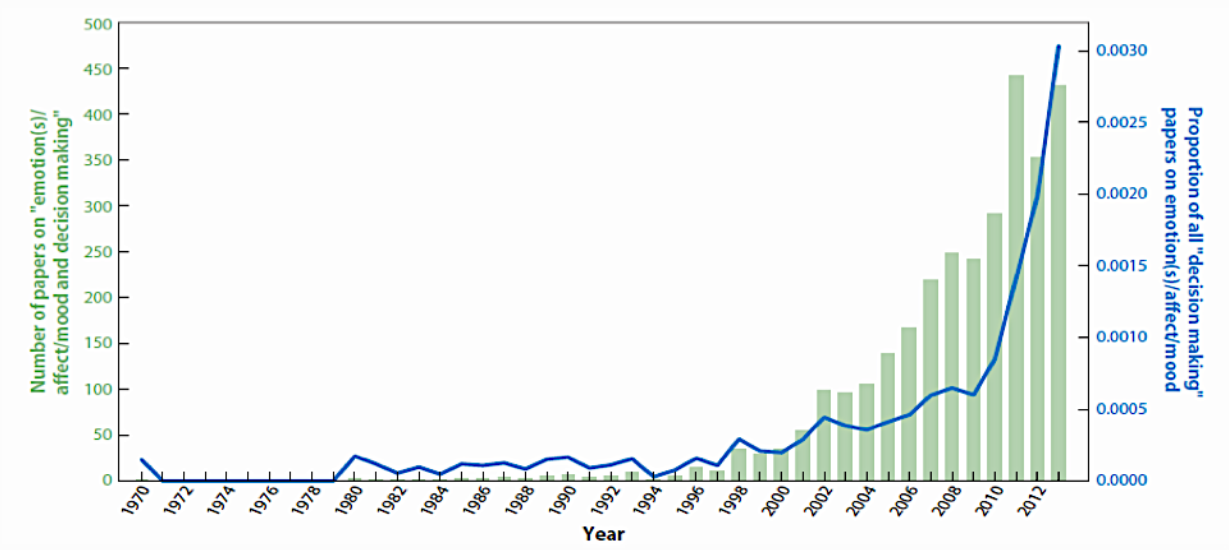


Figure 1: Scholarly Publication Including Emotion

Note. This figure (Lerner et al., 2015) demonstrates the rate of increase from 1970-2014 in scholarly publications including emotion and decision-making.
Source: "Emotion and Decision Making," by J. S. Lerner, Y. Li, P. Valdesolo, and K. S. Kassam, 2015, *Annual Review of Psychology, 66*(1), p. 801 (https://doi.org/10.1146/annurev-psych-010213-115043). Copyright 2015 by Annual Reviews.

The relevance to emotion in education remained largely ignored until the 1990's (Pekrun & Frese, 1992; Schutz & Lanehart, 2002). The field of emotion research in education is currently fragmented and heavily skewed towards students and teachers (Pekrun & Linnenbrink-Garcia, 2014). Many psychological scientists now presume emotion to be the prevalent force of most meaningful life decisions (Ekman, 2007; Frijda, 1988; Lazarus, 1991; Loewenstein et al., 2001), which is why the foci on teachers and students. Emotional aspects shape how an individual interacts with material and the social world around them (Gross, 2015); emotions and their influence on outcomes can be considered positive and negative (D'Mello et al., 2017; Pekrun, 2006). Teacher responsibilities more readily support research of emotion within the context of

teaching and learning (Frenzel, 2014; Pekrun & Linnenbrink-Garcia, 2014), yet how this science could be applied to learning and decision-making of educational leaders is still evolving.

Educational leaders experience a multitude of emotions while fulfilling their obligations during the school day (Gómez-Leal et al., 2022). The responsibility of an educational leader demands daily job obligations in managerial decisions and leadership patterns of emotion and decision-making have minimal overlap to that of a teacher (Arar, 2018). Currently, research on emotion in educational leaders' decision-making is simply unexplored (Wang, 2021).

Learning Sciences in Educational Leadership

How might immersive simulation environments and emerging technologies assist in further understanding emotion in the decision-making of educational leaders? Advances in learning technology have radically influenced genres of learning over the last 50 years (Grasser, 2013). Advanced Learning Technologies (ALTs) include intelligent tutoring systems, hypermedia, virtual reality, and simulation (Azevedo & Gašević, 2019). Learning Science (LS) researchers use interdisciplinary approaches to innovation and creativity to improve learning and learning environments (Nathan & Sawyer, 2014; Sawyer, 2014). The International Society of the Learning Sciences (ISLS) found that LS researchers span all levels in multiple fields and incorporate multiple tool modalities (See Figure 2). The application of learning science is at the core of this proposed research study.

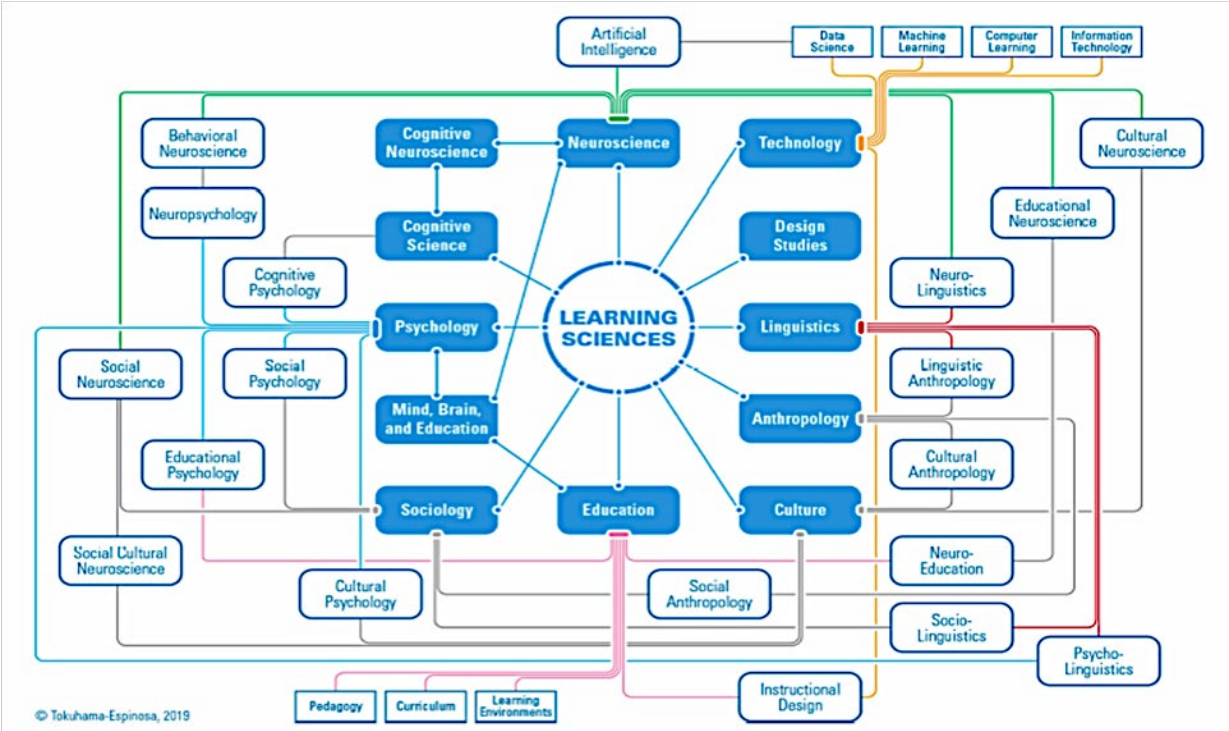


Figure 2: Learning Sciences Field Expansion

Note. This figure (Tokuhama-Espinosa, 2019) demonstrates how encompassing learning science is as an interdisciplinary field.
Source: "The Learning Sciences Framework in Educational Leadership," by T. Tokuhama-Espinosa, 2019, *Frontiers in Education*, *4*(136), p. 5 (https://doi.org/10.3389/feduc.2019.00136). Copyright 2019 by Tracey Tokuhama-Espinosa. Reprinted with permission.

Tokuhama-Espinosa (2019) sought to determine why knowledge from the learning sciences has not had a greater impact on educational leadership and found decision-making models widely ignored the data. The processes of integrating technologies and instruction into education is historically seen as slow and often unwisely chosen (Grasser, 2013). Grasser (2013) proposes learning science technologies are destined to penetrate educational practices to focus on cognition, emotion, and motivation.

Physiological response and facial expression in other disciplines identify learning and problem-solving abilities to better understand motivation and emotion in learning (Biswas et al.,

2018). Monitoring spikes in physiological data and sudden facial movements are important to measure as examples of confusion or frustration during learning (Azevedo et al., 2018) and can help understanding faulty decision-making. D'Mello's and colleagues (2013) research on affective and cognitive states (e.g., confusion, boredom) across contexts used techniques such as eye tracking, speech recognition, physiological sensing, and machine learning to understand this aspect of human thinking. Collecting multichannel real-time data captures behavior and allows for measuring affective states during learning (Azevedo et al., 2018; D'Mello & Graesser, 2015). This type of learning through use of multi-channel data on the decision-making of leaders could help elevate what is understood beyond survey data on leaders' emotional responses during decision-making.

Purpose of the Study

According to Jobs for the Future and the Council of Chief State School Officers, learning how to think critically, solve problems, and work collaboratively as leaders requires a renewed commitment and focus in educational leadership preparation. The foundation for this study is the need to study the differences between novices' and experts' facial emotions during simulated special education decision-making environments through simulation. The researcher's examination of facial emotional state differences between novice and expert educational leaders when making simulated special education decisions provided the opportunity to bridge together two research paradigms.

The researcher used data sensors to collect facial expressions of emotion to explore the differences between expert and novice leaders during a simulation. Results in identified differences between expert and novice leaders potentially identify challenges and

strategies faced by educational leaders during special education conferences. Differences identified during the stimuli of an online simulated case conference provide a foundation for further investigation to better understand the relationship between facial emotions and decision-making when educational leaders work with families and SWD.

Significance of the Study

Special education has grown into a significant and time-consuming responsibility for educational leaders (Khaleel et al., 2021). The decisions educational leaders make are impactful when students and families are involved. As the field prepares individuals to take on the role as educational leaders working with families, including those children with disabilities, understanding the practical realities and perceived challenges (Beam et al., 2016) between novice and expert leaders in their decision-making is critical to better prepare these leaders. Simulation as a learning environment, along with 21st century technological data collection, could elevate what is understood beyond observation and survey data.

Theoretical Framework

Many learning theories have applicable design, implementation, and methods useful in simulation-based education (Babin et al., 2019). Experiential Learning Theory (ELT), dating back as far as Dewey (1938), defines learning as the process of knowledge creation through the transformation of experience (Kolb, 1984). Understanding emotional state components within learning and performance is advantageous to the development or transformation of future experiences (Duke, 2019). Experiential learning is used widely in leadership development programs and simulation (Majumdar, 2018). Opportunities to obtain knowledge while acquiring

new skills through coaching and facilitated learning provides the relevancy to experiential learning theory within educational leadership (Acton, 2021; Huggins et al., 2021).

The leaders in this study experienced a simulated special education case conference based on the theoretical foundations of ELT (Kolb, 1984). Decisions made in the simulation were encountered based on the premise of Cognitive Appraisal Theory (Lazarus, 1991). According to Cognitive Appraisal Theory (Lazarus, 1991), individuals extract emotions from appraisals of events or stimuli. These appraisals lead to different specific reactions in different people based on experience. Cognitive Appraisal Theory distinguishes between primary and secondary appraisals in that primary appraisal seeks to establish the significance or meaning of an event while secondary appraisal assesses the ability of the individual to cope with the consequences of the event or decisions made (Lazarus, 1991). The researcher evaluated multimodal and decision feedback data reported under the premise of the participant's emotional response during decisions. The researcher did not seek to understand the justification or consequence of the leader's selected decisions as referenced in a secondary appraisal.

Mean proportion scores of facial expressions of emotion, as measured by iMotions AFFDEX technology, were used to collect participant data during the simulation. Participants' facial expressions of emotion were assessed during the decision simulation experience. Facial expressions of emotion measured were joy, anger, fear, disgust, contempt, sadness, and surprise. The output measure of emotions provides the probability a trained facial coder would score the facial emotion at or above the predetermined threshold level. For this study the time percentage values represent the percentage of time the expressed facial emotion was evident while engaged in cognitively appraising to make a decision over the duration of the simulation. Potential

identified facial expressions of emotion above the identified threshold level, with percentages of time greater than zero, were used to determine which emotions were most expressed by each group during decisions. Differences between expert and novice group decisions and expressed facial emotions, while cognitively appraising to make a decision, were analyzed separately to answer each research question.

Operational Definitions

Affective states: Emotions; brief, intense, reactions brought to awareness and have significant physiological and behavioral manifestations, may prepare the body for action (D'Mello & Graesser, 2012).

Educational Leader: The head or person with the most authority in a K–12 school. In this study no distinction is made between a Principal, Assistant Principal, Dean, Assistant Director, or Director.

Expert Leader: Graduates from a leadership personnel preparation program across the United States. Participants having earned an advanced degree with over 10 years of experience (Sinnema et al., 2020; Ozdemir, 2020).

*Expressions of Facial Emotion: M*ovements of the facial muscles supplied by the facial nerve that are attached and move facial skin, which are core indicators of underlying emotional states (iMotions, 2018).

Facial Action Coding System (FACS): Distinct movements displayed on the face by the activation of facial muscles and then coded to represent basic emotions associated with a coding schema of 46 facial action units (Ekman & Friesen, 1976).

iMotions Affectiva: Analysis software that assesses and codes the probability of a user's facial expression through the integration of AFFDEX technology. The software mimics human coding skills to gain deeper insight into human emotional reactions via facial expressions. Probability for facial expression output values is provided for 20 facial expression measures (action units) and 7 core emotions (joy, anger, fear, disgust, contempt, sadness, and surprise) among others (iMotions, 2018).

Local Educational Agency (LEA): A public board of education or other public authority legally constituted within a state for either administrative control or direction of, or to perform a service function for public schools (IDEA, 2004)

Novice Leader: Individual currently earning or having received a master's level degree in the United States having 5 years or less of educational leadership experience.

Public Agency Representative: is a person determined qualified by the district to provide, or supervise the provision of, specially designed instruction to meet the unique needs of children with disabilities; knowledgeable about general education curriculum; and knowledgeable about the availability of resources of the public agency (IDEA, 2004)

Professional Standards for Educational Leaders (PSEL): A set of 10 standards released in 2015 by the National Policy Board for Educational Administration. The earlier version of PSEL were the Interstate School Leaders Licensure Consortium (ISLLC) Standards. Through professional associations, supporting institutions, and policy, the standards are expected to influence leadership practices and, ultimately, leadership outcomes (Grissom et al., 2021).

SchoolSims: Computer-based simulations that provide manufactured real-life experiences for current and aspiring school leaders and teachers to practice critical thinking in a safe space (SchoolSims, 2021).

CHAPTER TWO: REVIEW OF LITERATURE

Broad changes in educational policy as a result of ESSA, (2015) forced the transformation of expectations and norms for educational leaders (Grissom et al., 2021). Strengthening the recruitment and preparation of novice school leaders for this transformation is essential (Riley & Meredith, 2017). According to Manna's (2021) report entitled "*Wallace Foundations School Leadership: Considerations,"* developing a comprehensive and aligned principal pipeline involves more than just staffing school buildings. According to a survey by the National Association of Secondary School Principals, 18% of school leaders leave their positions within the first year; the turnover rate increases to 21% in high-poverty schools (Levin & Bradley, 2017), demonstrating a lack of preparation for this critical education role (Grissom et al., 2021).

Numerous researchers recognize the need for educational leaders to possess a variety of skills, knowledge, and dispositions to meet school outcomes (Grissom & Loeb, 2011; Grissom et al., 2013; Grissom et al., 2015; Hallinger & Heck, 2010; Leithwood et al., 2004; Portin & Shen, 1999, Robinson et al., 2008). The quality of educational leaders directly impacts student learning, teacher satisfaction, retention, and equity (Grissom et al., 2021). Educational leaders with skills to support teachers' use of evidence-based instructional practices which promote positive outcomes for students, including those with disabilities, are imperative to school transformation (Boscardin, 2005).

Leithwood et al. (2004) described educational leaders as the second most-important in-school factor affecting student learning. A 2021 review of two decades of evidence involving 22,000 school leaders demonstrated principals have larger effects on student learning than

previously thought, comparable even to the effects of individual teachers (Grissom et al., 2021). Investing in improving the performance of an educational leader is likely the most efficient and cost-effective way to impact student achievement (Grissom et al., 2021). Leadership preparation programs maintain criticism for lack of attention to prepare leaders to address the achievement of students receiving special education, leaving leaders failing to address this population's achievement outcomes and learning difficult lessons on the job (DeMatthews et al., 2020b).

A likely job option where school administrators may be designated to learn difficult lessons is during the fulfillment of their role as PAR during case conference meetings. Serving as the PAR for an ACR fulfills IDEA's (2004) required designee role. The designee's role in the case conference meeting is key to ensuring parental partnerships in the education of SWD (Lashley, 2007). According to Schaaf et al. (2015) school administrators' decisions set the tone for special education implementation in schools.

Decisions during conferences are considered most influential during placement for special education eligibility, evaluating educational program goals, and obligating personnel serving individuals with exceptionalities (CEC, 2012). During case conference meetings, the PAR makes decisions while providing leadership and guidance to ensure the implementation of specially designed instruction and the availability of resources to meet the unique needs of children with disabilities (IDEA, 2004). The PARs primary responsibility is to determine or approve both resources and personnel needed to address and support the student's individualized educational goals. Leader decision commitments during case conference meetings require support for implementation. As a result, the school is legally obligated and responsible to ensure

personnel follow all provisions from the decisions made in the case conference to provide the student with FAPE as intended.

Difficult Decisions

Barriers to decisions occur by nature at the attitudinal, organizational, and contextual level. The aforementioned types of barriers leave educational leaders needing to make decisions and ascertain skills to identify, reduce, or eliminate obstacles to contribute to teacher and student success (Arnaiz Sánchez et al., 2019). Decision-making has three primary components: a goal, options for attaining the goal, and selection of a preferred option (Welch, 2002). Attempts at training and development of decision-making abilities are deemed most effective in simulated environments when content is valid, reproducing the key challenges of the case represented (Staub & Bravender, 2014; Volante et al., 2020). According to Wang (2019b) prevalent models of decision-making in educational leadership include the contingency, moral, shared, and data driven decision-making (DDDM) models. No matter the model of decision-making, according to the three components identified by Welch (2002), both novice and expert leaders make decisions using a strategy approach, whether consciously aware or not. Even the most trivial choice fits the decision pattern to include goal identification, contemplation of available options to meet the identified goal and acting upon the available options by choosing from those presented (Welch, 2002). When leaders are situated within the context of competing stakeholders' interests the outcome results in pressure between making data driven decisions and moral decisions (Van Geel et al., 2016; Wang, 2019). Ellemers et al. (2019) describe the conflicting views that can plague leaders' decision-making. According to the authors decisions through data driven approaches result in using data to set goals, identify problems, evaluate options, and choose a

course of action. At times, in contrast to data-driven decisions, leaders must make moral decisions based on what is right, just, virtuous, and ethical. Fixating on one aspect of decision-making alone runs counter to the inherently social nature of leadership, as not all data leads to wise decisions (Wang, 2021).

Educational leaders encounter discipline decisions daily. Decisions, such as how to approach a discipline issue, are most notably recognized as being influenced by implicit biases (Gullo, 2017; Gullo & Beachum, 2020). The processes by which leaders make discipline decisions, the stereotypes and attitudes held by individuals unconsciously, may or may not interfere with the decision processes being viewed from a social justice lens (Gullo & Beachum, 2020b). This conflict is one of many examples of the need for both moral- and data-driven decision-making. Discipline decisions by educational leaders create a school climate and culture, which in return reflects on the community (Johnson & Kruse, 2012).

Another example of the complexity of data and moral decision-making is during disasters or national crises. As part of a larger community, schools are impacted when disaster strikes. Today, schools are sites of school-centered tragedy. In disaster situations, children and adults look for guidance from leaders (Mutch, 2015). Difficult leader decisions revolve around crisis activities in identifying, developing, and managing disaster plans, conducting drills, and identifying roles and responsibilities during such situations (Porsch, 2009) as seen in the pandemic. While leadership decisions in times of crisis create pressure, the fast-changing nature of the environment, the array of actions and exchanges, and the speed of making possible life-saving decisions adds further complexity to the leader's cognitive processing (Mutch, 2015). The complexity in cognitive processing, whether it be discipline, disaster, crisis management, or

simple day-to-day decision-making, brings to question how and when educational leaders learn to cope with the stress of leadership by being cognitively flexible for effective decision-making under stress (Kaufman, 2019).

Development of Leadership Expertise Over Time

The instructional leadership paradigm views educational leaders as the primary provider of educational expertise, sets educational standards for the organization, and oversees the day-to-day operations of teachers and students (Majumdar, 2018). The instructional leadership paradigm frames educational leadership preparation and creates a plethora of research on the development of critical skills. While investigating the performance of novice leaders, Boyland et al. (2015) examined areas of needed improvement to better prepare leaders in the field. The researcher's qualitative study identified deficient areas of leadership development within preparation programs to be: (a) collaboration, (b) developing leadership in others, and (c) financial management. Boyland and colleagues' study sheds light on the strengths and weaknesses of university leadership preparation programs; noting programs should consider course curriculum, instructional practices, and training to further develop novice leader expertise.

Scholars and practitioners agree school-based leaders need authentic learning opportunities to facilitate transfer of knowledge and skills to real-world settings (Gilbert, 2017). Leadership preparation program though, still lean toward novice leaders applying content knowledge through participation in authentic leadership opportunities limiting experience to the confines of the placement (Gilbert, 2017). Creating intersectionality between expert and novices provides less of an abrupt jump from book learning to practice. Researchers in educational leadership call for the use of pedagogical tools, such as simulation, to provide authentic, risk-free

opportunities before entering high-stakes environments of "real" school settings (Anderson, 2014; Johnson et al., 2011; Johnson et al., 2016).

Simulated environments provide both a "safe" and standardized setting to learn about and to shape leaders' data-driven and moral decision-making. School leaders, as adult learners, have a strong inner motivation to develop new skills or acquire knowledge with positive outcomes (Tobin, 2019). However, to change, and most importantly improve, a leaders' decision-making, is not a single event, but a process (Hord et al., 2014).

Search Criteria

To better situate this study and understand differences between expert and novice leaders' facial expressions of emotion during decision-making, the researcher conducted a systematic review of the current literature. The research questions guiding this study were:

1. Do statistically significant differences exists between expert and novice educational leaders' facial expressions of different emotions as measured by mean proportion scores of emotion during a simulated special education case conference decision-making scenario?

2. Does the frequency of choice selections during decision intervals in a simulated special education case conference differ between expert and novice educational leaders?

One of the difficulties surrounding the use of facial expressions of emotion data to investigate differences in novice and expert educational leader decisions are the limitations within current research. The field of educational leadership has not utilized facial expressions of emotion data in research. Even with the increased number of new modality tools (eye-tracking, emotion sensors) to capture human behavior and uncover salient constructs relevant to decision-making (Schneider et al., 2021), a scant presence of this type of data collection is seen in the

educational leadership field; a stark contrast to behavioral economics, psychology, and cognitive neuroscience (Wang, 2020; 2021).

Educational leadership is recognized as a separate discipline from teacher, student, and special education research. Different educational degree requirements, daily job functions, and consequences to decisions resting solely on the leader provide premise for the distinction. Special education leadership is positioned historically and philosophically to promote and support the use of evidence-based practices; of which distinctly distinguishes the knowledge and skill set of special education leaders' decisions as field experts linked to initiatives of instruction and learning outcomes for SWD (Boscardin, 2007). An examination of literature related to special education leadership between 1970 and 2009 describing special education leadership indicated (a) the current scope of work is not profoundly researched, and (b) research themes describing the leadership role are inconsistent (Crockett et al., 2009).

The researcher explored the following constructs to answer the research questions for this study of expert or novice educational leaders' emotions via facial tracking aligned with their decision-making in a simulated environment. The researcher conducted the search through the University of Central Florida's online library databases including EBSCO Host, ERIC, APA Psych Info, Professional Development Collection, ProQuest, Web of Science, Social Sciences Premium, Taylor & Francis, Science Direct, and IEEE Explore. After yielding very few articles, the researcher added several synonyms and closely related search terms from the database thesauruses to expand the search. For example, "educational leaders" was expanded to include "educational leadership" OR "school leadership" OR "school principals". The search also included all suggestions for decision-making. An example of the Boolean search: ["expert" OR

"novice"] AND ["educational leaders" OR educational leadership" OR school leadership" OR "school principals"] AND ["decision making" OR "decision-making" OR "decision making process" OR "decision-making-process"]. In all database searches, limitations were set to key word subject terms, English only, scholarly peer-reviewed journals, and published in 2015 or later.

Results were limited to English to avoid the need for translation. The decision to use research published after 2015 was based on key legislative changes of ESSA (2015) that impacted the current landscape of education and transformed the role of educational leaders. The search using the parameters described across all mentioned databases returned 38 articles. The articles were then examined for duplicates, irrelevant works, or inability to be accessed. Duplicates were eliminated as well as articles unrelated to the intended population. Relevance of an article was determined by reading the abstract. The study was reviewed for additional criteria details if the abstract did not pertain to the population of interest.

Further narrowing occurred by removing articles deemed as professional development narrative training materials. The researcher included publications focused on educational leaders' decision-making at the novice or expert level or a combination of both populations within the specific research methodology and context. Examples of non-relevant articles removed included but were not limited to articles focusing on novice expert teacher decisions or nurse populations. All articles retrieved were void of facial emotional data collection through 21st century technology with the population of interest, but included descriptive language with respect to feelings, mood, or affect. The final results of the systematic review consisted of ten articles.

These ten empirical research studies specifically included all remaining inclusionary criteria. Table 1 provides a summary analysis of these key studies.

Table 1 Systematic Literature Review

Group	Reference/ Location	Population/ Sample	Method Used	Measures	Outcome/Findings	Emotions/ Feelings/Moods
Novice	(Berry & Townsend, 2019) United Kingdom	1 male assistant principal 4 years experience in 4 schools, 1 assistant principal transitioning to principal in rural school.	Case Study	Semi-structured interview, shadowing/ observation outside discussion	A lead-in period can be productive both physically and psychologically in novice decision makers. Confidence increases to address challenges during transition as relationships develop. Experience provides a firm foundation for future leadership.	Embarrassment, isolation, loss, sadness, bereavement, enjoyment
Novice	(Pariente & Tubin, 2021) Israel	15 (13 female/2 male) novice principals in their first 4 years of experience.	Qualitative Phenomenology	Semi-structured interviews, content analysis, category-based analysis	Mentoring provided to novices decision-making intervention by supporting delaying response, self-restraint, deliberation, and examination of situations based on data.	Pressure, stress, strain, dissatisfaction, reluctance, lack of perseverance, supported
Novice	(Rieckhoff, 2014) USA	10 (8 females/2 male) principals in their first 2 years of serving in a school leadership role at a large urban diocese from 9 schools.	Mixed Methods	Survey and interview	Novice principals' decision-making within the context of a faith led education is impacted by the organization's unique mission and leaders' perception of how they contextualize the role.	Assisted, lack of confidence, isolation,

Group	Reference/ Location	Population/ Sample	Method Used	Measures	Outcome/Findings	Emotions/ Feelings/Moods
Novice	(Spillane et al., 2015) USA	2 cohort groups (n=86, n=66) of first year principals. Male=44%, 41%. Female= 56%, 59%)	Longitudinal Mixed Methods	Survey and semi-structured interviews	A distributed leadership approach supports novice leaders in meeting overwhelming demands and job tension variability as decision makers.	Ultimate responsibility, bigger commitment, significant shift, constrained efforts, increased intensity, micromanaged, surprise, shock
Novice	(Weiner & Woulfin, 2017) USA	n=7 (3 male/ 4 female) urban schools involved in turn around principal training	Qualitative	Interview	Schema of novice leaders impacted by their view of controlled autonomy; the balance between school and district authority; during decision-making	Overwhelmed, micromanaged, abandoned, disappointed, frustration, constraint, effective, disempowerment
Novice	(Chitpin, 2019) Canada	n=2 (1female third-year principal in a small countryside elementary, 1 male principal in a suburban metropolitan area).	Case Study	Semi-structured interview	Utilizing an objective knowledge growth framework (OKGF) can lead to more effective novice leader decisions with attention focused on details otherwise ignored, resisted, or neglected. Provides a process to identify weak points and resolve complex issues in novice leader decisions.	Conflicted, supported, sense of loss

Group	Reference/ Location	Population/ Sample	Method Used	Measures	Outcome/Findings	Emotions/ Feelings/Moods
Expert	(Ozdemir, 2020) Turkey	n=10 (9 male, 1 female). Academicians and educational administrators with at least 10 years' experience.	Quantitative	Survey; rank order of importance utilizing Analytical Hierarchy Process (AHP) a component of Multi Criteria Decision-making (MCDM)	Evaluation of expert competencies in decision-making note mentorship of novice leaders should be implemented in order to share skills in leadership, administration of programs and environments, communication, and establishing cooperation with internal and external stakeholders.	Important, positive organizational climate and culture, success, satisfaction, cooperative, high awareness
Expert	(Sinnema et al., 2020) New Zealand	n=78 (5 schools) 76% female, average 19 years' experience.	Case study	Survey	Experts use of collaborative social networks increase collective expertise equipping leaders to making more informed decisions.	Disconnected, positive social collaborations

Group	Reference/ Location	Population/ Sample	Method Used	Measures	Outcome/Findings	Emotions/ Feelings/Moods
Combined	(Hsiao et al., 2019) Taiwan	128 Preservice principals enrolled in the Ministry of Education principal certification program.	Quantitative	Low-level audio-video multimodal behavior descriptors, session-level behavior profiles, and support vector machine (SVM) classifier scoring	Presents the accuracy of a multimodal profile framework to quantify communicative tasks of novice preservice principal candidates' behaviors. An initial building block to studies offering alternatives in development of experts within certification programs.	Positive mood, emotionally contagious
Combined	(Montecinos et al., 2018) Chile	n=94 novice/n=120 expert principals. (79% serving in elementary schools, 15% in secondary, 6% in special or adult education). Mean age 45.6.	Mixed methods	Survey and semi-structured interview	Differences in autonomy of decisions at the career stage level. Reported at the upper management level (district and state) by novice principals. Experts find difficulty at the local level (influencing teaching staff). Findings suggest policy and reforms are needed at the system level to address specific social and organizational structures.	Unprepared, isolation, support, adapting, happy, resistance

The overall theme of the articles in the systematic review reflects the complex nature and variability of educational leaders' decisions across novice and expert experience levels (Berry & Townsend, 2019; Montecinos et al., 2018). The ten studies in Table 1 provide categories of (1) novice (Berry & Townsend, 2019; Chitpin, 2019; Pariente & Tubin, 2021; Rieckhoff, 2014; Spillane et al., 2015; Weiner & Woulfin, 2017), (2) expert, (Ozdemir, 2020; Sinnema et al., 2020), and (3) combined skill levels (Hsiao et al., 2019; Montecinos et al., 2018). The researchers across the three areas note experience (Berry & Townsend, 2019; Montecinos et al., 2018), contextual factors within the environment (Rieckhoff, 2014; Spillane et al., 2015; Weiner & Woulfin, 2017), and differences in levels of leadership support contributing to feelings of decision-making confidence (Berry & Townsend, 2019; Chitpin, 2019; Ozdemir, 2020; Pariente & Tubin, 2021; Sinnema et al., 2020; Spillane et al., 2015). Themes within the studies contributing to expert-novice decision differences emerged relating to (a) role confidence (Berry & Townsend, 2019; Chitpin, 2019; Ozdemir, 2020; Pariente & Tubin, 2021; Sinnema et al., 2020; Spillane et al., 2015), (b) autonomy within bureaucratic systems (Chitpin, 2019; Montecinos et al., 2018), and (c) collaborative practices (Berry & Townsend, 2019; Chitpin, 2019; Pariente & Tubin, 2021; Rieckhoff, 2014; Sinnema et al., 2020; Spillane et al., 2015). While the experience levels of participants in the studies ranged from preservice level (Hsiao et al., 2019) to an average of 19-years of experience (Sinnema et al., 2020) the perceptual differences that contribute to role fulfillment were viewed as situational to the organizational climate of the participants. A summary of key findings aligned with educational leaders' decision-making are provided across the 3 categories.

Novice Leaders' Decisions

In a study by Berry and Townsend (2019), the researchers outline the difficulties and unpredictability novice leaders encounter and describe when taking on their roles. The authors note novice leaders lack experience in high-level decision-making. Novice leaders reported feeling more confident and psychologically better prepared to make high-level decisions when provided a transition period from classroom teacher to leader. The transition period allowed novice leaders to build support through collaboration and mentoring beyond their own experience level. Collaborative relationships provided learning opportunities through observation and feedback while tackling difficult decisions. Novice leaders communicated increased self-confidence as a result of decision-making experiences through collaborative relationships.

Overall, Berry and Townsend (2019) indicate building the confidence of novice leaders lacks a formal lead-in period between time of selection as a leader and assuming this role in a building. This gap in support creates a distinct difference in the confidence level felt between experienced and inexperienced leaders. Berry and Townsend suggest novice leaders gain detailed knowledge through experience, which is the foundation for building confident decision-making of school-based leaders.

The need for novice leaders to gain confidence and feel supported through collaborative mentoring practices is noted as an outcome of a study by Pariente and Tubin (2021). These researchers note that novice leaders lack professional core knowledge, distinguishing a profession from a craft. The researchers indicate, a profession requires intervention to support effective decision-making when entering the field as a novice. Results of their study note mentoring provides novice leaders' a feeling of support in decision-making skills by providing a

lens to solving problems beyond that of their own experience level. The intervention provided by Parient and Tubin resulted in increasing novice leaders' decision-making skills through supporting delayed response, self-restraint, deliberation, and examination of situations through mentoring.

Rieckhoff (2014) examined novice leadership within the context of a different lens – not in public schools but within the Catholic school system. The researcher found the duties of Catholic school principals were much like their secular counterparts. Novice leaders struggled to confidently fulfill their leadership role as decision makers within the school's mission. Novice leaders in the Catholic system perceived challenges in how to reach decisions, the impact of their decisions, and the involvement of others in the process. Reickhoff's findings further substantiate the essential need for ongoing collaboration and mentoring of novice leaders, no matter the setting, to increase growth and expertise as decision makers.

Chitpin (2019) suggests increasing novice leaders' expertise through an objective knowledge growth framework (OKGF) combined with distributed leadership. The OKGF provides focus for novice leaders on critical details to consider during decision-making. The researcher's framework provided a process to identify weak points and resolve complex issues for novice leaders' decision-making. The collaborative practices of the researcher's framework blended with a distributed leadership approach proved results beneficial to novice leaders by objectively recognizing novel resolutions. A systematic review of studies on leadership models from 1980 to 2014 by Gumus et al. (2018) indicated distributed leadership is one of the most studied leadership models in educational research. The distributed leadership model encourages collaboration, knowledge sharing, and consistent interaction (Tudryn et al., 2016). Supporters of

distributive leadership argue teachers and other school personnel should be involved in the decision-making process (Ho, 2010; Law et al., 2007; MacPherson et al., 1998).

Understanding shared efforts required in a distributed leadership approach to improve conditions for teaching and learning in schools has been the focused work of Spillane et al. (2015). The author studied novice leaders' decision-making roles within the context of a distributed leadership approach; noting novice leaders need socialization when moving from educator to leader. The researchers used survey and interview data from a longitudinal mixed-method study to identify novice leaders' job roles from a distributed leadership approach. They noted novice leaders need opportunities to build confidence when taking on a leadership role. In part, Spillane and colleagues indicate situational context matters in creating free thinking and independent leaders. For example, when a novice leader assumes a position with pressures, such as poor student performance or declining enrollment, the district's freedom in decision-making is constrained. Other factors that can hinder novice decision-making are the volume and diversity of the workload within a distributed leadership approach. Results from the study point to collaborative practices within a distributed leadership approach as a necessity for supporting leaders at the novice career stage during decision-making.

Another challenge for novice leaders is idiosyncrasy of autonomy, which occurs at varying career stages (Montecinos et al., 2018). Montecinos and colleagues explicitly distinguished between expert and novice leaders in their research related to autonomy. They found novice's report difficulty with decision-making when it involved upper management (district and state). While experts struggled with decisions at the local level centered around influencing staff. Findings from this study suggest policy and reforms are needed at the systems

level; as well as to address specific social and organizational structures to support leaders and their decision-making process along the career continuum.

Although novice leaders' decision-making skills evolve (Weiner & Woulfin, 2017), the evolution often creates issues around perceptual understanding of their social role within the district. This struggle of role identity combined with developing decision-making skills impacts the leaders' views of autonomy. Weiner and Woulfin (2017) in their interview of administrators found establishing a balance of power between the school and district level weighed heavily on novice leaders' stress and conflict in the decision-making process.

Expert Leaders' Decisions

When determining what constitutes expertise in leadership, Ozdemir (2020) determined eight main dimension of leaders who achieve their goals. Ozdemir's (2020) eight main dimensions were: (a) leadership, (b) management of programs and setting of education and training programs, (c) creating an effective communication and working environment (d) management of monetary resources, (e) management of internal and external environment of school and collaborators, (f) learner focality, (g) technological competencies, and (h) institutional communication. Ozdemir's (2020) results revealed fifty sub-competencies across the eight dimensions with decision-making being found in only two of the sub-dimensions (effective communication and working environment).

Sinnema and colleagues (2020) qualitative examination of experts versus novices noted the development of collective expertise through collaborative social practices. These researchers defined collaborative social practices under (a) professional learning networks, (b) collaborative inquiry networks, (c) communities of practice, and (d) clusters. Sinnema et al. (2020) found

robust networks better equip leaders to make more informed decisions. The researchers conclude variations exist between experts' and novices' decisions partly due to highly contextualized daily problem differences. Sinnema et al. (2020) found social capital of high value to experts in improving both teaching and learning. Experts employed social capital when leaning on others within their social network to help inform, contribute knowledge or information to their decision. The authors concluded that experienced leaders possess wider and more robust social networks in comparison to novices.

The experimental study Hsiao et al. (2019) presented used 21st century tools to rate novice leaders' communication skills while in a preparation program. This research team sought to develop a multimodal framework toward automating an AI process for audio-video scoring of expert leaders. The researchers sought to develop a technological framework addressing the theoretical underpinnings of the behavioral profiles of effective leaders. Findings from this study offered considerations for an initial building block as to the development of expert leaders. Results proved reliable and consistent when compared to human expert ratings in identifying expert leaders. This study provides a glimpse into future outcomes and the direction of how AI and multimodal research could help develop expert thinking while advancing preparation and development of novice to expert leaders.

Intersectionality of Novice and Expert Leaders

The intersectionality of expert novice educational leader decision-making reveals enhanced skill development and training are pivotal to leadership skill development (Berry & Townsend, 2019; Chitpin, 2019; Pariente & Tubin, 2021; Rieckhoff, 2014; Spillane et al., 2015; Weiner & Woulfin, 2017). Crucial skill sets are needed at both the novice and expert levels and

should be developed over time and with mentorship supports (Berry & Townsend, 2019; Chitpin, 2019; Pariente & Tubin, 2021; Rieckhoff, 2014; Sinnema et al., 2020; Spillane et al., 2015). The overall themes of the studies reviewed exhibited differences between expert and novice leader's decision-making processes. The impact of role confidence (Berry & Townsend, 2019; Chitpin, 2019; Ozdemir, 2020; Pariente & Tubin, 2021; Sinnema et al., 2020; Spillane et al., 2015), autonomy (Montecinos et al., 2018; Weiner & Woulfin, 2017), and collaborative practices (Berry & Townsend, 2019; Chitpin, 2019; Pariente & Tubin, 2021; Rieckhoff, 2014; Sinnema et al., 2020; Spillane et al., 2015) varied across contexts and career levels. The intersection of these constructs makes a compelling case for increasing the understanding of novice versus experts' differences through data channel collection modalities. As seen in Hsiao et al. (2019) the accuracy of a multimodal framework for quantifying expert leadership could be an initial building block within the field of educational leadership to further examine and prepare future leaders. Expert thinking through AI with multimodal data could advance the field to further investigate supporting the development of novice leaders with specific foci. Such as in this study, examining decision-making of expert vs novice leader's in a simulated case conference scenario to meet the needs of a student with a disability.

Relationship to Proposed Research

The studies referenced in Table 1 depict the varying needs and supports contributing to or fostering emotional differences between expert and novice leaders when making decisions. Although limited literature on this topic exists, understanding the decision-making process of expert versus novice leaders is further complicated by numerous contextual factors. Beyond contextual differences, all researchers in Table 1 communicated the importance of leadership

improving educational outcomes for all students but did not provide specific information related to leadership decision-making and special education. Understanding of leaders of various populations and the critical components of strong decision-making is an area in need of further investigation (Grissom & Loeb, 2011; Grissom et al., 2013; Grissom et al., 2015; Hallinger & Heck, 2010; Leithwood et al., 2004; Portin & Shen, 1999, Robinson et al., 2008).

When viewed through a theoretical framework the proposed research study provides leader's an experiential simulated learning experience (Babin et al., 2019; DeJong & Grundmeyer, 2018). The literature presented provides a frame of reference to redefine problems from a differing perspective (Duke, 2018; Caughron & Mumford, 2008) while supporting adult learning needs through practice (Tobin, 2019; Yarbrough, 2018). Kolb's Experiential Learning Theory (Kolb, 1984) through computer-based simulation (Mann et al., 2011; Yarbrough, 2018) provides an environment and opportunity for experience to examine varying contextual differences in the decision-making patterns of expert versus novice leaders (DeJong & Grundmeyer, 2018; Poikela, 2017; Staub & Bravender, 2014; Volante et al., 2020. Cognitive appraisal theory (Lazarus, 1991; Campbell et al., 2013) adds another layer to understanding novice versus expert decision-making through the use of advanced simulated and learning science tools to explore how emotions align with their decision-making processes.

Summary

In this review of the literature, the researcher highlighted empirical research contributions on expert versus novice educational leaders' decision-making processes while noting non-existence in the field's use of facial expressions of emotion. The researcher noted the influence of educational leadership preparation and the impact on decision-making as critical in the current

landscape of novice leaders (Berry & Townsend, 2019; Chitpin, 2019; Pariente & Tubin, 2021; Rieckhoff, 2014; Spillane et al., 2015; Weiner & Woulfin, 2017). The intersectionality of expert-novice educational leaders' decisions revealed enhanced skill development and training differences pivotal to leadership decision-making and feelings of confidence (Ozdemir, 2020; Sinnema et al., 2020). The intersection of these constructs makes a compelling case for increasing crucial skill sets to better prepare educational leaders to meet collaborative practices during novice to expert transition (Berry & Townsend, 2019; Chitpin, 2019; Pariente & Tubin, 2021; Rieckhoff, 2014; Sinnema et al., 2020; Spillane et al., 2015) and lead supportive environments to ensure confidence in creating positive student outcomes (Berry & Townsend, 2019; Chitpin, 2019; Ozdemir, 2020; Pariente & Tubin, 2021; Sinnema et al., 2020; Spillane et al., 2015). This study aims to determine potential differences between expert and novice educational leaders' emotional data (Azevedo et al., 2018; D'Mello et al., 2013; D'Mello & Grasser, 2015;) when engaged in a computer-based special education case conference decision-making simulation. These differences could contribute to understanding potential decision-making patterns and processes to facilitate and influence the development of expert leaders (Hoover & Teeters, 2019).

Overall, novice leaders are challenged by their new role in schools and complex decision-making. Despite these difficulties, educational research is void of expert novice decision-making, especially related to the PAR role and special education (Wang, 2021). Challenges are exacerbated when leaders make decisions outside of their area of expertise, such as working with SWD. In examining 929 school leaders Rodl et al. (2018) reported 85% did not have a special education background or training during their preparation program. Lake et al., (2019) concludes

contributing factors to reducing special education conflicts and due process resolutions trends lay within the decision-making process of effective leaders. Therefore, the researcher in this study builds upon the current literature by expanding upon the tools available to support novice leaders in the decision-making process.

CHAPTER THREE: METHODOLOGY

The researcher in this chapter presents the research design, methodology, and procedures of the study. The researcher conducted a quasi-experimental study design. This is a class of research approaches to infer causal relationships in the absence of random assignment (Mills & Gray, 2019). The present study compares differences in emotional affect data of expert and novice level educational leaders and their decisions during a computer simulated (SchoolSims) special education environment. The Institutional Review Board of the University of Central Florida granted permission for the study see Appendix A.

Problem Statement and Research Questions

According to Gross (2015), emotional aspects of human cognition powerfully shape how one interacts with material and social worlds. Sometimes emotions serve an individual very well; other times, they lead a person astray. Therefore, the researcher in this study seeks to use facial emotional affect data to identify if differences exist between novice and expert educational leaders' decision-making during a high stake simulated meeting (SchoolSims). Data channel sensors can accurately record and analyze behavior patterns to understand how participants interact with an environment or stimuli. The results of this dissertation research will assist the field in understanding what emotional differences are present when novice and expert educational leaders engage in decision-making during a simulated special education case conference. The differences in emotional affect identified between expert and novice leaders will provide a foundation for future research and potentially enhanced development and training to prepare leaders in a targeted area, such as the content of this study, in serving special education students and their families.

Research Questions

The overarching research question for this study is: Do statistically significant differences exists between expert and novice educational leaders during a simulated special education case conference decision-making scenario?

To deconstruct this research, 2 sub-questions were analyzed:

RQ1: Do statistically significant differences exists between expert and novice educational leaders' facial expressions of different emotions (joy, anger, surprise, disgust) as measured by mean proportion scores of emotion during a simulated special education case conference decision-making scenario?

$H1_0$: There are no statistically significant differences that exists between expert and novice educational leaders' facial expressions of different emotions (joy, anger, surprise, disgust) as measured by mean proportion scores of emotion during a simulated special education case conference decision-making scenario.

$H1_a$: There are statistically significant differences that exists between expert and novice educational leaders' facial expressions of different emotions (joy, anger, surprise, disgust) as measured by mean proportion scores of emotion during a simulated special education case conference decision-making scenario.

RQ2: Does the frequency of choice selections during decision intervals in a simulated special education case conference differ between expert and novice educational leaders?

Independent Variable (Categorical): Novice/Expert Leader participant groupings.

Group 1: SchoolSims with Expert participant. Participants with an advanced educational degree and 10 or more years of educational leadership experience across the United States.

Group 2: SchoolSims with Novice participant. Participants earning or received a degree at the master's level and 5 years or less of educational leadership experience.

RQ1: Dependent Variable-both groups (Continuous): Facial expressions of emotion; mean proportion scores of emotions (joy, anger, disgust, and surprise) as measured by iMotions Affdex software algorithms based on Facial Action Coding System (FACS) (Friesen & Ekman, 1984).

RQ2: Dependent Variable-both groups (Interval): Frequency count to the decision category selection made by participants, in each group (expert and novice), during the-six decision opportunities. Participant's decisions provided through the SchoolSims Feedback Report. The feedback report summarizes decision selections made and not made by participants during each opportunity.

Research Design

The research design is a quasi-experimental design, comparing two groups (novice and expert). One group consisted of novice educational leaders who received or were receiving a master's degree in the United States and had 5 years or less of educational leadership experience. The expert group included graduates from leadership personnel preparation programs across the United States. Experts held an advanced degree (Masters, Ed.D., or Ph.D.) and had over 10 years of experience in an educational leadership role. The goal of the quasi-experimental research study is to examine the differences between expert and novice educational leaders' facial emotional affect data as an indicator of emotional state during decision-making stimuli. The study is foundational for building a research agenda to gain deeper understanding of the role of emotions related to expert versus novice leaders' decision differences in simulated environments. The potential exists for investigations in the areas targeted in this study to help the field better

understand and foster enhanced preparation of leaders during case conferences in supporting individuals with disabilities and their families.

Participants

Eligible participants were assigned into two groups based on educational degree and experience levels. Selected participants consented to being over the age of 18. Only individuals from the U.S. who were currently enrolled or had earned a degree at the master's level (novice) with 5 years or less of educational leadership experience and advanced degree (Masters, Ed.D. or Ph.D.) graduates (experts) with over 10 years of experience were selected for the study.

Sampling

Participants were identified via a two-stage sample. A criterion sample was used as the main sampling procedure as participants were identified that met a predetermined criterion (Mills & Gay, 2019), degree level, and experience. The researcher also used a convenience sample recruiting from an easily accessible population (Vogt et al., 2012). Each group (expert versus novice) participated in a simulated special education case conference meeting fulfilling the role as PAR for the simulated LEA.

Recruitment

Sampling recruitment took place through email notification (Appendix B) and a recruitment flyer posting to social media outlets (Appendix C). Participants were solicited to participate in an online research study examining "educational leader's emotional state differences during a decision-making simulated case conference". Participants acknowledged participation requirements prior to the start of the study. Both groups participated in the same simulation content experience, a simulated special education case conference (SchoolSims).

The minimum sample size of 40 was determined through a power analysis using G*Power (Faul et al., 2009). Power analysis was run for an F-test Multivariate Analysis of Variance (MANOVA) with global effects. The MANOVA, with a large effect size (Cohens F^2) set at .35, power set at 80%, and two groups identified. The analysis indicated a minimum total sample size of 40 participants. The target for recruitment was 50 participants (25 in each group) to account for a possible attrition rate of 25%.

The researcher initially attempted to recruit 64 total participants (32 in each group) to account for potential attrition. Inclusion criteria for participants included: (a) must be over the age of 18, (b) currently earning or obtained a master's degree (novice) with 5 years or less of educational leadership experience, or (c) a graduate from a leadership personnel preparation program earning an advanced degree (Master, Ed.D. or Ph.D.) (expert) with 10 years or more of educational leadership experience in the United States. Exclusion of participants was based on the following exclusion criteria: (a) adults unable to consent, (b) individuals who are not yet adults (infants, children, teenagers), (c) prisoners, (d) individuals without access to reliable internet and/or webcam, and (e) facial features not clearly represented or obstructed. Exclusionary considerations to facial feature obstructions are as follows: (1) glare caused by facial piercings, (b) heavy make-up around the eye, or (d) head/facial coverings if unable to remove.

Setting

The setting for this study was an online simulation setting occurring in the participants setting of their choice. The research occurred online through the SchoolSims computer-based simulation. This simulation allows for remote access and serves as the platform for participants

to engage in a simulated case conference scenario. This scenario was created by the researcher, who has over a decade of experience as a case conference leader, in collaboration with the SchoolSims team and validated by experts in the field. Participants accessed the SchoolSims computer-based simulation case conference experience through an emailed link via their Internet browser on their own computer equipped with a webcam at a site of their selection. The participants could not access the simulator through a phone connection as data collection software is not conducive to this data collection channel.

Instruments

Facial expression of emotion data variables joy, anger, disgust, and surprise, as measured by iMotions Affdex software and the SchoolSims stimuli, were synced for analysis to interpret cognitive processes and their impact on decisions (iMotions, 2018). Details about the reliability and validity of this tool in understanding emotion is provided. No associated risks were present with using facial expression software (iMotions, 2018). The physiological facial expression data combined with stimuli exposure provides validation between emotion and externalized cognition (Azevedo et al., 2018). Utilizing data channels to capture process data assists in identifying behavioral signatures of cognitive processes during learning or engagement with stimuli (iMotions, 2018). This type of analysis provides information to help understand what moments are more emotional in the context of a situation (Azevedo et al., 2018).

The iMotions Affdex facial analysis software employed in this research has been used in numerous disciplines (iMotions, 2018). In education, iMotions Affdex software has been integrated extensively in studies using multimodal data to examine students' affective state when learning through Intelligent Tutoring Systems (Azevedo et al., 2016; Mudrick et al., 2017).

iMotions Affdex software uses the abbreviated version of the FACS developed by Friesen and Ekman (1984) to code facial action units. Friesen and Ekman (1984) developed the FACS based on a discrete emotion theoretical perspective designed to measure specific facial muscle movements (Friesen & Ekman, 1984). The system was tested on 10,000 images to verify generalizability and validation which indicated high correlations (>.8) (Kring & Sloan, 2007). A study conducted by Stöckli et al. (2018) indicate accuracy measures for Affdex showing iMotions provides data as valid as that produced by human coding judges. The instruments utilized to collect data in this research study are described in Table 2.

Table 2

Instruments

Dependent Measure	Method/Tool	Features	Type of Data
Facial expressions of emotional affect	iMotions Affdex software Module (FACS)	Core emotions of facial affect (joy, anger, disgust, and surprise).	Quantitative (Ratio; averaged mean proportion score based on the percentage of time the expressed facial emotion was evident over the duration of the simulation)
Decisions made during special education content simulation	SchoolSims Decision Feedback Report	Summary of decision selections made and not made	Quantitative (Interval; frequency count)

The iMotions software synchronizes facial expression analysis with stimuli recorded live directly from a webcam. Timeline annotations and live markers make it possible to perform behavioral and interval coding in iMotions. The module also provides 20 facial expression measures (action units), 7 core emotions (joy, anger, fear, disgust, contempt, sadness, and surprise), facial landmarks, and behavioral indices such as head orientation and attention. These

output measures provide probability values to represent the likelihood each emotion is being expressed. Summary scores of engagement and valence provide an overview of the overall expressed response.

Materials

Pre-Study Demographics Questionnaire. The informal demographics questionnaire asked participants eleven questions (See Appendix H). The questionnaire provided through Qualtrics asked participants background information in order to provide context, description of participants, and better data analysis.

Post-Study Satisfaction Survey. The informal post-study survey (See Appendix I) administered through Qualtrics asked participants six questions. Post-study satisfaction allowed participants to provide feedback about the simulation immediately upon completion. The survey also provided the researcher with information for improvements in future research-based on the participant experience.

SchoolSims Web-based Case Conference Module. SchoolSims provides a risk-free environment through software simulations where participants have an opportunity to experience day-to-day challenges in educational leadership. The "Case Conference Simulation" addresses key Professional Standards for Educational Leaders (PSEL) Standard 3. Equity and Cultural Responsiveness, 5. Community of Care and Support for Students, 8. Meaningful Engagement of Families and Community, and 9. Operations and Management. The CEC Advance Preparation Standard 3. Programs, Services, and Outcomes, 5. Leadership and Policy, 6. Professional and Ethical Practice, and 7. Collaboration also are addressed.

The SchoolSims simulation allowed participants to decide on a course of action, implement that decision, and experience consequences, all within the same 20-minute exercise. A one-page snapshot of the simulation experience is provided in Appendix D. The simulation allows participants to assume the role of a first-year principal serving as PAR for their LEA. The simulation content is delivered with embedded audio and video presentation, text, narration, and still images. Figure 3 depicts the layout and participant view of a SchoolSims Simulation.

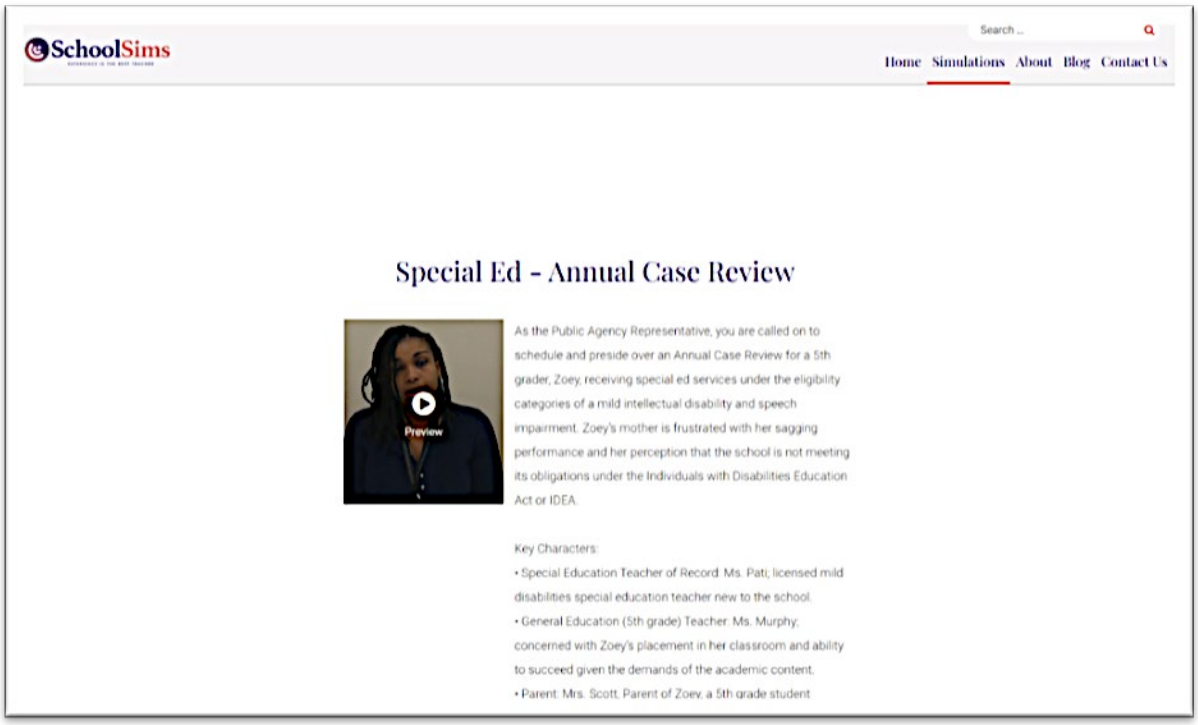


Figure 3: Participant View of SchoolSims Simulation and Opening Context

The scene was set prior to and during a special education case conference meeting following the schools release of midterm grades. The context of the simulation presented the participant with required case conference committee members; one of which is a volatile parent brought on by past leadership and teacher relations. The angry 5th grade parent challenged the expert or novice leader participant to meet the needs of their child with a disability; Appendix E

includes additional descriptions of characters' roles. The participant's understanding of the issues, federal requirements, and ways of communicating with staff and parents could impact their success in selecting the best decision in the simulation. Decision choices were prioritized by equitably following the legal guidelines and language of IDEA (2004) and ESSA (2015) requirements. Decision distractors were presented in the form of other committee members who made statements or requests not aligned with the federal requirements of IDEA and ESSA. Decisions made by the participant led to contextual reaction paths, consequences, and stakeholder pushback. Figure 4 provides an example presentation of decision choices presented to the participant during the simulation. While engaged in the simulation the participants were expected to consider resource constraints, parent concerns, and supporting staff's potential implementation of decisions made as trade-offs. Each decision option provided is independent to the decision presented. All choices presented are reasonable decisions to the context of the problem participants are addressing. Decision choices are not presented as correct or incorrect but may lead to further consequences or distractors along the path to the next decision interval. Decision choices selected are associated with professional standard themes and summarized in the generated SchoolSims Feedback Report.

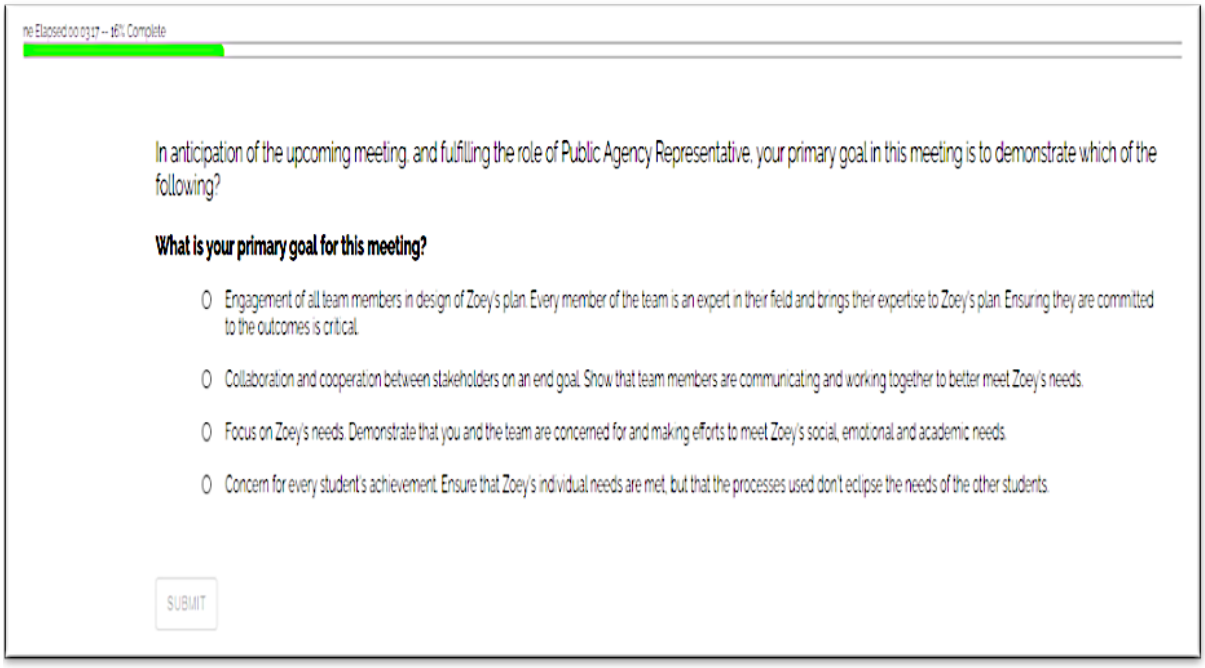


Figure 4: Example of Presentation of Decision Choices

SchoolSims Feedback Report. Each decision a participant chose from the available four options was tracked and categorized into a theme aligned with PSEL standards. Each decision interval (opportunity) was connected to special education content objectives presented during the simulation. Summarized decisions depicting the result or theme of the participant's categorized decisions were displayed through the SchoolSims Feedback Report. The report summary provided an overall picture of a participant's decision patterns in a pdf document (See example Appendix F).

Web camera. A web camera recorded participant's as they engaged with the simulation, capturing their facial expressions of emotion.

iMotions Online Data Collection (ODC) Module. The iMotions Online Data Collections module software recorded and processed participants webcam recording of data when engaged in

the SchoolSims computer simulation. Data collected were then uploaded into the cloud to be processed and analyzed by Affdex software.

Procedures

The researcher sought to explore differences between expert and novice educational leaders' emotional affect when engaged in a computer simulated (SchoolSims) special education case conference decision-making experiences. Data were collected and recorded via Qualtrics surveys, participant webcams, and then post-processed through an online cloud server using the iMotions ODC Module Software. Study session total duration lasted between 55-75 minutes.

Recruitment. Study participants were recruited through emailing university Educational Leadership Master's program course instructors during the Spring 2021-2022 semester, university faculty members serving as educational leaders, and posting recruitment flyers on social media outlets. Participants who respond to the recruitment flyer provided demographic and contact information for group assignment. Participants meeting qualifications then received IRB approved study documents through their preferred email. Once establishing email contact, participants accessed the study link, which contained the Qualtrics consent process, pre-study demographics questionnaire (See Appendix H), simulation, and post-study survey (See Appendix I). The link also noted voluntary participation with no repercussions to declining participation or ending the session prematurely. Participants were informed use of images (e.g., screenshots of facial recordings) in publications or academic conferences would require preview and additional consent prior to any use. Additionally, the information provided in the Qualtrics link noted performance remained confidential and was not shared. Participants had the opportunity to contact the researcher to ask clarifying questions about the study or about their time interacting

with the simulation. Qualtrics software was used to allow participants to accept and consent to the study as well as generate a unique alphanumeric participant ID.

Session Calibration. Calibration of participant webcam took place prior to stimuli engagement provided through the emailed iMotions ODC Software link. Figure 5 provides an image with position feedback and warning to readjust if head is moved out of the recording frame in-between stimuli. If participants could not readjust correctly after a short period of time, they were given the option to "skip this step".

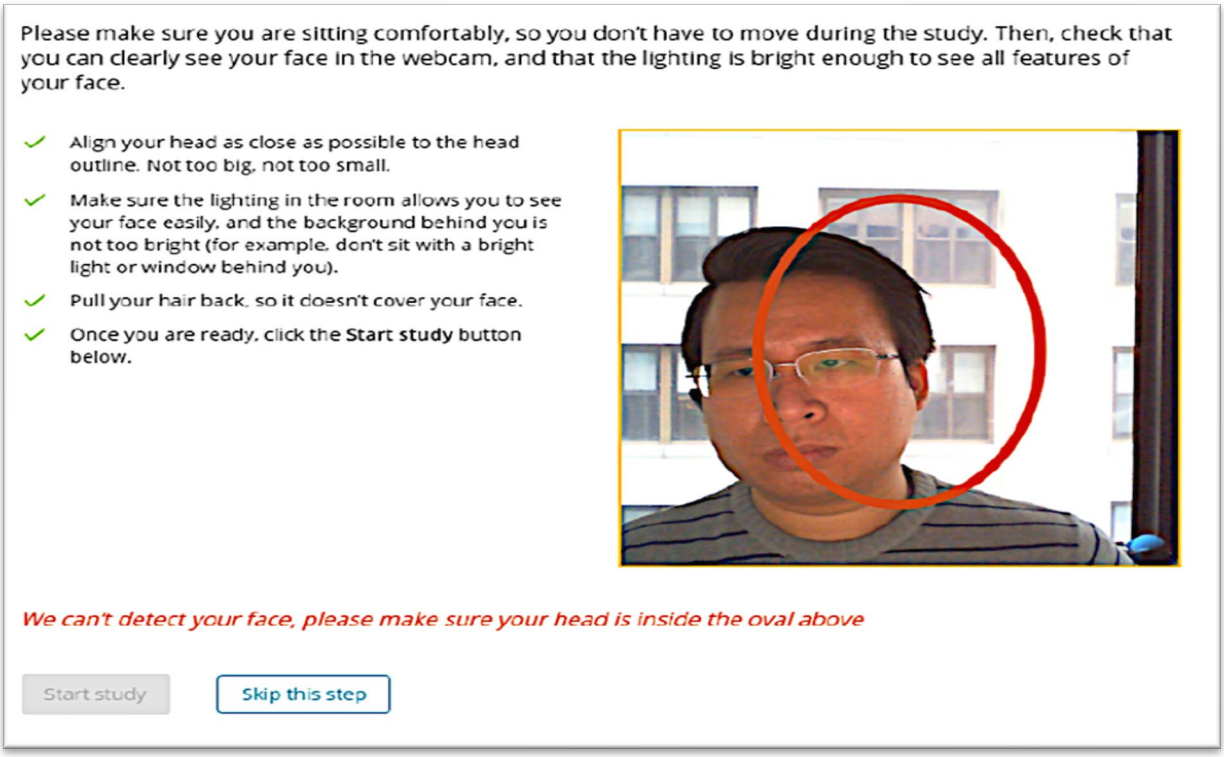


Figure 5: iMotions Calibration Feedback Image

Calibration allows the researcher to maintain and increase the quality of recorded data for processing. The study met iMotions software calibration recommendations by calibrating at a minimum of three times and at each phase of the study's stimuli. Recalibration addressed

participant repositioning and reduced attrition as a result of poor recording quality. Conclusion of webcam calibration initiated the onset of session recording and the participant demographics questionnaire provided through Qualtrics.

Session Simulation Interaction: Participants were assigned to one of two groups (novice or expert) based on meeting predetermined criteria. Both groups completed the same 20-minute SchoolSims module experience serving in the role of PAR for a simulated LEA during a special education case conference committee meeting. Participants were first given an introduction to the role context (See Figure 6) and provided with an overview of other cast members and their role (See Appendix E Cast Member Overview).

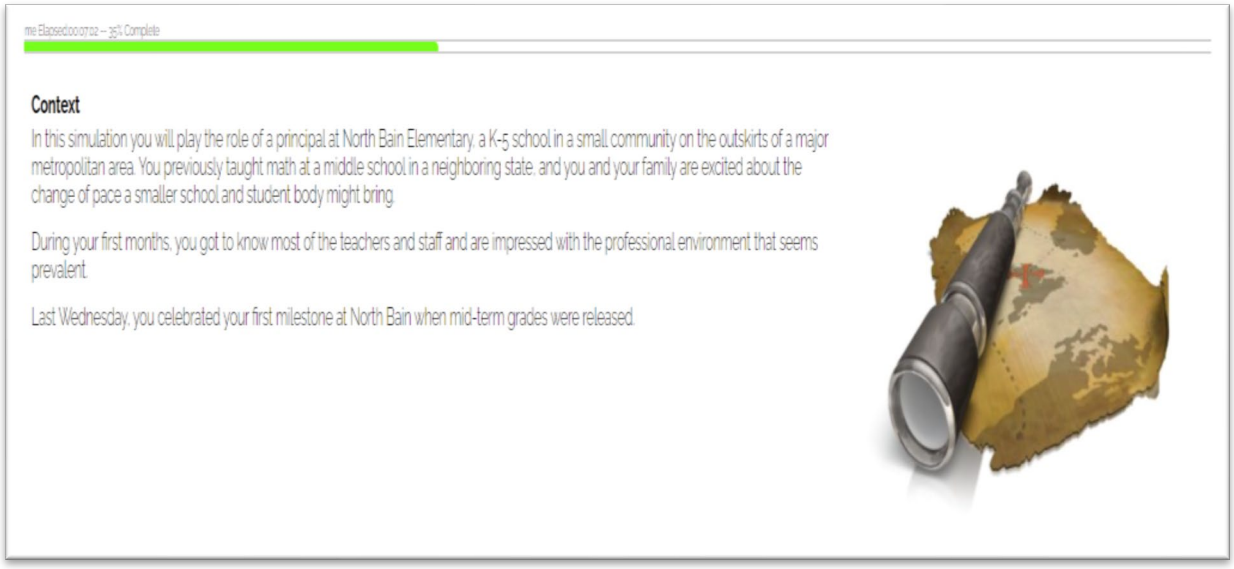


Figure 6: SchoolSims Special Education Case Conference Educational Leader Role Explanation

Required case conference committee members and their role in the simulation were presented using a combination of text, audio, video, and still images in order to contribute to the simulated meeting based on defined meeting participants' character roles. A list of characters'

descriptions and their roles can be found in Appendix E. Participants were asked not to discuss their experience in the session with other participants until the conclusion of the study.

Video Recording Annotation. Processed video recordings were annotated through the iMotions Respondent annotation tool to mark moments in which participants engaged in decision-making intervals within the simulation. Annotation creates a visual marker and allows for further analysis related to specific events, times, or scenarios.

Interrater Reliability. To ensure reliability and integrity of the study, interrater agreement data were collected for 100% of decisions on the feedback report. Data collected were scored based on an interval-by-interval calculation method (Ledford & Gast, 2018). The interval-by-interval method calculates agreement by dividing the total intervals agreed upon by both observers by the total intervals of agreement and disagreement, multiplied by 100. The result is a percentage of agreement. A peer reviewer was trained to code the data and utilize an interval-by-interval scoring method. The peer reviewer achieved 100% accuracy during fidelity training to code the data.

A peer reviewer also categorized and coded feedback report decision choices for 100% of the decision feedback reports to ensure interrater agreement to the results. The peer utilized an interval-by-interval method to check the data. The peer was trained to code and review the data with a fidelity rate of 100%. Agreement was calculated by dividing the total intervals agreed upon by both observers by the total intervals of agreement and disagreement, multiplied by 100. Interrater agreement resulted in 100% agreement for 100% of the data.

Reliability and Validity

Threats to internal and external validity to the research are discussed in Tables 3 and 4.

Table 3

Threats to Internal Validity

Threat	Status	Explanation
History	Partially Addressed	The duration of time spent in the experiment was contained to one session lasting less than an hour making it unlikely that influences outside of the setting impacted participate outcomes during the session. The researcher-maintained components of the study's graphics, video presentation, audio narration, actors, and the amount of time in each segment throughout for both groups to maintain fidelity and control to the effects of the independent variable and avoid bias. Participant's prior field experience may have influenced outcomes depending on content expertise.
Maturation	Addressed	The duration of time contained to one session made it unlikely maturation influenced data collection outcomes.
Testing	Addressed	Utilizing a quasi-experimental group design limited to one session controlled for effects of testing as each group participated in one testing condition limited to one session.
Instrumentation	Addressed	The measures remained consistent by running the webcam recorded video sessions through the same analysis software for both groups post hoc without the influence of the researcher.
Statistical Regression	Mostly Addressed	Descriptive statistics were utilized to determine significant differences in attributes within groups. The design did not include a pre-post measure; therefore, there is not a threat from subsequent tests.
Selection	Partially Addressed	A criterion sample was utilized to assign participants to groups. A lack of randomization resulted due to the convenience sample available, therefore, differences within the groups may not be reduced.

Threat	Status	Explanation
Mortality	Mostly Addressed	Maintaining the experiment to one session within a short duration of less than an hour reduced the chance of lost participants from a group or between groups.
Placebo	Addressed	The simulation to the assigned participant levels are the same, therefore, no placebo condition exists. Participants are blind to the assigned level label of novice and expert. Data collection and analysis progressed without socially desirable influences of the researcher.
Contamination Effect	Not Addressed	Participants may engage in activities in their day-to-day jobs that expose them to similar content within the simulation (special education case conference meeting), which may resemble the experiment desensitizing and impacting the outcome. Participants were asked if they had prior experience with SchoolSims simulations in the post-study survey.
Hawthorne Effect	Partially Addressed	Participant sessions occurred in a setting determined comfortable and recorded with their own webcam without the attention of a researcher.
Experimenter Bias	Partially Addressed	Software analysis processed data, therefore interpretation by the researcher is reduced.
Interaction Effects	Mostly Addressed	Demographic data collected determined differences in consistency between groups.

Table 4

Threats to External Validity

Threat	Status	Explanation
Sample bias	Not Addressed	The convenience sample utilized without random selection makes it difficult to generalize.
Reactive or interaction effects of testing	Not Addressed	By conducting the study in a controlled online simulated environment the participants may act differently than when in a non-clinical setting as they may react to knowing they are in a study or being associated with course content.
Reactive Effects of Arrangements	Partially Addressed	Providing the study in a controlled simulated environment controls for confounding variables present in a natural meeting environment reducing the validity of the independent variable.

Threat	Status	Explanation
Multiple Treatment Interference	Partially Addressed	Maintaining a controlled simulated environment allowed for increased ease of replication and control of interference. However, given the online nature and participants completing the activity at a site of their choice any interference or outside conditions are unknown.
Ecological effects	Not Addressed	Inclusion of multimedia graphics, narration, and audio as presented in a case conference meeting allows for the context of the study to be presented to some extent as in a simulated real-world setting. However, as real as simulated environments can be created this experience does not provide the same level of experience as real-time, real-world.

Data Analysis

The researcher used iMotions Affdex software to process participants' captured facial expression of emotion data (e.g., joy, surprise, disgust, and anger) as a mean proportion score during each decision interval and then averaged the score to compare participant groups. Participant's decision choice intervals were summarized through the SchoolSims Feedback Report. The summary report provided details of each decision in the simulation. Interval values were assigned to the decision's feedback report for descriptive frequency analysis by the researcher. All data sources were statistically analyzed using IBM SPSS Statistics (Version 28).

The statistical analysis of research question 1 used a One-Way Multivariate Analysis of Variance (MANOVA) as the research question includes an independent variable with two categorical levels (expert and novice educational leaders) and four dependent variables of facial expressions of emotions including joy, anger, disgust, and surprise. The MANOVA is a statistical technique sometimes considered as an extension of ANOVA for multiple dependent

variables rather than just the one dependent variable (Laerd, 2015). The assumption in using a MANOVA is a linear relationship exists between the multiple dependent variables. A MANOVA demonstrates the strength of the associated combined dependent variables to form a 'new' dependent variable in such a way as to maximize the differences between the groups of the independent variable levels (expert and novice). Between this new composite score variable the MANOVA examines statistically significant differences between the groups for statistical significance.

Evaluation of Statistical Assumptions

Prior to running the MANOVA, the data must meet a variety of different assumptions to produce a valid result (Laerd, 2015). The researcher first analyzed the data to ensure the following assumptions were met:

- Two or more dependent variables measured at the continuous level.
- Two or more independent variables consisting of two or more categorical, independent groups.
- Independence of observations in each group or between the independent variables.
- A linear relationship between the dependent variables for each group of the independent variable using scatter plat matrices.
- An adequate sample size consisting of more cases in each group than the number of dependent variables analyzed.
- No univariate outliers in each group by using boxplots or multivariate by using Mahalanobis distance.
- Multivariate normality established through the Shapiro-Wilk test of normality.

- A linear relationship between each pair of dependent variables for each group of the independent variable completed by plotting a scatterplot matrix for each group of the independent variable.
- Homogeneity of variance-covariance matrices using Box's M test of equality of covariance matrices and Levene's test of homogeneity.
- No multicollinearity; determined by using Pearson correlation coefficients.

Analysis of research question two occurred through descriptive statistics to analyze the frequency of decisions for each decision interval and the differences found to exist between expert and novice participants. A frequency distribution of data was generated through SPSS. The frequency distribution report provides the number of decisions made by each participant within each of the special education decision content themes created within the simulated experience. The data ranges were broken into four intervals and assigned a numeric value for frequency analysis for each of the six decisions. This information indicates decision patterns held by each group.

CHAPTER FOUR: RESULT

Leaders under IDEA (2004) and ESSA are accountable for the outcomes of all students, including students with disabilities. The IDEA mandates building-based leaders make decisions about the services students will receive in the LRE and what FAPE services they will receive (DeMatthews et al, 2020a; Demirdag, 2017). How leaders learn to make the best decision for providing services for SWD in the LRE is not clearly understood in the current research literature. Therefore, the researcher in this study sought to investigate the differences between novice and expert educational leaders' decision-making skills in a simulated environment. The researcher collected data to answer the following research questions:

Research Question 1: Do statistically significant differences exist between expert and novice educational leaders' facial expressions of emotion (joy, anger, disgust, and surprise) as measured by mean proportion scores of emotions during a simulated special education case conference decision-making scenario?

Research Question 2: Does the frequency of choice selections during decision intervals in a simulated special education case conference differ between expert and novice educational leaders?

To answer these questions the researcher examined expert and novice leaders in a SchoolSims case-study conference by examining their decision-making and facial expressions of emotion using iMotions AFFDEX (2018). In total, 64 participants experienced the SchoolSims case study, but only 17 participants were included in the final data analyses. The researcher had to omit 46 participants because their facial emotional data were deemed unobtainable due to technical issues with their home equipment and/or the Internet. Since this dissertation occurred

during the pandemic, the study was limited to participants completing the activities online, which greatly impacted the overall data collection procedures. Of the remaining 17 participants, ten were assigned as novices and seven were experts. The researcher employed a quasi-experimental research design to examine differences within and across these two groups. The researcher in this chapter provides study data sources, statistical data analysis, and concludes with findings. The researcher utilized iMotions Affdex technology to scientifically measure and report facial expressions of emotion captured from participant's webcam recordings. iMotions Affdex software, validated by empirical testing indicating reliability to predict the presence of basic facial emotions based on FACS (Ekman & Friesen, 1978) to the 90th percentile (Stockli et al., 2018) was used to code one of four facial expressions. A limitation to iMotions technology is the recognition of emotion by the software based on facial muscle measurements and movements contained within the algorithms (iMotions, 2018).

Data Sources

Participants took part in a pre-study demographics questionnaire (See Appendix H) and post-study satisfaction survey (See Appendix I). The researcher employed descriptive statistics to determine frequency as well as mean similarities and differences between the groups in pre- and post-simulation data. Descriptive statistics were obtained using IBM SPSS Statistics for Windows, Version 28.0 statistical software to analyze the data extracted.

SchoolSims Feedback Reports (See Appendix F) were utilized to examine the frequency by which decision choices were selected by each participant within the group during simulation decision intervals. The simulation experience included a total of six decision intervals based on the most common special education dispute resolution filings as reported by the U.S. Department

of Education (2020). The choice options for each decision were labeled with nominal categories of one-four with no intrinsic order or value representative to the coding. The percentage of individuals in each group selecting choices was calculated by dividing the number selecting the option by the total members within the group, and then multiplying by 100. A peer reviewer also categorized and coded SchoolSims Feedback Report decision choices to ensure inter-rater agreement to the data source.

Descriptive frequency distributions were obtained for each of the participant's six-decision intervals. Each decision interval provided the participant with four choice options. Decision choices presented in each interval were scored independently as choice options were not summative to an overall result. Frequency distribution of decision intervals explored mean differences between expert and novice group decisions. Decision choice options for each of the six decisions selected and evidenced in participant's Feedback Reports were categorized and labeled as one to four.

Additionally, individual participant's recordings obtained through the iMotions ODC Module were analyzed through iMotions (2018) Affectiva Affdex software. iMotions Affectiva Affdex software, generates an evidence score value for each facial emotion (Stockli et al., 2018). The software evidence score for this study was limited to the percentage of time metric for each facial emotion as evidenced at or above a predetermined threshold level. A threshold level was used to determine the likelihood a human coder coding for that facial emotion would obtain the same measure. Based on consultation with experts from iMotions, the threshold level for analysis in the study were set to 50%, a moderately strong display of facial response. The evidence values

of emotion were computed as a mean percentage of time as a result of observed emotions in one second time period intervals for the duration of the 30-minute simulation.

Through iMotions data visualization tools, respondent recordings were annotated at each decision interval frame. The iMotions respondent annotation tool was used to mark each of the six decision intervals. The onset was marked at the moment a participant's screen indicated a choice was to be made. The conclusion of the annotation for each decision interval was upon the participants selecting the submit icon for their choice. The annotation created a visually displayed marker as well as provided an opportunity for further analysis specific to events, times, or scenarios within the stimuli. Annotations did not yield facial emotion data specific to decision interval time measures, therefore the analysis was based on evidence scores yielded over the duration the participant engaged with the simulation. The researcher also analyzed evidence scores of facial emotion using descriptive statistics to determine mean differences of the emotions between groups. iMotions outputs seven facial emotions, but for this study, only evidence scores for joy, anger, disgust, and surprise were investigated in the analyses of expert versus novice decision-making during the SchoolSims special education conference. The small sample size necessitated elimination of variables in order to separate the number of dependent variables analyzed from the number of cases in each grouping of the independent variable during the statistical analysis. The researcher decided to eliminate fear, contempt, and sadness as variables of emotion in the statistical analysis due to a lack of captured data exhibited by participants revealed during the annotation of data. Due to the exploratory nature of the study the researcher selected two emotions from each opposite extremes (2 positive and 2 negative) in the

final analysis. Prior researchers link these four emotions as important in understanding digital learning environments (Boekaerts & Pekrun, 2015; Vogl et al., 2019; Wijekumar, 2021).

Data Analysis

Participants took part in a pre-study demographics questionnaire; results are presented in Table 5. Of the sample, 76.5% (N= 13) identified as 'female', 23.5% (N= 4) identified as 'male', and 0% (N=0) identified as 'other'. Within this sample, participants ranged from 29 to 73 years old with an average overall age of 44. The ethnicity reported by participants was 76% (N=13) Caucasian, 6% (N=1) African American, and 18% (N=3) Other. The sample is not diverse and does not contain a representation of educational leaders drawn from the population. This sample does skew towards a proportionately high percentage of female.

Table 5

Participant Demographics by Group

Variables		Study Group, n (%)		
		Expert (n=7)	Novice (n=10)	Percentage Total
Age	Mean (*SD*)	53 *(11.236)*	39 *(7.724)*	100%
Gender	Male	1 (14%)	3 (30%)	23.5%
	Female	6 (86%)	7 (70%)	76.5%
	Other	0 (0%)	0 (0%)	0%
Ethnicity	Caucasian	7 (100%)	6 (60%)	76%
	African American	0 (0%)	1 (10%)	6%
	Other	0 (0%)	3 (30%)	18%
Educational Level	B.A.	0 (0%)	1 (10%)	6%
	M.A.	4 (57%)	8 (80%)	70%
	Ed. D	3 (43%)	0 (0%)	18%
	Ph. D	0 (0%)	1 (10%)	6%
Work Experience	0-5	0 (0%)	10 (100%)	100%
	6-10	0 (0%)	0 (0%)	0%
	11-15	2 (29%)	0 (0%)	12%
	16-20	0 (0%)	0 (0%)	0%
	+20	5 (71%)	0 (0%)	29%
Special Ed. Degree	Yes	2 (29%)	6 (60%)	47%
	No	5 (71%)	4 (40%)	53%

Examining the education level would indicate, 6% (N=1) of participants listed a Bachelor's degree as the highest level of education attained. A total of 70% (N= 12) indicated a Master's degree, while 24% (N= 4) indicated earning an Ed.D. or Ph.D. degree. The demographic questionnaire asked participants to identify their years of experience as an educational leader, and whether they have experience working with special education populations. In total, 80% (N=8) of novice participants identified as having 0-5 years of experience; while 71% (N=5) of expert participants identified having more than 20 years of experience. All participants indicated having worked with students receiving special education services. The demographic questionnaire asked participants to identify their undergraduate

degree to determine advanced knowledge of special education. A total of 47% (N= 8) indicated they had an undergraduate degree in special education. Of the remaining participants, 53% (N= 9) indicated their undergraduate degree was in another area of expertise (e.g., Biology, English, History, Theatre).

To answer research question 1, do statistically significant differences exist between expert and novice educational leaders' facial expressions of emotion, a one-way multivariate analysis of variance MANOVA was run to determine the significant differences of leaders' expressions of facial emotion (joy, anger, disgust, surprise). Table 6 shows the main results of the Multivariate Tests. Each row provides the name of the multivariate statistic to test statistical significance of the difference between groups. The label "Group" in Table 6 represents the name of the independent variable. This information represents the educational leader groups, experts and novices. Four measures of expressions of facial emotion were assessed: disgust, joy, surprise, and anger due to the high attrition rate resulting in a small sample size. Educational leaders were assessed in groups as expert or novice. Based on the Shapiro-Wilk's test ($p > .05$), facial expressions of emotion scores were found to lack normality. The researcher determined, due to the small sample size and the nature of the research investigating differences, outliers were to remain without combining or deletion. Pearson correlation ($r = .835$, $p = <.001$) indicated lack of multicollinearity between disgust and joy. Multicollinearity did exist, as assessed by Pearson correlation for disgust and surprise ($r = .383$, p = .129); disgust and anger ($r = .451$, $p = .069$); joy and surprise ($r = .261$, p =.319); and joy and anger ($r = .305$, p =.234). The researcher chose to not transform the data by combining variables as the data represented by the variables are considered distinct in the representation of facial emotion coding. Mahalanobis

distance ($p > .05$) indicated no multivariate outliers. Homogeneity of variance-covariances matrices, as assessed by Box's M test of equality of covariance matrices indicated a lack of homogeneity ($p = <.001$). As a result of the violation of homogeneity of variances-covariance and unequal sample size, the researcher determined the test would be interpreted using Pillai's Trace. Homogeneity of variances, as assessed by Levene's Test of Homogeneity of Variance ($p > .05$) did exist. The differences between the educational leaders on the combined dependent variables were not statistically significant, $F(4, 12) = .791$, $p = .553$; Pillai's Trace = .209; partial $\eta^2 = .209$. Further non-parametric analyses were not conducted due to the non-significant results.

Table 6

Results from MANOVA Test Statistic for Group Differences in Emotion

Multivariate Test							
	Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.435	2.308[b]	4.000	12.000	.118	.435
	Wilks' Lambda	.565	2.308[b]	4.000	12.000	.118	.435
	Hotelling's Trace	.769	2.308[b]	4.000	12.000	.118	.435
	Roy's Largest Root	.769	2.308[b]	4.000	12.000	.118	.435
Group	Pillai's Trace	.209	.791[b]	4.000	12.000	.553	.209
	Wilks' Lambda	.791	.791[b]	4.000	12.000	.553	.209
	Hotelling's Trace	.264	.791[b]	4.000	12.000	.553	.209
	Roy's Largest Root	.264	.791[b]	4.000	12.000	.553	.209

[b]Exact statistic

An example of each facial emotion expressed by a participant is available in Figure 7. Descriptive statistics for each emotion are revealed in Table 7 and distinguished by the expert and novice grouping. Results displayed report the mean score and standard deviation of the percent of time each facial emotion was present by the group at or above the predetermined threshold level. Novice participants expressed higher mean expressions of each facial emotion

(joy, anger, surprise, disgust) overall (5.75 ± 8.83, 1.46 ± 1.83, 0.64 ± 0.94. and 0.29 ± 0.45, respectively) than expert participants (0.14 ± 0.22, 0.61 ± 0.79, 0.07 ± 0.21, and 0.09 ± 0.15, respectively).

Figure 7: Example Facial Expression Image

Note. This image provides a visual example of facial expressions of emotion data and captured facial markers used for facial action coding as used by iMotions Affdex (2018) software algorithms to provide metric output.

Table 7

Descriptive Statistics for each Emotion by Group

Expressed Facial Emotion Group Mean				
Emotion	Group	Mean	Std. Deviation	N
Joy	Expert	0.14	0.22	7
	Novice	5.75	8.83	10
Surprise	Expert	0.61	0.79	7
	Novice	1.46	1.83	10
Disgust	Expert	0.07	0.12	7
	Novice	0.64	0.94	10
Anger	Expert	0.09	0.15	7
	Novice	0.29	0.45	10

[a]Each mean score represents the percent of time the expressed facial emotion was evident by the respondent group over the duration of the simulation. The standard deviation indicates how close group respondent scores are to the mean.

In order to answer research question 2, does the frequency of choice selections during decision intervals in a simulated special education case conference differ between expert and novice educational leaders, respondents' decision choices were obtained from the SchoolSims decision feedback reports. Data extracted from the reports were analyzed through descriptive statistics using SPSS and are displayed in Table 8. Frequency scores for each of the six-decision intervals are shown as well as a breakdown of each choice option available, and the content of the decision presented to the participant during the decision. Each decision interval provided the participant four choice options. The researcher analyzed each decision choice from the feedback reports (See Appendix F) individually as decision intervals did not lead to a summative score. All choices presented in the SchoolSims case-conference were reasonable decisions to the context of the problem participants were addressing therefore, were neither correct or incorrect answers. The overall percentage for each choice selected is displayed as well as the number of participants in the group choosing that option. Additionally, decision intervals are color coded

providing a visual representation and indicating prevalence to the group's overall choice during the individual decision interval. The highest percentage or number of expert participants selecting a choice option for each of the six-decision intervals is represented in blue while novices are orange.

Table 8

Decision Interval Score Choices Between Groups

Decision Interval Number	Decision Content Objective	Choice Option	Decision Choice Option Frequency/ Percentage by Group	
			Expert (N=7)	Novice (N=10)
1	Meeting Goal	1	3 (43%)	5 (50%)
		2	2 (28.5%)	2 (20%)
		3	2 (28.5%)	3 (30%)
		4	0 (0%)	0 (0%)
2	Special Education Priority	1	2 (29%)	4 (40%)
		2	1 (14%	3 (30%)
		3	1 (14%)	0 (0%)
		4	3 (43%)	3 (30%)
3	Accommodating Needs	1	1 (14%)	2 (20%)
		2	0 (0%)	0 (0%)
		3	0 (0%)	6 (60%)
		4	6 (86%	2 (20%)
4	Responding to Allegations	1	4 (57%)	10 (100%)
		2	1 (14%)	0 (0%)
		3	2 (29%)	0 (0%)
		4	0 (0%)	0 (0%)
5	Placement Decision	1	3 (43%)	3 (30%)
		2	4 (57%)	6 (60%)
		3	0 (0%)	0 (0%)
		4	0 (0%)	1 (10%)
6	Allocating Resources	1	7 (100%)	9 (90%)
		2	0 (0%)	0 (0%)
		3	0 (0%)	0 (0%)
		4	0 (0%)	1 (10%)

[a]Each score represents the interval frequency number a respondent choice that option as their decision. Percentages are based on the total number members within the group selected the option.

The results provided in Table 8 indicate the majority of expert and novice group members made similar decisions during the simulation with regard to the following four decision content areas: (a) selecting the goal of the meeting, (b) responding to allegations, (c) placement decisions, and (d) allocating resources. Expert and novice group decisions differed when decision content addressed prioritizing special education and accommodating needs. Addressing special education as a priority left participants deciding how best to sustain collaborative or productive relationships between the school and family for the benefit of the student. Prioritizing special education left participants differentiating between choice options as tradeoffs.

Participants in their role as leader were to determine a course of action demonstrating trust of school personnel while also ensuring members of their team are engaged and committed to the student's academic, social, emotional, and physical needs. In this decision interval the majority of novice participants (40%, N=4) selected "*Email the parent to schedule the meeting and introduce yourself. Being new to the school and understanding your role as facilitator of the upcoming meeting, you feel obligated to be the first point of contact to the parent and set things up personally*". While experts (43%, N=3) preferred "*Thank Ms. Pati for the job she does and then ask if she would mind contacting the parent and scheduling the meeting. Showing gratitude and expressing confidence in Ms. Pati's skills and dedication will build her confidence.*"

Decision interval three placed participants in a situation where case conference members desires differed extensively. In an attempt to accommodate divergent needs, leaders were presented with choice options in which they had to decide how best to create a positive, collaborative, and productive relationship without increasing tension and additional future obstacles for all involved. In this decision interval novice members (60%, N=6) most often

selected the option associated with integrating technology modalities to meet case conference member needs. While 86% of experts (N=6) selected the option most conducive to meeting faculty needs and budget constraints. The side-by-side visual comparison presented in Figure 8 depicts an alternative view to each decision interval and the frequency in which participants chose options as group members.

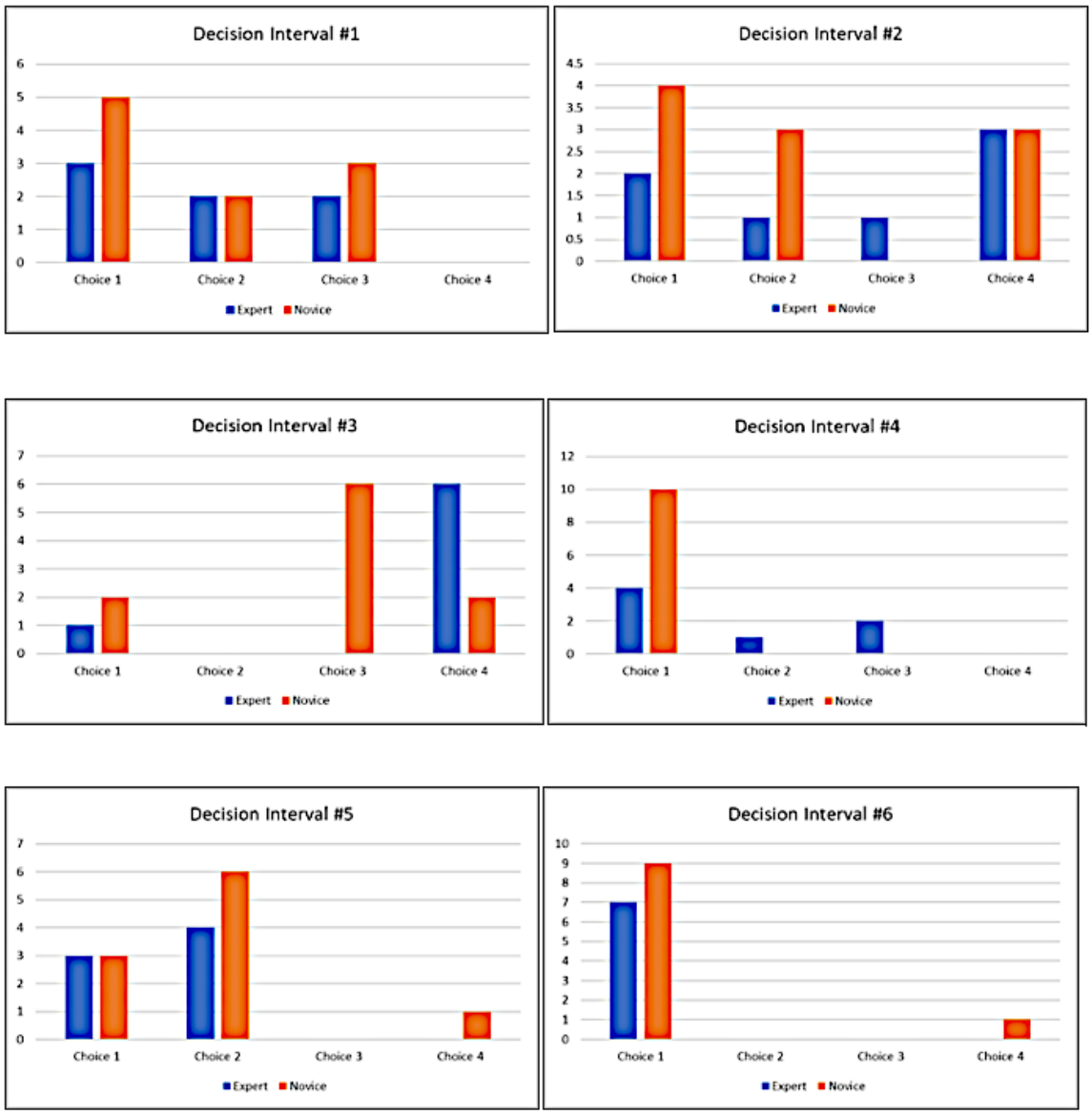


Figure 8: Decision Interval Choice Selections

Only during two decision intervals did any one group select a choice option with 100% agreement. During decision six, experts all agreed to investigate pre-existing resources available prior to obligating the school to resources associated with agreeing to parent demands and excess cost. Decision interval four, would be the only time 100% of novice selected in agreement. This choice option would be in response to lack of IEP implementation and parent allegations. Novices chose to rectify the situation by recognizing the lack of implementation provided by the school and allowing the parent to communicate ways to rectify the situation in a productive non-judgmental manner.

Social Validity

Social validity measures were utilized to provide the extent to which the study components provided acceptance and importance to the study population (Wolf, 1978). The target population, expert and novice educational leaders, were asked to answer questions (See Appendix I) based on their reactions to the simulation research, concerns, and feelings of satisfaction. The social validity data were collected through an informal Qualtrics post-study satisfaction survey at the simulation's conclusion. The survey questions were distributed to participants through their original study link.

The post-study satisfaction survey results, as seen in Table 9, indicates 100 % of participants (N=17) found the simulation valuable. When asked to identify any prior experience with SchoolSims, only 5%, (N=1) indicated prior experience with SchoolSims as a simulation tool. In total, 100% of participants (N= 17) identified the content of the simulation as realistic. A total of 82% (N=14) of participants said yes to use of simulation in the future as a learning tool.

Table 9

Participant Satisfaction by Group

		Study Groups, N (%)		
		Expert (N=7)	Novice (N=10)	Percentage
Valuable Simulation	Yes	7 (100%)	10 (100%)	100%
	No	0 (0%)	0 (0%)	0%
Ease of Use	Yes	7 (100%)	10 (100%)	100%
	No	0 (0%)	0 (0%)	0%
Prior SchoolSims Experience	Yes	0 (0%)	1 (10%)	5%
	No	7 (100%)	9 (90%)	95%
Realistic Content	Yes	7 (100%)	10 (100%)	100%
	No	0 (0%)	0 (0%)	0%
Likelihood to Use Again	Yes	6 (86%	8 (80%)	82%
	Maybe	1 (14%)	2 (20%)	18%
	No	0 (0%)	0 (0%)	0%

[a]Each score represents the interval number and percentage respondents felt the simulation decision experience and content had value.

Summary of Findings

In this chapter, the researcher presented the exploratory findings of this quasi-experimental study focused on expert-novice facial emotion and decision-making in a special education case conference simulation. The researcher first identified the characteristics to the sample through a pre-study demographics questionnaire. A total of 17, ten novices and seven experts participated in the study. The sample of participants contained a proportionately high number of Caucasian females. Experience levels used in categorizing participants into expert novice groups were maintained in alignment with the literature with novices having 5 years or less and experts possessing 15 years or more. It should be noted the majority of novice participants' (60%, N=6) reported an undergraduate degree in special education with only 29% (N=2) of experts obtaining the same degree type.

The researcher first annotated decision intervals revealing a lack of emotion data present during decision submission. Annotation procedures within iMotions proved beneficial to further understanding participants' facial emotions resulting from exposure to possible media components (video and/or audio) built into the simulation. Observing participants during video replay of the webcam recordings of the simulation indicated triggers may be the result of voicemail audio recordings or video rather than the mere act of engaging in a decision. Interpreting findings while previewing webcam recordings afforded the researcher a greater understanding of the overall low affect presented by experts during the simulation compared to novices than mere numeric values alone.

As a result of the small sample size and uneven cases within the sample, researcher decisions about assumption violations were necessary throughout the analysis. Results indicated a lack of statistical significance in this exploratory research, however, differences in data patterns emerged. All four facial emotions (joy, surprise, disgust, anger) were detected during the simulation at or above the moderate threshold level by each group. The emotion joy was detected by novice members at the greatest level (M=5.75, SD=8.83). While anger was detected the least within the novice group (M=.29, SD=.45) in comparison to other emotions. Overall, experts detected little facial emotion data. The emotion detected at the highest level by experts was surprise (M=.61, SD=.79); with disgust the least (M=.07, SD=.12). The low standard deviation in emotion by experts indicated members displayed their emotions consistently. Research question 2 revealed decision choice selection differences within the content areas of prioritizing special education and accommodating needs to differ the most by expert and novice groups.

Data from the satisfaction survey indicated 100% of expert and novice leaders felt they benefited from the case conference simulation experience. Agreement to portrayal of topic content being realistic was found to be 100%. When asked if they were likely to use simulation again as a learning tool, 82% agreed to yes with 18% selecting maybe. Further discussion of results, limitations, and implications for future research aligned with the systematic literature review are discussed in Chapter 5.

CHAPTER FIVE: DISCUSSION

This study aimed to determine potential differences between expert and novice educational leaders' facial emotional data when engaged in a special education case conference decision-making simulation. The researcher processed webcam recordings of participants' facial expressions of emotion data during the simulation using iMotions AFFDEX technology (iMotions, 2018). Mean proportion scores of facial emotion along with frequency counts of decisions made in the simulation were analyzed to determine if differences existed between expert and novice groups. In this chapter, the researcher discusses results drawn upon conclusions relevant to expert and novice leaders' differences as they pertain to (1) facial expressions of emotion and decision-making in existing literature, (2) bridging theoretical framework cohesion, and (3) identifying the intersectionality and differences between expert and novice leaders. Findings and limitations of the research are discussed in relation to the potential significance within the broader field of leader preparation and the impact of understanding the leaders' emotions and decision-making process on working with families of SWD.

Leaders' Decisions and Facial Emotion in Simulation

The existing literature lacks how experts and novice educational leaders make decisions and their facial emotional status during critical events (i.e., special education conferences). Leaders attempt to make their best decisions to improve outcomes for the student population as a whole while also meeting the needs of diverse student populations (Hoppey & McLeskey, 2013; Khaleel et al., 2021). Karseth and Moller (2020), in their analysis of building-level leaders, argued economic constraints at the local level result in discretionary dilemmas. These dilemmas potentially stimulate emotional responses by leaders that could result in internal physiological

changes as well as external changes in their facial expressions. The authors state discretionary space in decision-making gives way for risk, weakened action, obscuring equal educational opportunities and legal rights of students with special needs. As classrooms become more diverse, relying on a leader's educational experience and expertise can never encompass all subgroups when they enter the field, yet, the decisions they make are critically important to results (Hoover & Teeters, 2019). Wang (2020) acknowledges that intense scholarly inquiry is needed in educational leaders' emotional responses during the decision-making process to understand the impact and nature of this process. As seen in this research study, a simulation experience designed specifically to explore emotional expression and decision-making advances the understanding of the intersection between these two factors and potential differences between expert and novice leaders.

Experienced Facial Emotions

Often researchers studying emotion cluster the emotions together as opposed to analyzing their individual impact (Jarrell et al., 2017). The researcher in this study followed this pattern and looked at the polar emotions at the two ends of the emotional spectrum, specifically examining anger and disgust in contrast to joy and surprise. The aforementioned emotions were selected as a result of prior research domains theoretically and empirically linking emotions to digital learning environments (Boekaerts & Pekrun, 2015; Vogl et al., 2019; Wijekumar, 2021). Studying differences between novice and expert facial expressions of emotions during simulated special education decision-making environments provides foundational data to better understand the decision-making process and intersectionality of emotions of novice versus expert leaders.

In terms of data captured during the simulation, group differences of facial expression of emotion were not significant. However, novice leaders' facial expressions of emotion data were present at a higher level than experts suggesting novice leaders experienced higher levels of emotion potentially resulting from cognitive dissonance, the mental discomfort resulting from conflicting knowledge, beliefs, values, or attitudes (Muis et al., 2018). The content of the simulation required participants to make complex decisions related to being placed in a new role as the PAR. Performing in a new role leads to a knowledge-generation process invoking epistemic emotions (Pekrun et al., 2017). Epistemic emotion is an emotion triggered by cognitive dissonance during a cognitive appraisal (Boekaerts & Pekrun, 2015; Muis et al., 2018; Pekrun et al., 2017; Vogl et al, 2021). Higher displays of facial emotion data, as suggested by research in epistemic emotion, suggest novice leaders were presented with cognitive challenges due to contradictions between new information presented in the simulation and existing personal knowledge or beliefs (Muis et al., 2018; Vogl et al., 2021).

Thompson (2017) indicates special education leadership preparation impacts confidence levels during leadership tasks, which may explain the differences in emotional expressions in this study between experts and novices. The facial emotional data exhibited by expert leaders were found to be exhibited at an overall lower percentage of time compared to novice leaders suggesting advanced leaders had greater control of their facial expressions. Emotional stability is noted to be achieved with increased levels of training and experience in a role (Torrence & Connelly, 2019). The possession of an undergraduate degree in special education in this study did not equate to advanced knowledge or increased leadership ability to perform in special education-oriented leadership tasks of novice or expert groups which is consistent with the

literature by Thompson (2017). Overall, the resulting group differences in levels of facial emotion data align with past research indicating the mere presence of a special education degree does not foster confidence, as noted by the facial tracking of the novices in this study. Therefore, a lack of confidence may have contributed to the increased facial emotion displayed by novice leaders. This led the researcher to question whether emotions displayed during high-stakes meetings by novice and expert leaders were reflective of how they managed and communicated their emotions through adaptive emotional regulation strategies or maladaptive emotion suppression related to their level of special education leadership preparation and experience.

Decisions Experienced by Novice and Expert Leaders

The researcher in this section reflects upon the expert and novice decision data found in Figure 8 and Table 8. The six decisions experienced in the simulator by both novices and experts were based upon the most common special education case conference areas subject to dispute resolution filings, as reported by the U.S. Department of Education (2020). Overall, the simulation allowed participants to determine the path they felt most appropriate to remedy the conflict set before them in a safe environment. However, the simulation environment assumed participants understood their role in the meeting to identify and advocate for the needs of all concerned, faculty, staff, parents, students, and the larger community. These participants were tasked with leadership responsibilities (ESSA, 2015) and decisions aligned to ensuring the student had equitable access to effective teachers, learning opportunities, academic and social support, and other resources necessary for success in accordance with IDEA (2004).

In the analysis of decision frequency, the data reflected group differences occurred most often at decision intervals two and three. Decision content within these two intervals aligns with

Professional Standards for Educational Leaders (PSEL) 8b, 8c, and 9k. Standard eight centers around the meaningful engagement of families and community decisions. While standard nine invokes effective leaders to manage school operations and resources to promote each student's academic success and well-being through decisions central to fair and equitable means.

During decision interval two, which addresses prioritizing special education and aligned to PSEL Standards 8b, 8c, and 9k, novices more frequently chose decisions exhibiting authority and control by becoming the first point of contact with the parent. The novice choice stated, "*Email the parent to schedule the meeting and introduce yourself. Being new to the school and understanding your role as facilitator of the upcoming meeting, you feel obligated to be the first point of contact to the parent and set things up personally*". This decision set the tone and trajectory path, obligating the leader to future direct parent communication in the simulation. Experts may not have chosen this option as this signaled direct administrative involvement which outside stakeholders could view as favoritism. The expert could see this decision as leading to future ramifications while not improving the current situation. Alternatively, experts selected the choice which read, "*Thank Ms. Pati for the job she does and then ask if she would mind contacting the parent and scheduling the meeting. Showing gratitude and expressing confidence in Ms. Pati's skills and dedication will build her confidence*." in which the advanced leaders were found to not take on more task obligations but rather build the teacher's confidence while providing support from afar. Novices may have refrained from selecting this option as it may have been viewed as dismissive from the pleading teacher's point of view.

Decision interval three, which aligned to PSEL Standards 8b, and 9k, asked how participants would approach accommodating the needs of conference committee members. The

majority of experts in decision interval three selected, "*Offer to meet during Mrs. Scott's lunch hour. This is a time when everyone's schedule may be accommodated.*" This decision resulted in maintaining the confines of the meeting to school day hours while not invoking additional cost or technology demands found in other decision choice options. Novice members selected "*Offer to adjust meeting modality. Offer a conference call or an internet meeting as options*" to provide flexibility in scheduling and attending the case conference meeting through the use of technology and multiple meeting modalities. The differences seen between these two choice options could be the result of age differences or comfort levels with technology.

The majority of expert and novice group members consistently made the same choices for decision intervals one, four, five, and six. Professional Standards for Educational Leaders (PSEL) covered in decision intervals one, four, five, and six included PSEL 3c, 3d, and 5a respectively. PSEL Standard 3, "*Equity and Cultural Responsiveness"* and PSEL Standard 5, "*Community of Care and Support for Students"* resulted in congruency of novice and expert educational leader decisions. Conclusions can be drawn that point to participants' beliefs sharing efforts for fairness through assurance of equitable access, opportunities to learn, and the necessary supports and resources needed for success. These decisions are reflective of expert and novice leaders promoting academic achievement and well-being of each student by cultivating an inclusive, caring, and supportive school community. An alternative explanation could be participant selections were based on thoughts of how others would perceive the educational leader's choice. Seeking validation to be deemed more virtuous in the sight of others is another plausible option. Either way these similar decisions provide a broad understanding to connections identified within expert and novice decisions.

Theoretical Framework Reflection

By bridging innovative research paradigms; an attempt was made to examine micro-level process differences. Using of a simulated educational leader experience, the researcher employed Kolb's (1984) experiential learning theory. Computer simulation provided the environment to foster the data collection modality in which micro-level process data were collected at a rate of 30 frames per second. Experiential learning through simulation is commonly used and found advantageous to develop and transform learning in leadership preparation programs (Duke, 2019; Majumdar, 2018). Similar positive experiences as cited by Majumdar (2018) were found within the current research as 100% of participants finishing the study found value in it. As noted by DeJong and Grundmeyer (2018), for a simulation to be effective and build upon working memory the content must be realistic. When surveyed, 100% of participants found the content realistic. Of those that did not finish, the researcher has no way of knowing if it was the result of tech issues or a result of perseverance because demographic information was only provided at completion of the simulation. Therefore, the 46 participants who did not finish will forever be unknown as to why.

The researcher followed Lazarus' (1991) Cognitive Appraisal Theory through recognition that the extraction of different facial emotional reactions to the simulation stimuli differ between groups, backgrounds, and personal experience. The simulation choices within the research-maintained alignment to Cognitive Appraisal Theory's primary appraisal by default as participants were forced to select a choice based on their cognitive understanding or meaning of the information presented.

While the researcher only looked at four emotions (disgust, joy, surprise, and anger), the polarity of those emotions fit into two extremes – positive and negative. Yet, the options employed in the decision-making did not align with negative decisions as all options were viable. Future thinking aligned with cognitive appraisal theory and emotional polarity might further ignite more understanding of differences between novice and expert decision-making by offering erroneous options. Additionally, assessing emotions connected to secondary appraisals; the ability of the individual to justify how they might cope with the consequences to a decision; specific to making an unethical choice could further bridge the two theories when designing simulated learning environments.

Discussion of Findings Related to Literature

Current research presented in expert-novice emotion in decision-making literature mainly consists of qualitative studies (Berry & Townsend, 2019; Chitpin; 2019; Pariente & Tubin, 2021; Sinnema et al., 2020; Weiner & Woulfin, 2017). Of the studies using mixed methods (Montecino et al., 2018; Rieckhoff, 2014; Spillane et al., 2015) or quantitative designs (Hsiao et al., 2019; Ozdemier, 2020), one study employed multimodal data collection as seen in this research to investigate descriptors in the development of expert leaders (Hsiao et al., 2019). The result of this study contributes to the existing literature on novice and expert emotion in special education leadership decision-making by focusing on the complex role of a PAR in a simulated environment and data collection technological modalities not yet explored.

These findings contribute further to current literature (Pariente & Tubin, 2021; Berry & Townsend, 2019) by providing a foundational glimpse into how simulations combined with microlevel data collection of facial expression of emotions contribute to further knowledge

generation to effectively address novice educational leaders' discrepancies in decision-making. As seen in novice leadership literature (Berry & Townsend, 2019; Chitpin, 2019; Pariente & Tubin, 2021; Rieckhoff, 2014; Spillane et al., 2015; Weiner & Woulfin, 2017), the results of this study suggest differences exist in emotion and decisions based on experience level. Current researchers (Berry & Townsend, 2019; Chitpin, 2019; Pariente & Tubin, 2021; Rieckhoff, 2014; Spillane et al., 2015; Weiner & Woulfin, 2017) suggest leadership preparation is an impactful factor to the current landscape of novice leaders and their exhibited differences. These research findings are consistent with Pariente and Tubin (2021), who found novice leaders lack professional core knowledge. A lack of core leadership knowledge results in unpredictability within the new role (Berry &Townsend, 2019), as demonstrated in this study in the differences between the two groups' facial expressions of emotion and decision-making patterns.

This research further aligns with the literature by Spillane and colleagues (2015), who found novice leaders need opportunities to foster decision-making within the context of a distributed leadership approach. Similarly, this research provided a condition by which novice leaders' confidence could be determined through differences in decision-making and facial emotion data. These findings contribute to Chitpin's (2019) development of an Objective Knowledge Growth Framework (OKGF), an approach to distributed leadership, providing an additional layer of data deemed critical in preparing leaders for the next level of their career.

Weiner and Woulfin (2017) cite stress and conflict weigh heavily on novice leaders as they assume their new role. This research aligns to Weiner and Woulfin (2017) with regard to the impact of stress factors on facial emotions of leaders in simulated educational environments, especially as it relates to SWD. Findings seen in decision interval three of the research further

support literature by Ozdemir (2020) in that expert leaders remained conscious of monetary resources in their management of the work environment. The findings revealed enhanced skill development and training differences were pivotal as seen in the literature by Ozdemir (2020) and Sinnema et al. (2020) to leadership skill development and feelings of confidence.

This research builds upon the gaps remaining in the literature between expert and novice leaders and the intersection of emotions and decision-making. Understanding the intersection of these two factors could help better prepare educational leaders (Berry & Townsend, 2019; Chitpin, 2019; Pariente & Tubin, 2021; Rieckhoff, 2014; Sinnema et al., 2020; Spillane et al., 2015) and create supportive student environments driven to positive results. Additionally, the foci of the research within a simulated case conference scenario addresses a void in the field by creating a tool to build the decision-making skill of leaders in meeting the needs of SWD and their families before they enter a "real' case conference. More specifically, this study as seen in Hsiao et al. (2019), provides the field with a process for how multimodal research could align within a simulated case conference. Understanding emotional response during a "real" conference is almost impossible. Understanding differences in simulation could then be observed in real settings to advance preparation, understanding, and development of novice and expert educational leaders.

Discussion

In this study, the researcher found no statistical differences between experts' and novices' facial emotions and decision-making in a simulated special education case conference. Differences seen between expert (15 or more years) and novice leaders (5 or less) do suggest experts in this study had a better understanding of day-to-day managerial obligations and may

know when to draw the line in facilitating their role as a PAR so as to not to take on more tasks. This exploratory study leaves opportunities for further use of the simulated conferences to further solidify these findings and to identify other patterns through additional multi-modal data collection.

The decision intervals to the content areas: meeting goal, special education priority, accommodating needs, responding to allegations, placement decision, and allocating resources were presented in Table 8. The differences between expert and novices were in two of the six content areas (special education priority and accommodating needs) noted in Table 8. Further differences found in the survey questionnaires were a result of novice comments and expert omissions. When asked for additional feedback or comments, the expert group was void of additional information. While members of the novice group included comments to the simulation content as follows: “I would like to know the right answers”, “I would fire that teacher!”, “I would hate to be that principal”, and “That teacher was something else”. These comments identified by novice’s lack of comparison to experts leaves more questions than answers.

While experts made decisions void of increased task commitments, they more frequently positioned themselves as mediators of solutions, selecting choices only to intervene when absolutely necessary. Novices, however, selected options obligating themselves to lead and take on more responsibilities. Differences in decisions by experts align with a distributed leadership approach (Tudryn et al., 2016), speaking to a collaborative relationship convention of respect for the other educators (characters) in the simulation to fulfil their own role designations as professionals.

Replay of the videos and tagging of facial data by the researcher revealed other possible differences for future research outside of the present research's facial emotion metrics. Utilizing software annotation tools and observing participants' recordings, the researcher noticed head nodding in agreement and disagreement and lip clinching to suppress emotion or regain composure. These constructs had no bearing on the current research questions but do present the field with increased understanding to the multifaceted levels of consideration when observing emotion and decision-making. Another interesting observation was the more stoic and consistently controlled emotions of the experts while novices showed a range of emotions. Though not noted as significant through data collection, the researcher with years of experience in special education leadership noticed a distinct observable difference. Differences in physical appearance of participants left the researcher to question stress level factors as contributors to the lack of response in recorded facial images.

Strengths and Limitations

This section presents the study's limitations through a critical analysis of the strengths and weaknesses of the methodology. This study aimed to investigate differences between novices' and experts' facial emotions and decision-making during a simulated special education environment. The results of this quasi-experimental study should be interpreted with caution due to the small sample size. To obtain more participants, future researchers should consider educational leader job demands in coordination with school year calendars by avoiding testing schedules and increased end-of-school year demands. Future research should be mindful of the strengths and weaknesses identified in this study.

Strengths of the Study

The first strength of this study in the convenience provided to participants through an online study opportunity. COVID-19 protocols were still an important factor at the start of the 2021-22 school year, with much uncertainty remaining, making online research a viable option. Employing online research modalities in theory provides more assurance in the continuation of research compared to face-to-face methods during uncertain times. However, when using emerging technology researchers should consider each layer to an online study separately. Every stage in the research protocol and materials used should be considered separately as a threat.

The second strength centered around exposure to the stimuli maintained within one setting assured decreased outside effects to the dependent variables. Additionally, using iMotions AFFDEX (2018) software analysis to capture and quantify the dependent variables removes human error in the measurement as seen in observation. Moreover, using quantitative measures to evaluate the variables within the statistical analysis allowed for ease of interpretation of the research questions. Most importantly, this research provides a foundation in the literature for future research of the constructs and online data collection.

Weaknesses of the Study

Several limitations were present threatening internal control of the data collection modality and technology. First, the loss of control through online modalities resulted in higher-than-normal attrition rates. Additionally, without direct participant contact, troubleshooting attrition was a huge issue for the researcher. Variations in technology (e.g., connection speed, equipment, internet browsers, security restrictions) were beyond the researcher's control when

employing online data collection research methods. Attention should be given to control of these technological variables in future research.

Consideration should be given to the limits to data afforded through participants exhibiting emotions out of frustration with the technology rather than exposure to the content stimuli and group members' abilities to suppress emotions. Some participants may behave or choose differently merely due to being recorded in a simulation than when in a real setting. Also of note, educational leaders making decisions through an online simulated environment placed them in a novel situation, presenting them with potential limitations to their use of applied knowledge and experience gained in real-time, real-world opportunities.

The simulated special education context limited participants' effective leadership abilities by not accounting for skill sets beyond years of experience and special education knowledge. By grouping participants based on years of experience, the researcher at this time in this study did present findings of experts as exemplary leaders, but simply their years of being in the role and receiving specific coursework in special education. Exemplary leaders are considered to be those that make directional goal-oriented decisions projected along a path to accomplish a shared vision (Amanchukwu et al., 2015). Extending this research to examine exemplary leaders who inspire, motivate, and achieve organizational goals, could produce different results and is an interesting next phase of investigation. Future researchers should consider the existence of combined frameworks describing effective leader practices and behaviors as well as overall outcomes (e.g., student learning, staff attrition rates, number of litigations) rather than simply experience levels. Regardless of experience level, a leader who does not make contributions

toward goal progression and accomplishment or detracts from it is ineffective (Hitt & Tucker, 2016; Leithwood, 2012; Murphy et al., 2006; Sebring et al., 2006).

A core limitation acknowledged in iMotions (2018) is the inability of facial expression analysis to assess emotional arousal. Researchers utilizing data collection methods, as found in this research, need to understand that while some correlation exists between high probabilities of expressed facial emotion output and feelings of emotion, these variables are not the same measures. Facial expressions provide information on what is expressed. Feelings do not always match facial expression and vice versa. iMotions (2018) validity measures are limited to reporting the software's ability to recognize emotions as accurately as a human coders can reliably note muscle movements. Therefore, validity is reported based on the accuracy of the physical measurements not in conjunction with demographic information of the population assessed in the measurement (e.g., age, facial features).

The researcher acknowledges that in this study and future research potential limitations in facial emotion detection exist with regard to accuracy in participants of advanced age, having facial paralysis, or from diverse ethnicities and cultures outside of iMotions norm referenced populations. Future research employing facial emotional detection algorithms should consider research by Kheirkhah and colleagues (2020) that emotions may incorrectly detected as negative (i.e. sadness, depressive symptoms). As a result, the field should readily consider future studies investigating contributing factors of age, ethnicity, and diverse cultural groups within a larger sample size when exploring facial emotional affect to reduce incorrect emotion identification or bias. Recent studies conclude machine learning algorithms, as found in facial recognition, are biased and can discriminate with respect to race and gender (Boulamwini & Gebru, 2018). Walsh

(2022) states facial recognition technology has been found to be most accurate with white males while least accurate with black females. Acknowledging limitations present in emerging technologies in this exploratory research study provides the field with future considerations. Furthermore, addressing the limitations in the current study in combination with multiple biosensor data channels and mixed-mode methodologies could provide a clearer picture of expert versus novice participants' emotions and decision-making processes during a stimuli.

Future Implications and Research

The current landscape of education in accordance with current educational policies (ESSA, 2015) imapct the role of an educational leader (Grissom et al., 2021). Quality educational leaders today need to possess skills, knowledge, and temperaments to achieve results (Grissom & Loeb, 2011; Grissom et al., 2013; Grissom et al., 2015; Hallinger & Heck, 2010; Leithwood et al., 2004). Developing comprehensive and strengthened educational leaders equipped to transform schools involves more than just staffing school buildings (Manna, 2021). Their ability to make decisions is further exacerbated by the neurodiversity of the school population and the demands placed upon leaders as they administer numerous policies aligned with IDEA. Based on the results of this study and existing research in emotion and decision-making in other fields (Azevedo et al., 2018; D'Mello & Grasser, 2015; Lerner et al., 2015; Phelps et al., 2014; Volante et al., 2020), the researcher recognizes many avenues exist for future research focused on expert and novice educational leaders' emotion and decision-making especially in navigating the complex processes in special education.

As in this current study and that by Hsiao and colleagues (2019), researchers need to consider exploring multimodal technologies to address theoretical underpinnings in the

development of effective leaders. Based on participants' responses in the current study and building upon existing research in simulation (Anderson, 2014; Dexter et al., 2020; Gilbert 2017; Johnson et al., 2016) opportunities exists to attempt to move from qualitative studies to more multi-modal data comparison between expert and novice leaders. With the ultimate outcome being to find the best pathway to develop and improve skills of novice leaders beyond theoretical and college courses before they enter the real world of leadership.

A simulated experience provides a safe way to expose novice leaders in a controlled manner to a variety of scenarios, and to measure and potentially compare their performance to expert leaders, as occurred in this special education case conferences. Simulation also affords the opportunity for skill building through mentoring and feedback, which is more difficult when attending multiple "real" conferences. Mentoring and skill development within areas of emotion regulation are recognized as important underlying factors to effective leadership given task demands and interpersonal stressors of leaders (Torrence & Connelly, 2019). However, as many as 18-21% of novice educational leaders still leave the field within their first year (Levin & Bradley, 2017); indicating a critical need for continued research and intervention within preparation to strengthen the field while better creating intersectionality to address novice and expert leader discrepancies (Grissom et al., 2021). This research in both simulation and avenues of facial emotion could provide enhancements to leadership preparation and to provide information for future mentoring and skill development toward a trajectory of better outcomes. Facial emotional data during interventions, as used in high-impact fields such as medicine and psychology, demonstrate significant academic success (iMotions, 2018).

The present study, although exploratory, is limited by merely collecting facial emotional data alone. Future research on novice and expert leadership emotions and decision-making should employ multimodal multichannel data collection options positioned within mixed method research. The use of physiological measures provides value and enhances data to understand more specifically to what led to the response (Azevedo & Gašević, 2019; Schneider et al., 2021). Qualitative measures also could add value to understanding the justifications of participant's decisions as well as validating facial expressions of emotion captured. Allowing participants access to a text box, audio or video recording to justify each decision selection could readily capture cognitive processes during decision-making. Replication of the study with such embedded technology features would enhance the understanding of decision in the simulation. Additionally, participant justification and reflection of their decision selection further enhances the theoretical underpinnings of Cognitive Appraisal Theory (Lazarus, 1991).

The results of this exploratory study elevated what is potentially understood by the field of educational leadership beyond the use of survey data alone. The researcher recognizes at present the field is still left with more questions than answers fueling a profound need for further research. For instance, is expert stoic behavior good or bad? Especially, when emotions revealed in the face, body, and voice send signals about approachability perceived by others. Looking at the anecdotal data of joy as seen in the current study by novices, does give rise to the question of whether or not the expression of joy is related to the occurrence of legal proceedings? Does joy imply compassion resulting in increased collaboration and resolution of conflict? The field should investigate further whether the possession of these emotions equate to superior abilities that thwart special education legal proceedings? Could the opposite be true, does this type of

data align with anger and disgust with leaders at the helm of the 19,337 disputes recorded in the 2017-18 school year? Consideration should be given to leaders categorized as exemplary; high outcome achievers; in comparison to novices to identify potential underlying microlevel processes as contributing factors within successful leadership frameworks. Finally, decision-making and emotion is worthy of studying; what factors trigger it; how is it expressed; and how best is this emotion taught and regulated appropriately, specifically in school environments. Considerations to future research should investigate options employed by other disciplines to further ignite and support the intersectionality of expert and novice educational leadership by answering the following questions:

- Do experts engage in emotional regulation strategies to reducing facial emotional affect during simulated special education case conference decisions?
- What emotional regulation strategies are associated with different expert versus novice facial emotions?
- What aspects of emotion are displayed most frequently by expert novice leaders when running real-time case conference meetings compared to simulation?
- Do facial emotional data of expert and novices change with repeated exposure and training?
- How do other case conference meeting members perceive the facial expressions of individuals fulfilling the role of PAR?
- Do empathetic personality traits impact expressions of facial emotion data between expert versus novice leaders?

- Do expert versus novice leaders' emotional intelligence effect the regulation of facial emotion?
- Does providing educational leaders with a correct and incorrect choice option impact their emotional differences?
- Do experts employ a conscious effort to the use of emotional suppression?
- Are cognitive resources being spent to control emotions limiting the availability of cognitive resources to focus on the decision at hand?
- Research shows that teachers can positively influence students through positive emotion expression – can educational leaders do the same with parents?

Conclusion

This study aimed to investigate the differences between expert and novices' facial emotions and decision-making during a simulated special education case conference. The researcher employed the use of simulation to further contribute to the literature. The data that emerged in this research could help expand the research processes used in education leadership while providing an understanding beyond survey data on critical leadership processes (Hoover & Teeters, 2019). Presently, educational leadership is void of research technologies capturing facial emotional data often seen in Learning Sciences. Ultimately, educational leadership will lag behind other disciplines until efforts are made to employ technologically advanced tools presently used in other fields (psychology, medicine) to better understand the impact on preparation and practice (Guerriero, 2017; Kalil, 2017; McKenney, 2018).

Theoretical cohesion was found in the use of two theoretical frameworks in this research study. Kolb's Experiential Learning Theory (1984) and Cognitive Appraisal Theory (Lazarus,

1991) aligned to the research through the use of simulation as a decision and facial emotion data collection tool. The findings further align with research citing that emotions remain saliant and necessary in understanding educational leadership approaches to decisions (Wang, 2018; Wang 2020). The research findings provide recognition of the impact emotion plays in aspects of human cognition to powerfully shape how one interacts with material and the social world around them (Gross, 2015).

The foundational nature of the data presented indicates educational researchers should continue to explore emotion and decision-making in a broad range of contexts. The differences as seen in this research study, although not significant, provide a pathway for further inquiry into educational leaders' facial emotional affect and decision-making during special education conferences and how these decisions are central to meaningful engagement with families. Findings within the research revealed novices more frequently chose to select decision options exhibiting a position of authority and control aligning with a destructive leadership approach. As cited by Wang (2019), a destructive leadership approach resorts to manipulating followers while arousing fear and anger. In contrast, experts lack of emotion data and observed apathetic nature suggests more research is necessary to determine whether a correlation exists between the regulation of emotion cognitive appraisal, (Sakakibara & Endo, 2016) and legal actions by families.

Continued research in facial emotion and decision-making in novice and expert leaders could provide skill development opportunities to further support leadership preparation and professional development. Supporting novice to expert educational leaders in special education decisions could improve school family relationships previously resulting in disagreements

leading to due process litigation complaints and potentially retain leaders in an area of critical shortage. When special education decisions are involved, potential effects are not limited to the confines of a student's academic school environment but to an individual's future employment, independence, and quality of life for both the person with a disability and the families who support them.

APPENDIX A:
INSTITUTIONAL REVIEW BOARD CONSENT

UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board
FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

EXEMPTION DETERMINATION

November 3, 2021

Dear Lynn Scott:

On 11/3/2021, the IRB determined the following submission to be human subjects research that is exempt from regulation:

Type of Review:	Initial Study, Exempt Category 3(ii)
Title:	Implicit Emotion in Decision-Making: Examining Triggers to Emotional State Differences in Educational Leaders When Engaged in Computer Simulation
Investigator:	Lynn Scott
IRB ID:	STUDY00003581
Funding:	None
Grant ID:	None
Documents Reviewed:	• Calibration Webcam feedback example.docx, Category: Other; • Email to [redacted]_ Draft.docx, Category: Recruitment Materials; • Email to Professor Draft.docx, Category: Recruitment Materials; • HRP-254-FORM Explanation of Research_2.pdf, Category: Consent Form; • HRP-255-FORM - Request for Exemption2.docx, Category: IRB Protocol; [redacted] • Prestudy Demographics Questionnaire.docx, Category: Survey / Questionnaire; • Recruitment_masterlist.xlsx, Category: Other; • SchoolSims Feedback report pdf example.pdf, Category: Other; • SchoolSims Images.docx, Category: Other; • Simulation overview example.pdf, Category: Other; • Study raw data export example_2.csv, Category: Other; [redacted]Media-Consent-Form.pdf, Category: Other;

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please submit a modification request to the IRB. Guidance on submitting Modifications and Administrative Check-in are detailed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Renea Carver
Designated Reviewer

APPENDIX B:
SAMPLE RECRUITMENT EMAIL

Dear [redacted]Graduate Name or Project Coordinator),

Good Afternoon! I hope this email finds you well. I would like to introduce myself. My name is Lynn Scott, and I am a student in the Exceptional Education Ph.D. Program at the University of Central Florida with a special interest in Educational Leadership and the Learning Sciences. Through the course of mentorship with Dr. Lisa Dieker (College of Community Innovation and Education) and Dr. Michelle Taub (Department of Learning Sciences and Educational Research), I am embarking on my dissertation research.

I am seeking the opportunity to recruit from [redacted] federally funded leadership personnel preparation project, more specifically graduates of [redacted] Educational Doctoral (Ed.D.) [redacted] to obtain a total of 22 participants. Participation would be an opportunity for you to engage in research and technology (simulation) that could potentially impact the field of educational leadership to better prepare future leaders with the diverse knowledge and skills necessary to meet a variety of daily demands within an ever-changing landscape. Currently, simulation is recognized as a tool to present realistic situations or problems for decision-making and problem-solving within a situational context. Although simulation is well utilized in the medical field, the use in developing and preparing educational leaders is still exploratory.

The purpose of this research study is to identify triggers to emotional state differences between expert and novice educational leaders' by examining expressions of emotional when experiencing a SchoolSims computer simulated decision-making scenario. The general flow of the experiment is listed below.

1. Complete an online Qualtrics pre-study demographics questionnaire.
2. Calibration of participate webcam (pre, interim, post engagement with Simulation) utilizing an iMotions ODC Software Module.

3. Participate in the “SchoolSims Computer Simulation”.

4. Upload “SchoolSims generated Feedback Report pdf” to Qualtrics.

5. Complete an online Qualtrics post-study questionnaire.

Your participation would assist in providing knowledge and understanding of what factors differ in expert versus novice leaders that trigger facial expressions of emotion, what contributes to those differences, and how these triggers lead to differing decisions made within a computer simulation. The use of this data would provide a snapshot of differences identified from the stimuli to inform the field in providing future direction and enhanced development to support education and preparation in educational leadership. The study will be conducted in one session with a maximum time commitment of 55-75 minutes. Participants must have access to reliable internet as well as a webcam to enable video recording during the session.

I appreciate any support. Have a lovely day!

Sincerely,

Lynn Scott

APPENDIX C:
SOCIAL MEDIA RECRUITMENT FLYER

ONLINE RESEARCH STUDY

IMPLICIT EMOTION IN DECISION-MAKING: EXAMINING EMOTIONAL STATE DIFFERENCES IN EDUCATIONAL LEADERS WHEN ENGAGED IN A SPECIAL EDUCATION CASE CONFERENCE COMPUTER SIMULATION

SchoolSims
EXPERIENCE IS THE BEST TEACHER

ABOUT THE STUDY: The purpose of this research study is to identify differences between novice and expert educational leaders' expressions of emotion when engaged in a special education computer simulated decision experience.

- The study will be conducted in one session with a maximum time commitment of 55 minutes.
- You must have access to reliable internet as well as a webcam to enable video recording during the session.
- Data will be collected and recorded via participant webcam and then processed through the cloud utilizing iMotions Online Data Collection Module Software. The study will utilize the SchoolSims computer-based decision simulation as stimuli.

To receive more information sign up with the link below.

https://ucf.qualtrics.com/jfe/form/SV_9AAFgwcGKEPNt2e

* If you have questions or concerns contact Lynn Scott, Doctoral Candidate, College of Community Innovation and Education, by email lynnmariescott@knights.ucf.edu

APPENDIX D:
SCHOOLSIMS SIMULATION SNAPSHOT

"Annual Case Conference" Simulation

Simulation Snapshot	Your role: First-year principal, serving as Public Agency Representative during a special education annual case review meeting. Timeframe: During the school year; following the release of midterm grades. Challenge: Prioritizing actions and stakeholders. Expecting pushback from staff and parent as you seek equitable solutions.
Context	You are confronted with a volatile parent situation brought on by past parent and teacher relations. The angry parent of a 5th grader presents you with a challenge to meet the needs of their special education student. Your understanding of the issues, federal requirements, and way of communicating with staff and parents will impact the success of your initiatives.
Key Characters	• Special Education Teacher of Record: Ms. Pati; licensed mild disabilities special education teacher new to the school. • General Education (5th grade) Teacher: Ms. Murphy; concerned with Zoey's placement in her classroom and ability to succeed given the demands of the academic content. • Parent: Mrs. Scott, Parent of Zoey. Zoey is a 5th grade student receiving special education services under the eligibility categories of a Mild Intellectual Disability and a Speech Impairment. Mrs. Scott is knowledgeable about special education law and student rights. Often makes demands and threatens to file complaints against the school. Angry about lack of IEP services, communication, and Zoey's current grades. • Instructional Strategist: Mr. Qwik; in charge of the schools MTSS team. Expert in school instructional strategies and curriculum. • Speech Therapist: Ms. Wild; licensed Speech Language Pathologist. Long standing relationship with student and family as a service provider.
Trade-offs to Consider	• Resource constraints. • Addressing parent concerns. • Supporting staff implementation demands.
Potential Topics for Discussion	• Awareness and application of IDEA and ESSA. • Approval of personnel and resources needed to address student educational goals in order to receive FAPE. • Support of all educators responsible for implementing the IEP.

SchoolSims

November 2020

Key Standards: **PSEL** **CEC Advanced Preparation**	PSEL: 3. Equity and Cultural Responsiveness (decision) 5. Community of Care and Support for Students 8. Meaningful Engagement of Families and Community 9. Operations and Management (law) CEC: 3. Programs, Services, and Outcomes 5. Leadership and Policy 6. Professional and Ethical Practice 7. Collaboration
Features	• Video Interactions • Audio Narration • Feedback Report

APPENDIX E:
SCHOOLSIMS CAST OVERVIEW

Cast Overview

Mrs. Scott

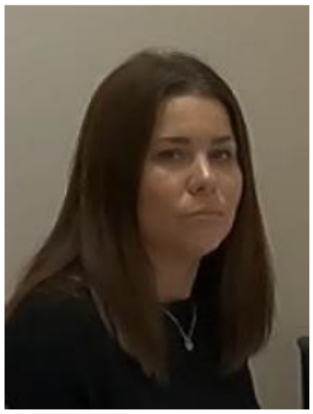
Parent

Frustrated by the lack of IEP services available to her 5th grade daughter, Zoey, Mrs. Scott has threatened legal action. She challenges you to meet her daughter's needs and demands a one-on-one instructional assistant. She is knowledgeable about special education law and student rights.

Ms. Pati

Special Ed Teacher – Teacher of Record

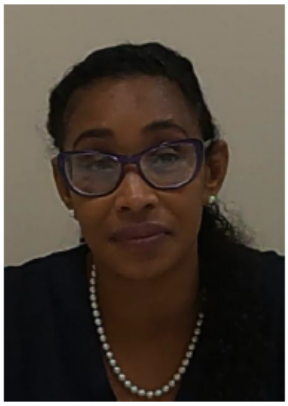
Ms. Pati is a Special Education Teacher licensed in mild disabilities. She has been at North Bain for the past two years. She enjoys her job but is frustrated at the system-wide lack of support.



Ms. Murphy

General Ed Teacher – 5th Grade

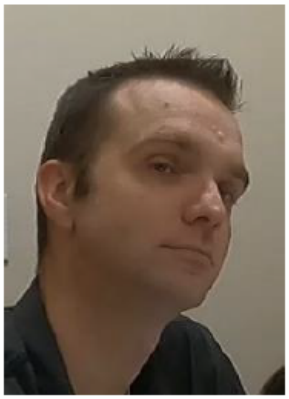
Ms. Murphy is a General Education Teacher for 5th grade and is concerned with Zoey's placement in her classroom and her ability to succeed given the demands of the academic content.



Ms. Wild

Speech Therapist

Ms. Wild is a licensed Speech Language Pathologist (SLP). She has a long-standing relationship with the student and family as a service provider.



Mr. Qwik

Instructional Strategist

Mr. Qwik is in charge of the school's multi-tiered system of support or MTSS Team. He is an expert in school instructional strategies and curriculum design.

APPENDIX F:
SCHOOLSIMS FEEDBACK REPORT

Simulation Feedback Report

Congratulations on completing the simulation. Let's take a look and see how you did!

What is your primary goal for this meeting?

Learning Objective

The tradeoffs between demonstrating team collaboration and efforts vs. focusing on student development and possible limitations.

Your Choice(s):

- Focus on Zoey's needs. Demonstrate that you and the team are concerned for and making efforts to meet Zoey's social, emotional and academic needs.

Other Choices:

- Engagement of all team members in design of Zoey's plan. Every member of the team is an expert in their field and brings their expertise to Zoey's plan. Ensuring they are committed to the outcomes is critical.
- Collaboration and cooperation between stakeholders on an end goal. Show that team members are communicating and working together to better meet Zoey's needs.
- Concern for every student's achievement. Ensure that Zoey's individual needs are met, but that the processes used don't eclipse the needs of the other students.

Feedback

- In this scenario, you are provided with several options regarding the overall focus of this meeting. With Mrs. Scott's frustration levels very high, it may be a temptation to focus the meeting on countering her allegations. But straying in the least from the goal of collaborating with the parent to find solutions that better meet the social, emotional, physical and academic needs of her daughter could have dire consequences. Your choice to focus on Mrs. Scott's and Zoey's needs is an excellent way of keeping all in attendance on the same sheet of music and producing outcomes that will improve relationships all around. Good choice. (PSEL Standards 3d, 5a, 8h)

How do you respond?

Learning Objective

Sets the tone for special education as a priority to conference committee team members and support for TOR initiatives to be followed.

Your Choice(s):

- Email the parent to schedule the meeting and introduce yourself. Being new to the school and understanding your role as facilitator of the upcoming meeting, you feel obligated to be the first point of contact to the parent and set things up personally.

Other Choices:

- Instruct Ms. Pati to contact Mrs. Scott and find a date / time for a meeting. In the meantime, you email the rest of the Case Conference Committee (CCC) members and tell them to anticipate an upcoming meeting. Express your expectations that they make this meeting a high priority.
- You don't want to micro-manage, so you encourage Ms. Pati to contact the parent and team members to schedule a meeting. You trust Ms. Pati and the faculty personnel to do the right thing as experts in meeting required obligations.

- Thank Ms. Pati for the job she does and then ask if she would mind contacting the parent and scheduling the meeting. Showing gratitude and expressing confidence in Ms. Pati's skills and dedication will build her confidence.

Feedback

- This scenario provides an opportunity for you to consider how to sustain collaborative / productive relationships with outside resources and the family for the benefit of the student. The tradeoff here is demonstrating trust of the team members by not micromanaging vs ensuring they are engaged and committed to the student's academic, social, emotional and physical needs. Your choice to personally reach out to Mrs. Scott will signal your involvement, but may be misinterpreted by her that she should deal with you directly. This could have ramifications that don't ultimately improve this situation. This decision impacts the following Professional Standards for Educational Leaders (PSEL) standards: (PSEL 8b, 8c, 9k)

How will you approach this?

Learning Objective

The tradeoffs between accommodating the needs of your team vs. the needs of the parent.

Your Choice(s):

- Attempt to comply with Mrs. Scott's request. Offer to compensate teachers for the extra time.

Other Choices:

- Refuse Mrs. Scott's request. Explain that teachers are not contractually required to stay and work after school hours.
- Offer to adjust the meeting modality. Offer a conference call or an internet meeting as options.
- Offer to meet during Mrs. Scott's lunch hour. This is a time when everyone's schedule may be accommodated..

Feedback

- This scenario places you in a situation where needs differ extensively. The parent would like you to comply with her schedule and have the meeting at a time and place convenient for her. Yet, your team deserves those same considerations, and you need to create a positive, collaborative and productive relationship with all involved. So the issue becomes how to accommodate divergent needs. Your choice to attempt to meet Mrs. Scott's request in favor of meeting after hours and compensating those in education for their time is, in this situation, perhaps the best approach. However, it will undoubtedly result in increased tension and possibly additional obstacles throughout the process. Tough call! (PSEL Standards 8b, 9k)

What will you do to refocus the team?

Learning Objective

The tradeoffs between gathering and analyzing a variety of perspectives vs. managing tensions.

Your Choice(s):

- Interject by asking Mrs. Scott to list what she feels Zoey needs. You recognize a lack of IEP implementation has occurred and in an attempt to rectify and not admit the school is at fault you remind the parent the purpose of the meeting is to discuss and determine what she thinks as the parent are the best options for Zoey to succeed.

Other Choices:

- Do nothing at this point. You decide to wait and see where the conversation leads.

- Allow Mrs. Murphy to explain her side of the situation. Wait and see what the teacher or other members of the CCC might offer to support the student and family.
- Allow Mrs. Scott to continue. It's best to let the parent finish speaking, as she's the one who called the meeting.

Feedback

- Regular two-way communication between families and your team members helps ensure equitable access to effective teachers, learning opportunities, academic, social / emotional support. Ensuring this occurs equitably with each student is a huge challenge. Your choice to solicit input from Mr. Qwik at this point in the meeting suggests that further elaboration of perspectives is less important than a consideration of resources available to begin to address the problems already understood by all in the room. However, it assumes that perspectives have been sufficiently shared and understood and all are willing to begin formulating potential solutions. This tact risks increasing tension, and if not properly managed, key resources shutting down. A potentially good solution fraught with some risk. (PSEL Standards 3c, 3d, 8c)

What will you suggest?

Learning Objective

Tradeoffs associated with responding to allegations vs. focusing on student development and needs.

Your Choice(s):

- Suggest Zoey be assigned to another teacher. You feel that due to the teacher's confrontational demeanor and predetermined beliefs about Zoey's abilities, it's best another placement option be sought to ensure an equitable opportunity.

Other Choices:

- Acknowledge the parent's concerns regarding the lack of IEP implementation. Explain to the teacher that although you understand her concerns, she must present data to support her request.
- Suggest that you table the discussion and reach out to the superintendent. You can't make a decision regarding LRE without first getting her input.
- Support the teacher in change of placement to a more restrictive environment . . . Indicate you understand the teachers concerns and agree that the requirements of the IEP are beyond what the teacher can manage. So you suggest that Zoey be moved to the special education classroom for instruction.

Feedback

- In this scenario, as the Public Agency Representative, you must decide if advocating to change placement to a more restrictive environment ensures equitable access to resources, and provides a safe caring healthy school environment for Zoey as well as all other students. Your decision to suggest an alternative placement may create a better environment for Zoey, but will also signal that failure to comply with IEP requirements may be overlooked. It will certainly affirm your support of your teachers, but you've allowed important decisions like this to be based on emotions and frustration rather than facts and adherence to IEP requirements. This choice sets a dangerous precedence. (PSEL Standards 3c, 5a, 8h)

What will you do now?

Learning Objective

Tradeoffs between protecting / advocating for the school / district vs. satisfying an angry parent.

Your Choice(s):

- First, call on Mr. Qwik to review what services and supports are currently available to supplement Zoey's current instruction. Before agreeing to provide additional resources and incur additional financial obligations to the school, first

investigate existing resources that might be employed.

Other Choices:

- Agree with the parent. The best option is to provide one-on-one services and try to appease the parent as she has already threatened legal action and you recognize that due to the school's negligence it would be much more costly to hire the instructional assistant.
- State that you need to call the superintendent. Apologize and explain that you cannot make decisions regarding hiring additional staff without first discussing it with your superintendent.
- Explain that you want to first meet with Ms. Murphy. The teacher is most qualified to provide Zoey with the intensity of instruction needed to address her needs and you'd like to first investigate more options with Mrs. Murphy, then reconvene.

Feedback

- Your role in this meeting is to identify and then advocate for the needs of all concerned; the school, teachers, support persons and all students. You must ensure that each student has equitable access to effective teachers, learning opportunities, academic and social support and other resources necessary for success. Your choice to halt the conversation about perspectives and focus on solutions that address the issues that have been identified is an excellent approach to shifting the focus. It risks shutting down sharing of perspectives prematurely, which could result in frustration and higher tension. A good choice, with some risks. At this point, perhaps calling on the Instructional Specialist to identify other options may have been a better choice? (PSEL Standards 3c, 8h)

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		Expected presentation date	2022-05-21
Instructor name	Lynn Scott		

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Hi Lynn,

Thanks for writing. Yes, you have my permission to use the figure.

Warm regards,

Tracey
Alternate emails: traceytokuhamaespinosa@fas.harvard.edu
"Not everything that counts can be counted, and not everything that can be counted counts." -Attributed to William Bruce Cameron, 1963

APPENDIX H:
PRE-STUDY DEMOGRAPHICS

Ed Leadership Pre-Study Demographics

Start of Block: Default Question Block

Q1 Please enter your Age

_____

Q2 Please select your Gender

- Male (1)
- Female (2)
- Non-binary / third gender (3)
- Prefer not to say (4)

Q3 Highest degree level achieved

- Bachelors (1)
- Masters (2)
- Ed.D. (3)
- Ph.D. (4)

Q4 Have you taken an exceptional education class before

- No (1)
- Yes (2)

Q5 If yes, how many exceptional education classes have you taken?

_____

Q6 How many years have you been in the field of education?

- 1-2 years (1)
- 3-4 years (2)
- 5-6 years (3)
- 7-10 years (4)
- 11-15 years (5)
- 16-20 years (6)
- 20+ years (7)

Q7 Have you worked with students with exceptional disabilities?

- No (1)
- Yes (2)

Q8 Do you currently work in a position of leadership?

- No (1)
- Yes (2)

Q9 What educational content did you receive your undergraduate degree in?

_____

Q10 What classroom grade level do you have the most experience?

- Early Childhood (1)
- Primary (2)
- Intermediate (3)
- Middle School (4)
- High School (5)
- Career Technical (6)
- Higher Education (7)

Q11 Select how best to describe yourself?

- ○ Native American or Alaska Native (1)
- ○ Asian (2)
- ○ African American (3)
- ○ Native Hawaiian or Other Pacific Islander (4)
- ○ Caucasian (5)
- ○ Other (6)
- ○ Prefer not to say (7)

End of Block: Default Question Block

APPENDIX I:
POST-STUDY SATISFACTION SURVEY

Ed Leadership Post-Study Satisfaction

Start of Block: Block 1

PDF upload Please upload the saved pdf version of your feedback report labeled with your Participant ID into the study by using the upload feature below.

End of Block: Block 1

Start of Block: Default Question Block

Q1 The topic presented in this simulation experience was valuable.

- Yes (1)
- No (2)

Q2 The online simulation experience was easy to use.

- Yes (1)
- No (2)

Q3 The topic in this simulation portrayed realistic content.

- Yes (1)
- No (2)

Q4 I have had prior experience with SchoolSims online simulation content.

- Yes (1)
- No (2)

Q5 Do you see benefit in utilizing simulation as a learning tool in other leadership topics?

- ○ Yes (1)
- ○ Maybe (2)
- ○ No (3)

Q6 Do you have any concerns you wish to share?

_____

_____

_____

_____

_____

End of Block: Default Question Block

REFERENCES

Abu-Tineh, A., Khasawneh, S., & Al-Omari, A. (2009). Kouzes and Posner's transformational leadership model in practice: The case of Jordanian schools. *Journal of Leadership Education, 7*(3), 265-283.

Acton, K. S. (2021). School leaders as change agents: Do principals have the tools they need? *Management in education*, *35*(1), 43-51.

Amanchukwu, R. N., Stanley, G. J., & Ololube, N. P. (2015). A review of leadership theories, principles and styles and their relevance to educational management. *Management*, *5*(1), 6-14.

Anderson, J. (2014). Simulating the litigation experience: How mentoring law students in local cases can enrich training for the twenty-first century lawyer. *The Review of Litigation, 33*(4), 799-836. http://www.thereviewoflitigation.org/about/

Arar, K. (2018). How novice principals face the challenges of principalship in the Arab education system in Israel. *Journal of Career Development*, *45*(6), 580-596.

Arnaiz Sánchez, P., de Haro Rodríguez, R., & Maldonado Martínez, R. M. (2019). Barriers to student learning and participation in an inclusive school as perceived by future education professionals. *Journal of New Approaches in Educational Research*, *8*(1), 18–24.

Azevedo, R., & Gašević, D. (2019). Analyzing multimodal multichannel data about self-regulated learning with advanced learning technologies: Issues and challenges. *Computers in Human Behavior*, *96*, 207–210. https://doi.org/10.1016/j.chb.2019.03.025

Azevedo, R., Martin, S. A., Taub, & M., Mudrick, N. V., Millar, G. C., & Grafsgaard, J. F. (2016). Are pedagogical agents' external regulation effective in fostering learning with intelligent tutoring systems? In A. Micarelli, J. Stamper & K. Panourgia (Eds.), *Intelligent tutoring systems* (pp. 197–207). Springer International Publishing.

Azevedo, R., Taub, M., Mudrick, N. (2018). Understanding and reasoning about real-time cognitive, affective, and metacognitive processes to foster self-regulation with advanced learning technologies. In D. Schunk & J. Greene (Eds.), *Handbook of self-regulation of learning and performance* (pp. 254-270). Routledge. doi:10.4324/9781315697048.cah17

Babin, M.-J., Rivière, É., & Chiniara, G. (2019). Chapter 8—Theory for practice: Learning theories for simulation. In G. Chiniara (Ed.), *Clinical simulation (Second Edition).* (pp. 97–114). Academic Press. https://doi.org/10.1016/B978-0-12-815657-5.00008-5

Beam, A. P., Claxton, R. L., & Smith, S. J. (2016). Challenges for novice school leaders: Facing today's issues in school administration. *Educational Leadership and Administration: Teaching and Program Development*, *27*, 145–161.

Berkovich, I. , & Eyal, O. (2015). Educational leaders and emotions: An international review of empirical evidence 1992-2012. *Review of Educational Research, 85*(1), 129–167.

Berry, J., & Townsend, A. (2019). Peter's transition to headship: What can we learn from his experience about how to prepare to make the transition from assistant principal, or deputy, to principal or head teacher? *Journal of Cases in Educational Leadership*, *22*(3), 28–42. https://doi.org/10.1177/1555458919848131

Billingsley, B., McCleskey, J., & Crockett, J. (2019). Conceptualizing principal leadership for effective inclusive schools In J. B. Crockett, B. Billingsley, & M. L. Boscardin (Eds.), *Handbook of leadership and administration for special education* (pp.306-332). Routledge.

Biswas, G., Baker, R. S., & Paquette, L. (2018). Data mining methods for assessing self-regulated learning. In D. Schunk & J. Greene (Eds.), *Handbook of self-regulation of learning and performance,* (pp.388-403). Routledge.

Blackley, C., Redmond, P., & Peel, K. (2021) Teacher decision-making in the classroom: The influence of cognitive load and teacher affect. *Journal of Education for Teaching, 47*(4), 548-561.

Boekaerts, M., & Pekrun, R. (2015). Emotions and emotion regulation in academic settings. In *Handbook of educational psychology* (pp. 90-104). Routledge.

Boscardin, M. L. (2005). The administrative role in transforming secondary schools to support inclusive evidence-based practices. *American Secondary Education, 33*(3), 21-32.

Boscardin, M. L. (2007). What is special about special education administration? Considerations for school leadership. *Exceptionality*, *15*(3), 189–200. https://doi.org/10.1080/09362830701503537

Boyland, L. G., Lehman, L. E., & Sriver, S. K. (2015). How effective are Indiana's new principals? Implications for preparation and practice. *Journal of Leadership Education*, *14*(1), 72–91.

Buolamwini, J., & Gebru, T. (2018). Gender shades: Intersectional accuracy disparities in commercial gender classification. In *Conference on fairness, accountability and transparency* (pp. 77-91).

Burton, L., & Peachey, J. (2009). Transactional or transformational? Leadership preferences of division III athletic administrators. *Journal of Intercollegiate Sport, 2*, 245-259.

Campbell, T. S., Johnson, J. A., & Zernicke, K. A. (2013). Cognitive Appraisal. In M. D. Gellman & J. R. Turner (Eds.), *Encyclopedia of behavioral medicine* (pp. 442–442). Springer New York. https://doi.org/10.1007/978-1-4419-1005-9_1115

Caughron, J. J., & Mumford, M. D. (2008). Project planning: The effects of using formal planning techniques on creative problem-solving. *Creativity and Innovation Management*, 17, 204–215.

Chitpin, S. (2019). Decision making, distributed leadership and the objective knowledge growth framework. *International Journal of Educational Management*, *34*(2), 217–231. https://doi.org/10.1108/IJEM-10-2018-0314

Connolly, M., James, C., & Fertig, M. (2019). The difference between educational management and educational leadership and the importance of educational responsibility. Educational Management Administration & Leadership, 47(4), 504–519. https://doi.org/10.1177/1741143217745880

Council for Exceptional Children (CEC). 2012. *Advanced professional preparation special education standards*. https://exceptionalchildren.org/standards/advanced-special-education-preparation-standards

Council for Exceptional Children. (2015). *What every special educator must know: Ethics, standards, and guidelines for special educators* (7th ed.). Arlington, VA.

Crawford, M. (2007). Rationality and emotion in primary school leadership: An exploration of key themes. Educational Review, 59(1), 287–298.

Crockett, J. B., Becker, M. K., & Quinn, D. (2009). Reviewing the knowledge base of special education leadership and administration from 1970-2009. *Journal of Special Education Leadership, 22*(2), 55–67.

Dale, D., & James, C. R. (2015). The importance of affective containment during unwelcome educational change: The curious incident of the deer hut fire. *Educational Management Administration and Leadership, 43*(1), 92–106.

DeJong, D., & Grundmeyer, T. (2018). Educational leadership simulations: Learning lessons from behind the curtain of educational leadership. *International Journal of Educational Leadership Preparation*, *13*(1), 189–200.

DeMatthews, D., Billingsley, B. J., Basham, J. D., & Sharma, U. (2020). Principal leadership for students with disabilities in effective inclusive schools. *Journal of Educational Administration*, *58*(5), 539–554. https://doi.org/10.1108/JEA-10-2019-0177

DeMatthews, D., Kotok, S., & Serafini, A. (2020). Leadership preparation for special education and inclusive schools: Beliefs and recommendations from successful principals. *Journal of Research on Leadership Education, 15*(4), 303-329.

D'Mello, S.K., Chauncey Strain, A., Olney, A., & Graesser, A. (2013). Affect, meta-affect, and affect regulation during complex learning. In R. Azevedo & V. Aleven (Eds.), *International handbook of metacognition and learning technologies* (pp. 669-682). Springer.

D'Mello, S., & Graesser, A. (2012). Dynamics of affective states during complex learning. *Learning and Instruction*, *22*(2), 145-157.

D'Mello, S. K., & Graesser, A. C. (2015). Feeling, thinking, and computing with affect-aware learning technologies. In R. Calvo, S. K. D'Mello, J. Gratch, & A. Kappas, (Eds.), *The Oxford handbook of affective computing (*pp. 419– 434). Oxford University Press.

D'Mello, S., Lehman, B., Pekrun, R., & Graesser, A. (2014). Confusion can be beneficial for learning. *Learning and Instruction*, 29, 153–170. https://doi.org/10.1016/j.learninstruc.2012.05.003.

Demirdag, S. (2017). What instructional leaders need to know about the effects of inclusion. *European Journal of Educational Research, 6*(2), 175-186. https://doi.org/10.12973/eu-jer.6.2.175

Dewey, J. (1938). *Experience and education*. Simon & Schuster.

Dexter, S., Clement, D., Moraguez, D., & Watson, G. S. (2020). (Inter)active learning tools and pedagogical strategies in educational leadership preparation. *Journal of Research on Leadership Education*, *15*(3), 173–191.

D'Mello, S., & Graesser, A. (2012). Dynamics of affective states during complex learning. *Learning and Instruction*, *22*(2), 145-157.

Duke, D. L. (2019). Judgment and the preparation of educational leaders. *Journal of Research on Leadership Education, 14*(3), 191–211. https://doi.org/10.1177/1942775117752455

Ekman P. (2007). *Emotions revealed: Recognizing faces and feelings to improve communication and emotional life*. Holt Publishing

Ekman, P., & Friesen, W. V. (1976). Measuring facial movement. *Environmental Psychology and Nonverbal Behavior, 1*(1), 56–75.

Ellemers, N., van der Toorn, J., Paunov, Y., & van Leeuwen, T. (2019). The psychology of morality: A review and analysis of empirical studies published from 1940 through 2017. *Personality and Social Psychology Review: An Official Journal of the Society for Personality and Social Psychology, Inc, 23*(4), 332–366. https://doi.org/10.1177/1088868318811759

Every Student Succeeds Act, 20 U.S.C. § 6301 (2015).

Fan, C.-H., Zhang, Y., & Wu, I.-C. (2019). Using the CEC advanced preparation standards for special education administration to examine competencies for special education directors. *Journal Official Education Leadership*, *32*(1), 39-56.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149–1160.

Frenzel, A. C. (2014). Teacher emotions. In R. Pekrun & L. Linnenbrink-Garcia (Eds.), *International handbook of emotions in education* (pp.494-519). New York, NY: Taylor & Francis.

Friesen, W. V., & Ekman, P. (1984). EMFACS. Unpublished manual.

Frijda, N.H. (1988). The laws of emotion. *The American Psychologist. 43*(5), 349–358. https://doi.org/10.1037//0003-066x.43.5.349

Gilbert, K. A. (2017). Innovative leadership preparation: Enhancing legal literacy to create 21st century ready principals. *Academy of Educational Leadership Journal*, *21*(1), 1–17.

Gómez-Leal, R., Holzer, A. A., Bradley, C., Fernández-Berrocal, P., & Patti, J. (2022). The relationship between emotional intelligence and leadership in school leaders: A systematic review. *Cambridge Journal of Education*, *52*(1), 1–21. https://doi.org/10.1080/0305764X.2021.1927987

Grissom, J. A., Egalite, A. J., & Lindsay, C. A. (2021). *How principals affect students and schools: A systematic synthesis of two decades of research*. New York: The Wallace Foundation. Available at http://www.wallacefoundation.org/principalsynthesis.

Grissom, J. A., Kalogrides, D., & Loeb, S. (2015). Using student test scores to measure principal performance. *Educational Evaluation and Policy Analysis, 37*, 3-28.

Grissom, J. A., & Loeb, S. (2011). Triangulating principal effectiveness: How perspectives of parents, teachers, and assistant principals identify the central importance of managerial skills. *American Educational Research Journal*, 48, 1091-1123.

Grissom, J. A., Loeb, S., & Master, B. (2013). Effective instructional time use for school leaders longitudinal evidence from observations of principals. *Educational Researcher, 42*, 433-444.

Grissom, J. A., Mitani, H., & Woo, D. S. (2019). Principal Preparation Programs and Principal Outcomes. *Educational Administration Quarterly*, *55*(1), 73–115. Education Source.

Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry, 26*(1), 1–26. https://doi.org/10.1080/1047840X.2014.940781.

Guerriero, S. (Ed.). (2017). Educational research and innovation pedagogical knowledge and the changing nature of the teaching profession. Paris: OECD.

Gullo, G. L., 2017. *Administrator implicit bias in school disciplinary decisions* [Doctoral Dissertation, Lehigh University]. ProQuest Dissertations & Theses Global Publishing.

Gullo, G. L., & Beachum, F. D., 2020. Does implicit bias matter at the administrative level? A study of principal implicit bias and the racial discipline severity gap. *Teachers College Record The Voice of Scholarship in Education, 122*(3), 1-18. https://www.tcrecord.org.ID.Number:23233.

Gullo, G. L., & Beachum, F. D. (2020b). Principals navigating discipline decisions for social justice: An informed grounded theory study. *Heliyon*, *6*(12), 1-11. https://doi.org/10.1016/j.heliyon.2020.e05736

Gumus, S., Mehmet, S. B., Esen, M., & Gumus, E. (2018). A systematic review of studies on leadership models in educational research from 1980 to 2014. *Educational Management Administration & Leadership, 46*(1) 25–48. https://doi.org/10.1177/1741143216659296.

Hallinger, P., & Bridges, E. M. (2017). A systematic review of research on the use of problem-based learning in the preparation and development of school leaders. *Educational Administration Quarterly, 53*(2), 255-288.

Hallinger, P., & Heck, R. H. (2010). Collaborative leadership and school improvement: Understanding the impact on school capacity and student learning. *School Leadership & Management*, 30, 95-110.

Hitt, D. H., & Tucker, P. D. (2016). Systematic review of key leader practices found to influence student achievement: A unified framework. *Review of educational research*, *86*(2), 531-569.

Ho, D. C. W. (2010) Teacher participation in curriculum and pedagogical decisions: Insights into curriculum leadership. *Educational Management Administration & Leadership 38*(5), 613–624.

Hoover, J. J., & Teeters, L. (2019). Collaborative decision-making in multicultural contexts In J. B. Crockett, B. Billingsley, & M. L. Boscardin (Eds.), *Handbook of leadership and administration for special education* (pp.221-243). Routledge.

Hoppey, D., & McLeskey, J. (2013). A case study of principal leadership in an effective inclusive school. *Journal of Special Education*, *46*(4), 245–256.

Hord, S., Rutherford, W.L., Huling, L,. & Hall, G. (2014). *Taking charge of change*. Association for Supervision and Curriculum Development.

Hsiao, S.-W., Sun, H.-C., Hsieh, M.-C., Tsai, M.-H., Tsao, Y., & Lee, C.-C. (2019). Toward automating oral presentation scoring during principal certification program using audio-video low-level behavior profiles. *IEEE Transactions on Affective Computing*, *10*(4), 552–567. https://doi.org/10.1109/TAFFC.2017.2749569

Huber, S. G. (2013). Multiple learning approaches in the professional development of school leaders–Theoretical perspectives and empirical findings on self-assessment and feedback. *Educational Management Administration & Leadership, 41*(4), 527-540.

Huggins, K. S., Klar, H. W., & Andreoli, P. M. (2021). Facilitating leadership coach capacity for school leadership development: The intersection of structured community and experiential learning. *Educational Administration Quarterly*, *57*(1), 82-112.

IBM Corp. Released 2021. IBM SPSS Statistics for Windows, Version 28.0. Armonk, NY: IBM Corp.

iMotions A/S (VAT: DK 33504004) is registered in Denmark. Registered address: Frederiksberg Allé 1-3, 1621 København V, Denmark

iMotions Attention Tool (version 9.0) [apparatus and software] iMotions, Cambridge, MA (2018)

Individuals with Disabilities Education Improvement Act of 2004, 20 U.S.C. § 1400 *et seq.*

Issenberg, B. McGaghie, W. C., Petrusa, E. R., Lee Gordon, D. & Scalese, R. J. (2005). Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systematic review. *Medical Teacher, 27*(1), 10-28.

James, C. R., & Crawford, M. (2015). The case for an affective paradigm in social and organisational research. In M. Broussine, C. Clarke , & L. Watts (Eds.), *Researching with feeling* (pp. 147–163). London: Routledge.

Jarrell, A., Harley, J. M., Lajoie, S., & Naismith, L. (2017). Success, failure and emotions: Examining the relationship between performance feedback and emotions in diagnostic reasoning. *Educational Technology Research and Development*, *65*(5), 1263–1284. https://doi.org/10.1007/s11423-017-9521-6

Jobs for the Future & the Council of Chief State School Officers. 2017. *Leadership Competencies for Learner-Centered, Personalized Education.* Boston, MA: Jobs for the Future. https://ccsso.org/resource-library/leadership-competencies-learner-centered-personalized-education-0

Johnson, L., Adams-Becker, S., Cummins, M., Estrada, V., Freeman, A., & Hall, C. (2016). *NMC horizon report 2016 higher education edition*. The New Media Consortium. https://www.learntechlib.org/p/171478

Johnson, B. L., Jr., & Kruse, S. D. (2010). *Decision making for educational leaders: Underexamined dimensions and issues.* SUNY Series, Educational Leadership. SUNY Press.

Johnson, L., Smith, R., Willis, H., Levine, A., & Haywood, K., (2011). *The 2011 horizon report higher education edition*. The New Media Consortium. https://library.educause.edu/-/media/files/library/2011/2/hr2011-pdf.pdf

Karseth, B., & Møller, J. (2020). Legal regulation and professional discretion in schools. *Scandinavian Journal of Educational Research*, *64*(2), 195–210. https://doi.org/10.1080/00313831.2018.1531918

Kaufman, J. A. (2019). Stress and coping among public school principals in a midwest metropolitan sample. *SAGE Open*, *9*(1). https://doi.org/10.1177/2158244019829549

Kalil, T. (2017). Policy entrepreneurship at the White House. *Innovations*: *Technology, Governance, Globalization*, 11(3/4), 4–21.

Khaleel, N., Alhosani, M., & Duyar, I. (2021). The role of school principals in promoting inclusive schools: A teachers' perspective. *Frontiers in Education*, *6*, 1-14.

Kheirkhah, M., Brodoehl, S., Leistritz, L., Götz, T., Baumbach, P., Huonker, R., Witte, O. W., Volk, G. F., Guntinas-Lichius, O., & Klingner, C. M. (2020). Abnormal emotional processing and emotional experience in patients with peripheral facial nerve paralysis: An MEG study. *Brain sciences*, *10*(3), 147. https://doi.org/10.3390/brainsci10030147

Kılınç, A. Ç., & Gümüş, S. (2021). What do we know about novice school principals? A systematic review of existing international literature. *Educational Management Administration & Leadership*, *49*(1), 54-75.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall.

Kring, A. M., & Sloan, D. M. (2007). The facial expression coding system (FACES): Development, validation, and utility. *Psychological Assessment*, *19*(2), 210.

Laerd Statistics (2015). One-way MANOVA using SPSS Statistics. *Statistical tutorials and software guides*. Retrieved from https://statistics.laerd.com/

Lake, B.J., Billingsley, B., & Stewart, A. (2019). Building trust and responding to parent–school conflict. In J. B. Crockett, B. Billingsley & M. L. Boscardin (Eds.) *Handbook of leadership and administration for special education. (2nd ed., Vol. 1,* pp. 265-278). Routledge. https://doi.org/10.4324/97813115226378-16

Lashley, C. (2007). Principal leadership for special education: An ethical framework. *Exceptionality*, *15*(3), 177–187. https://doi.org/10.1080/09362830701503511

Law E. H. F., Galton, M., & Wan, S. W. Y. (2007) Developing curriculum leadership in schools: Hong Kong perspectives. *Asia-Pacific Journal of Teacher Education 35*(2), 143–159.

Lazarus, R. S. (1991). *Emotion and adaptation*. New York: Oxford University Press.

Leithwood K. (1994) Leadership for school restructuring. *Educational Administration Quarterly. 30*(4), 498-518. doi:10.1177/0013161X94030004006

Leithwood, K. (2012). *Ontario Leadership Framework with a discussion of the leadership foundations*. Ottawa, Ontario, Canada: Institute for Education Leadership, OISE.

Leithwood, K., Louis, K. S., Anderson, S., & Wahlstrom, K. (2004). *How leadership influences student learning: A review of the evidence linking leadership to student learning*. New York, NY: Wallace Foundation.

Ledford, J. R. & Gast, D.L. (2018). *Single case research methodology: Applications in special education and behavioral sciences* (3rd ed.) Routledge.

Lerner, J. S., Li, Y., Valdesolo, P., & Kassam, K. S. (2015). Emotion and decision making. *Annual Review of Psychology*, *66*(1), 799–823. https://doi.org/10.1146/annurev-psych-010213-115043

Levin, S., & Bradley, K. (2019). Understanding and addressing principal turnover: A review of the research. Reston, VA: *National Association of Secondary School Principals*.

Loewenstein, G., Weber, E. U., Hsee, C. K., & Welch, N. (2001) Risk as feelings. *Psychological Bulletin 127*, 267-286.

Lynch, J. M. (2012). Responsibilities of today's Principal: Implications for principal preparation programs and principal certification policies. *Rural Special Education Quarterly, 31*(2), 40-47.

Lytle, J. H. (2012). Where is leadership heading? *Phi Delta Kappan*, *93*(8), 54–57. https://doi.org/10.1177/003172171209300813

MacPherson, I., Brooker, R., Aspland, T., & Elliott, B. (1998) Putting professional learning up front: A perspective of professional development within a context of collaborative research about curriculum leadership. *Journal of In-Service Education, 24*(1), 73–86.

Majumdar, B. (2018). School principals as leaders: Major research trends and future directions. In S. Deb (Ed.), *Positive Schooling and Child Development: International Perspectives* (pp. 325–345). Springer. https://doi.org/10.1007/978-981-13-0077-6_17

Mann, D., Reardon, R. M., Becker, J. D., Shakeshaft, C., & Bacon, N. (2011). Immersive, interactive, web-enabled computer simulation as a trigger for learning: The next generation of problem-based learning in educational leadership. *Journal of Research on Leadership Education*, 6(5), 272–287. https://doi.org/10.1177/194277511100600511

Manna, P. (2021). *How can state policy support local school districts as they develop comprehensive and aligned principal pipelines?* The Wallace Foundation. https://www.wallacefoundation.org/knowledge-center/pages/how-can-state-policy-support-local-school-districts-develop-principal-pipelines.aspx

McKenney, S. (2018). How can the learning sciences (better) impact policy and practice? *Journal of the Learning Sciences*, *27*(1), 1-7.

Mendels, P. (2012). The effective principal: 5 pivotal practices that shape instructional leadership. *The Learning Professional, 33*(1), 54-58.

Mills, G. E., & Gay, L. R. (2019). *Educational research competencies for analysis and applications* (12th ed., pp. 146-165). Pearson.

Montecinos, C., Bush, T., & Aravena, F. (2018). Moving the school forward: Problems reported by novice and experienced principals during a succession process in Chile. *International Journal of Educational Development*, *62*, 201–208. https://doi.org/10.1016/j.ijedudev.2018.04.004

Morrison, M., & Ecclestone, K. (2011). Getting emotional: A critical evaluation of recent trends in the development of school leaders. *School Leadership & Management*, *31*(3), 199–214. https://doi.org/10.1080/13632434.2011.587407

Mudrick, N. V., Taub, M., Azevedo, R., Rowe, J., & Lester, J. (2017). Toward affect-sensitive virtual human tutors: The influence of facial expressions on learning and emotion. *2017 Seventh International Conference on Affective Computing and Intelligent Interaction (ACII)*, 184–189. https://doi.org/10.1109/ACII.2017.8273598

Mueller, T. G., & Carranza, F. (2011). An examination of special education due process hearings. *Journal of Disability Policy Studies 22*(3), 131–139.

Mueller, T. G., & Vick, A. M. (2019). Rebuilding the family–professional partnership through facilitated individualized education program meetings: A conflict prevention and resolution practice. *Journal of Educational Psychological Consultation, (29)* 2, 99-127. https://doi.org/10.1080/10474412.2018.1470934

Muis, K. R., Chevrier, M., & Singh, C. A. (2018). The role of epistemic emotions in personal epistemology and self-regulated learning. *Educational Psychologist*, *53*(3), 165-184.

Mumford, M. D., Todd, E. M., Higgs, C., & McIntosh, T. (2017). Cognitive skills and leadership performance: The nine critical skills. *The Leadership Quarterly*, *28*(1), 24–39. https://doi.org/10.1016/j.leaqua.2016.10.012

Murphy, J., Elliot, S. N., Goldring, E., & Porter, A. C. (2006). *Learning-centered leadership: A conceptual foundation*. New York, NY: Wallace Foundation.

Mutch, C. (2015). Leadership in times of crisis: Dispositional, relational and contextual factors influencing school principals' actions. *Supporting Children and Young People's Disaster Preparedness, Response and Recovery*, *14*, 186–194. https://doi.org/10.1016/j.ijdrr.2015.06.005

Nathan, M. J., & Sawyer, R. K. (2014). Foundations of the Learning Sciences. In R. K. Sawyer (Ed.), *The Cambridge Handbook of the Learning Sciences* (2nd ed., pp. 21-43). Cambridge University Press.

National Association of Secondary School Principals. (2021). *Supporting principals as leaders of special education.* https://www.nassp.org/top-issues-in-education/position-statements/supporting-principals-as-leaders-of-special-education/

National Policy Board for Educational Administration. (2015). *Professional standards for educational leaders*. https://www.npbea.org/psel/

Niven K. (2013) Affect. In: Gellman M.D., Turner J.R. (eds) *Encyclopedia of Behavioral Medicine*. Springer, New York, NY. https://doi.org/10.1007/978-1-4419-1005-9_1088

Oplatka, I. (2009). Learning the principal's future internal career experiences in a principal preparation program. *International Journal of Educational Management, 23*(2), 129-144. Retrieved from http://www.emeraldinsight.com/loi/ijem

Oplatka, I. (2011). The dynamic nature of emotions in educational leadership: Lessons from the career stories of Israeli late-career principals. In C. Day & J. Chi-Kin Lee (Eds.), *New understanding of teacher's work* (pp. 187–203). Dordrecht: Springer.

Oplatka, I. (2017). Empathy regulation among Israeli school principals: Expression and suppression of major emotions in educational leadership. *Journal of School Leadership*, 27(1), 94–118.

Ozdemir, A. (2020). Determining the competencies of educational administrators in Turkish education system and these competency degrees by multi-criteria decision making. *Egitim Ve Bilim-Education and Science*, *45*(204), 251–301. https://doi.org/10.15390/EB.2020.8726

Pariente, N., & Tubin, D. (2021). Novice principal mentoring and professional development. *International Journal of Mentoring and Coaching in Education*, *10*(3), 370–386. https://doi.org/10.1108/IJMCE-01-2021-0015

Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review, 18*, 315-341.

Pekrun, R., & Frese, M. (1992). Emotions in work and achievement. In C. L. Cooper & I. T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology* (Vol. 7, pp. 153-200). Chichester, UK: Wiley.

Pekrun, R., & Linnenbrink-Garcia, L. (2014). Introduction to emotions in education. In R. Pekrun & L. Linnenbrink-Garcia (Eds.), *International handbook of emotions in education* (Vol. 16, pp. 1-10). New York, NY: Routledge.

Pekrun, R., Vogl, E., Muis, K. R., & Sinatra, G. M. (2017). Measuring emotions during epistemic activities: The epistemically-related emotion scales. *Cognition and Emotion*, *31*(6), 1268–1276. https://doi.org/10.1080/02699931.2016.1204989

Phelps, E. A., Lempert, K. M., & Sokol-Hessner, P. (2014). Emotion and decision making: multiple modulatory neural circuits. *Annual review of neuroscience*, *37*, 263-287.

Poikela, P. (2017). *Rethinking computer-based simulation: Concepts and models*. [Doctoral dissertation, University of Lapland]. https://lauda.ulapland.fi/bitstream/handle/10024/62754/Poikela_Paula_ActaE_212pdfA.pdf?sequence=6

Portin, B. S., & Shen, J. (1999). The changing principalship: Its current status, variability, and impact. *Journal of Leadership & Organizational Studies, 5*, 93-113.

Pudelski, S. (2016) *Rethinking special education due process. A proposal for the next reauthorization of the individuals with disabilities act.* American Association of School Administrators. https://www.aasa.org/uploadedFiles/Policy_and_Advocacy/Public_Policy_Resources/Special_Education/AASARethinkingSpecialEdDueProcess.pdf

Quinn, J., Deris, A., Bischoff, G., & Johnson, J. T. (2015). Comparison of transformational leadership practices: Implications for school districts and principal preparation programs. *Journal of Leadership Education, (4)*3, 71-85.

Rieckhoff, B. S. (2014). The development of faith leadership in novice principals. *Journal of Catholic Education*, *17*(2), 25–56.

Riley, D., & Meredith, J. (2017). *State efforts to strengthen school leadership: Insights from CCSSO action groups.* Prepared by Council of Chief State School Officers. Washington, DC.

Robinson, V. M. J., Lloyd, C. A., & Rowe, K. J. (2008). The impact of leadership on student outcomes: An analysis of the differential effects of leadership types. *Educational Administration Quarterly, 44,* 635-674.

Rodl, J. E., Bonifay, W., Cruz, R. A., & Manchanda, S. (2018). A survey of school administrators' training and support related to evaluating special education teachers. *Journal of School Administration Research and Development, 3*(1), 19-31.

Roy, S. R. (2015). *Promoting trait emotional intelligence in leadership and education*. Information Science Reference.

Sakakibara, R., & Endo, T. (2016). Cognitive appraisal as a predictor of cognitive emotion regulation choice. *Japanese Psychological Research*, *58*(2), 175–185. https://doi.org/10.1111/jpr.12098

Sawyer, R. K. (2014). The future of learning: Grounding educational innovation in the learning sciences. In R. K. Sawyer (Eds.), *The cambridge handbook of the learning sciences* (2nd ed., pp. 726-746). Cambridge University Press.

Schaaf, M., Williamson, R., & Novak, J. (2015). Are midwestern school administrators prepared to provide leadership in special education? *Mid-Western Educational Researcher*, *27*(2), 172–182.

Schneider, B., Worsley, M., & Martinez-Maldonado, R. (2021). Gesture and gaze: Multimodal data in dyadic interactions. In U. Cress, C. Rosé, A. F. Wise, & J. Oshima (Eds.), *International handbook of computer-supported collaborative learning* (pp. 625–641). https://doi.org/10.1007/978-3-030-65291-3_34

SchoolSims Overview. (2021). SchoolSims: Experience is the best teacher. https://schoolsims.com/overview/

Schutz, P. A., & Lanehart, S. L. (2002). Emotions in education. *Educational Psychologist*, *37*(2), 67-68.

Sebring, P. B., Allensworth, E., Bryk, A. S., Easton, J. Q., & Luppescu, S. (2006). *The essential supports for school improvement*. Chicago, IL: Consortium on Chicago School Research.

Sepp, S., Howard, S. J., Tindall-Ford, S., Agostinho, S., & Paas, F. (2019). Cognitive load theory and human movement: Towards an integrated model of working memory. *Educational Psychology Review*, *31*(2), 293-317.

Simon, H. (1976). *Administrative behavior*. Free Press.

Sinnema, C., Daly, A. J., Liou, Y.-H., & Rodway, J. (2020). Exploring the communities of learning policy in New Zealand using social network analysis: A case study of leadership, expertise, and networks. *International Journal of Educational Research,* 99, 1-16. https://doi.org/10.1016/j.ijer.2019.10.002

Skousen, J. D. (2020). Hegemony, principal preparation, and the language of the oppressor: The elusive preparation of socially just school leaders. In Papa R., Heffron, J. M. (Eds.), *Handbook on promoting social justice in education* (pp.1085-1111). https://doi.org/10.1007/978-3-030-14625-2_116

Solomon, R. C. (1993). *The passions: Emotions and the meaning of life*. Hackett Publishing.

Spero, K. (2012). *Scenario Based e-Learning*. Association for Talent Development.

Spillane, J. P., Harris, A., Jones, M., & Mertz, K. (2015). Opportunities and challenges for taking a distributed perspective: Novice school principals' emerging sense of their new position. *British Educational Research Journal*, *41*(6), 1068–1085. https://doi.org/10.1002/berj.3166

Staub, N. A., & Bravender, M. (2014). Principal candidates create decision-making simulations to prepare for the job. *International Journal of Educational Leadership Preparation*, *9*(1).

Stelitano, L., Johnston, W. R., & Young, C. J. (2020). *Principals could use more support to help students with disabilities—Especially in schools serving mostly students of color*. RAND Corporation. https://doi.org/10.7249/RR2575.13

Stewart, A. C., Williams, J., Smith-Gratto, K., Black, S. S., & Kane, B. T. (2011). Examining the impact of pedagogy on student application of learning: Acquiring, sharing, and using knowledge for organizational decision making. *Decision Sciences Journal of Innovative Education*, *9*(1), 3–26.

Stöckli, S., Schulte-Mecklenbeck, M., Borer, S., & Samson, A. C. (2018). Facial expression analysis with AFFDEX and FACET: A validation study. *Behavior Research Methods, 50*(4), 1446–1460. https://doi.org/10.3758/s13428-017-0996-1.

Tenuto, P. L., Gardiner, M. E., & Yamamoto, J. K. (2016). Leaders on the front line-managing emotion for ethical decision making: A teaching case study for supervision of school personnel. *Journal of Cases in Educational Leadership, 19*(3) 11-26. https://doi.org/10.1177/1555458916657123

Thompson, P. A. (2017). Effective leadership competencies of school-based special education administrators. *Journal of Special Education Leadership*, *30*(1), 31–47.

Tobin, T. J. (2019). Reaching all learners through their phones and universal design for learning. *Journal of Adult Learning, Knowledge and Innovation, 4*(1) 9-19. doi:10.1556/2059.03.2019.01

Tokuhama-Espinosa, T. (2019). The learning sciences framework in educational leadership. *Frontiers in Education*, *4*(136), 1–20. https://doi.org/10.3389/feduc.2019.00136

Torrence, B. S., & Connelly, S. (2019). Emotion regulation tendencies and leadership performance: An examination of cognitive and behavioral regulation strategies. *Frontiers in Psychology*, *10*. https://www.frontiersin.org/article/10.3389/fpsyg.2019.01486

Tudryn, P., Boscardin, M. L., & Wells, C. (2016). Distributed Leadership through the Lenses of Special Education Leaders. *Journal of Special Education Leadership*, *29*(1), 3–22.

U.S. Department of Education. (2021). *42nd annual report to congress on the implementation of the individuals with disabilities education act, 2020*. https://www2.ed.gov/about/reports/annual/osep/index.html.

Van Geel, M., Keuning, T., Visscher, A. J., & Fox, J. P. (2016). Assessing the effects of a school-wide data-based decision-making intervention on student achievement growth in primary schools. *American Educational Research Journal*, *53*(2), 360-394.

Vogl, E., Pekrun, R., Murayama, K., Loderer, K., & Schubert, S. (2019). Surprise, curiosity, and confusion promote knowledge exploration: Evidence for robust effects of epistemic emotions. *Frontiers in Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.02474

Vogt, W. P., Garnder, D. C., & Haeffele, L. M. (2012). *When to use what research design*. The Guilford Press.

Volante, P., Jeldres, R., Spero, K., Llorente, C., & Johanek, M. (2020). Simulations for the learning of decision making in educational leadership in the context of the Chilean school system. *Research in Educational Administration & Leadership*, *5*(1), 1–41.

Walsh, T. (2022). The troubling future for facial recognition software. *Communications of The Association for Computing Machinery, 65*(3), 35-36.

Wang, C., & Bird, J. J. (2011). Multi-Level modeling of principal authenticity and teachers' trust and engagement. *Academy of Educational Leadership Journal*, *15*(4), 125–147.

Wang, Y. (2019a). Is data-driven decision making at odds with moral decision making? A critical review of school leaders' decision making in the era of school accountability. *Values and Ethics in Educational Administration*, *14*(2), 1-9.

Wang, Y. (2019b). How do school leaders make judgment calls? A systematic review of decision-making literature (1966-2018). Paper accepted for presentation at *the 33rd Annual Convention of University Council for Educational Administration*. New Orleans, LA.

Wang, Y. (2020). Using research on neuroeconomics games to train school leaders' decision making. *International Journal of Educational Leadership Preparation, 15*(1), 149-171.

Wang. Y. (2021). What is the role of emotions in educational leaders' decision making? Proposing an organizing framework. *Educational Administration Quarterly*, *57*(3), 372–402. https://doi.org/10.1177/0013161X20938856

Weiner, J. M., & Woulfin, S. L. (2017). Controlled autonomy: Novice principals' schema for district control and school autonomy. *Journal of Educational Administration*, *55*(3), 334–350.

Welch, D. A. (2002), *Decisions, decisions: The art of effective decision making.* Prometheus Books.

Wijekumar, K. (Kay). (2021). Influence of emotions on digital learning. *Educational Technology Research and Development*, *69*(1), 55–57. https://doi.org/10.1007/s11423-021-09957-8

Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis, 11*, 203-214. doi: 10.1901/jaba.1978.11-203

Yarbrough, J. (2018). Adapting adult learning theory to support innovative, advanced, online learning. *Research in Higher Education Journal, 35, 1-15*.