

PEDAGOGICAL DISRUPTIVE INNOVATIONS AND POSITIVE DEVIANCE DURING
COVID-19 MANDATORY SCHOOL CLOSURES: A CASE STUDY OF PUBLIC-SCHOOL
TEACHERS IN SAN JUAN COUNTY, NEW MEXICO

by

David R. McGee PhD

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

Liberty University

2024

PEDAGOGICAL DISRUPTIVE INNOVATIONS AND POSITIVE DEVIANCE DURING
COVID-19 MANDATORY SCHOOL CLOSURES: A CASE STUDY OF PUBLIC-SCHOOL
TEACHERS IN SAN JUAN COUNTY, NEW MEXICO

by David R. McGee PhD

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

Liberty University, Lynchburg, VA

2024

APPROVED BY:

Woodbridge, Jerry, PhD, Committee Chair

Fowler, Rollen, PhD, Committee Member

Abstract

The purpose of this qualitative single case study was to discover and describe the types of positive deviance and disruptive innovation during the non-voluntary transition to remote learning for teachers from San Juan County, New Mexico. This study investigated how classroom teachers altered their pedagogical practices from their face-to-face classroom juxtaposed to their non-voluntary transition to the remote classroom. Positive deviance is defined as any outcome is unique, non-normative, extraordinary, uncommon, and honorable and is perceived as positive to the organization. Disruptive innovation is a business theory that explains how a good enough innovation can be pushed through as a new innovation. A single case study was selected as the best option to better understand this phenomenon's baseline, and more data is needed (Ridder, 2020). Eleven public school teachers participated, and three data sources were collected: a) copies of the teacher's pacing guide, and three examples of lesson plans; b) a reflective journal; and c) a personal interview. Data analysis used Atlas.ti qualitative data analysis software. Key themes identified in the data include education leadership, organization, and technology; the psychology of understanding, connection, and relationships; and pedagogy, innovation, and adapting to change; highlighting the importance of leadership and motivation in creating a positive learning environment, and the strategies used for transitioning to remote learning and implementing innovative pedagogical practices. The Positive Deviance Magic Quadrant is used to objectively measure acts of positive deviance. Homans's social exchange theory was used to explain how actors remain in an economic or social interaction transaction.

Keywords: social exchange value, positive deviance magic quadrant, disruptive innovation, online pedagogy, non-voluntary transition, remote learning, adaptability, relationships.

Copyright 2024, David R. McGee

In loving memory

Marlene Davies McGee.

21 August 1942 – 19 January 2022

Dedication

To my Grandchildren

Acknowledgments

My life's journey has been blessed to have personal influencers and mentors who have inspired me to imagine infinite possibilities; each of you has contributed to who I am today, and I want to take this opportunity to acknowledge you. I want to acknowledge my mom, Marlene Davies McGee; your steady hand taught me how to be kind, think of others, and view them with the same passionate love God has for all His children. To my dad, Edwin Lavern McGee, for your steady and firm hand in teaching me how to be an honorable man, instilling a solid work ethic, and teaching me the eternal principles of the gospel of Jesus Christ. To my son, Erick Fisher McGee, thank you for being with me and supporting me in my journey. To my daughter, Leah Charise McGee (Brewster)... poke... your talent is truly inspirational. To my wife, Suzanne, as the Huey Lewis song goes, I am so happy to be stuck with you; thanks for putting up with me. I want to begin by sharing a special acknowledgment to my sister Debra McGee for your ideas and suggestions that made this study uniquely San Juan County. I want to acknowledge and thank my best friend, Dr. Felix Hovespian, Ph.D., I have cherished our friendship over the last 25 years. Thank you for pointing out the obvious. I want to thank my good friend and mentor, Lt. Col. Select Abrey Darryl Rice (Oh Captain, My Captain). Darryl, your inspiration and solid leadership set me on the course to where I am today. I will miss our thoughtful and meaningful chats. God be with you until we meet again, my friend. It was an honor to have served with you in the United States Air Force. HOORAH, hand salute. Finally, with deep humility, I thank my committee, Dr. Jerry Woodbridge, for your support and patience and Dr. Rollen Fowler for giving me that scholarly audience to focus on. Thank you for the blessing you have mentoring me on this journey; I firmly believe our paths were guided by the hand of providence to find both of you as my mentors.

Table of Contents

Abstract	2
Acknowledgments.....	6
Table of Contents	7
List of Tables	13
List of Figures	14
List of Abbreviations	15
CHAPTER ONE: INTRODUCTION.....	16
Overview.....	16
Background.....	17
Historical Context	18
Social Context.....	20
Theoretical Context.....	23
Problem Statement.....	24
Purpose Statement.....	25
Significance of the Study	25
Theoretical Significance	26
Empirical Significance.....	26
Practical Significance.....	26
Research Questions.....	27
Definitions.....	28
Summary	29
CHAPTER TWO: LITERATURE REVIEW.....	31

Overview.....	31
Theoretical Framework.....	31
Related Literature.....	36
Positive Deviance.....	37
Disruptive Innovation	45
Collaboration in Positive Deviance	48
Evidence of Positive Deviance and Disruptive Innovation	51
Classroom Design.....	52
Instructional Design for Online Learning.....	55
Pedagogy.....	60
Education Technology	66
Summary.....	70
CHAPTER THREE: METHODS.....	73
Overview.....	73
Research Design.....	73
Research Questions.....	76
Setting and Participants.....	77
Site	78
Participants.....	79
Researcher Positionality.....	80
Interpretive Framework	80
Philosophical Assumptions.....	81
Ontological Assumption	81

Epistemological Assumption	82
Axiological Assumption	83
Researcher's Role	84
Procedures.....	84
Permission.....	85
Recruitment Plan.....	85
Data Collection	86
Document Review.....	88
Document Data Analysis Plan	89
Reflective Journal	89
Journal Questions.....	90
Journal Document Data Analysis Plan	91
Personal Interviews.....	92
Personal Interview Background Question	95
Personal Interview Questions	95
Individual Interview Data Analysis Plan	97
Synthesis of Data	98
Trustworthiness.....	99
Credibility	100
Transferability.....	100
Dependability	101
Confirmability.....	102
Ethical Considerations	102

	10
Summary	104
CHAPTER FOUR: FINDINGS	106
Overview	106
Participants.....	106
Fanboy.....	110
Hangman	113
Hollywood.....	115
Iceman.....	119
Jester	121
Maverick	123
Merlin.....	127
Rooster	130
Stinger.....	133
Viper	136
Wolfman	138
Results.....	142
Theme Development.....	144
Theme 1: Education Leadership, Organization, and Technology.....	146
Theme 2: Psychology of Understanding, Connection, and Relationships.....	154
Theme 3: Pedagogy, Innovation, and Adapting to Change	160
Outlier Data and Findings.....	165
Grandparents	165
Safety	166

Research Question Responses.....	167
Central Research Question.....	168
Sub Question One	170
Sub Question Two.....	171
Summary	173
CHAPTER FIVE: CONCLUSION.....	176
Overview.....	176
Discussion.....	176
Related Work	177
Interpretation of Findings	178
Summary of Thematic Findings.....	184
Theme 1: Education Leadership, Organization, and Technology.....	184
Theme 2: Psychology of Understanding, Connection, and Relationships.....	187
Theme 3: Pedagogy, Innovation, and Adapting to Change	188
Implications for Policy or Practice	190
Implications for Policy.....	191
Implications for Practice	192
Theoretical and Empirical Implications.....	192
Theoretical Implications	193
Empirical Implications.....	195
Limitations and Delimitations.....	196
Limitations	197
Delimitations.....	198

Recommendations for Future Research	200
Future Research 1: Positive Deviance and Disruptive Innovation: An Exploratory Case Study of Navajo Nation Public School Teachers	200
Future Research 2: Disruptive Social Learning and The Effect of Labeling: A Humanistic Personal Agency Phenomenological Study	201
Future Research 3: Social Exchange Theory: A Case Study of Cross-Social and Cultural Influences on the Navajo Nation.	201
Conclusion	201
References.....	204
Appendix A: IRB Approval Letter	256
Appendix B: Recruitment Letter/Email	258
Appendix C: Recruitment Email Template.....	260
Appendix D: Consent Form.....	262
Appendix E: Participant Dashboard.....	266
Appendix F: Example of Master Pacing Guide.	268
Appendix G: Example of Participants Personal Interview	269
Appendix H: Example of Lesson Plans	281
Appendix I: Study Expense Report.....	284

List of Tables

Table 1 <i>San Juan County Population Demographics</i>	79
Table 2 <i>Example of Fifth Grade Master Pacing Guide</i>	87
Table 3 <i>Teacher Seniority Scale</i>	107
Table 4 <i>Participant Pseudonym Mask Naming Convention</i>	107
Table 5 <i>Descriptive Statistics of Participants Years of Experience</i>	108
Table 6 <i>Participants School District Population Distribution</i>	108
Table 7 <i>Journal Media Response Delivery Mode</i>	109
Table 8 <i>Code Analysis, Unique Counts, and Major Themes</i>	145
Table 9 <i>Research Questions, Themes, and Supporting Evidence</i>	167
Table 10 <i>Positive Deviance Magic Quadrant, Participants Supporting Evidence</i>	182

List of Figures

Figure 1 <i>Deviance Taxonomy: Positive Deviance Magic Quadrant</i>	41
Figure 2 <i>The Deviance Spectrum</i>	42
Figure 3 <i>Four Key Areas of Positive Deviance and Disruptive Innovation</i>	52
Figure 4 <i>Map of San Juan County, New Mexico</i>	78
Figure 5 <i>Modeling Tool for Evaluating Pedagogy Practice Change</i>	88
Figure 6 <i>Positive Deviance and Disruptive Innovation Mind Map</i>	146
Figure 7 <i>Education Leadership, Organization, and Technology Mind Map</i>	147
Figure 8 <i>Psychology of Understanding, Connection, and Relationships Mind Map</i>	155
Figure 9 <i>Attendance Pie Chart</i>	158
Figure 10 <i>Pedagogy, Innovation, and Adapting to Change Mind Map</i>	161
Figure 11 <i>Central Research Question Mind Map</i>	168
Figure 12 <i>Sub Research Question One Mind Map</i>	170
Figure 13 <i>Sub Research Question Two Mind Map</i>	172
Figure 14 <i>Positive Deviance Magic Quadrant</i>	181
Figure 15 <i>The Deviance Spectrum</i>	182

List of Abbreviations

Individualized Education Plan (IEP)

Massive Open Online Courses (MOOC)

Microsoft Office 365 (O365)

Microsoft Teams (MS Teams)

Minimum Viable Product (MPV)

Qualitative Data Analysis (QDA)

CHAPTER ONE: INTRODUCTION

Overview

It was a dark and stormy night; the opening of Sir Edward George Earle Bulwer-Lytton's (2015) novel *Paul Clifford* might be an apropos metaphorical narrative about how many public-school teachers and students felt during the non-voluntary transition from in-person to remote learning during the recent COVID-19 pandemic (Koris et al., 2021; Thom et al., 2021; Trout, 2020). Historically, pandemic events act as social change agents that alter social norms and compel individuals and groups to innovate to mitigate the impact of the change agent disruption (O. B. Jensen, 2021). The recent pandemic event was the first where advanced technology could mitigate the unexpected impact of social distancing through positive deviance and disruptive innovation (Honigsbaum, 2019; Kersten et al., 2020; Morens et al., 2020).

Chapter One provides the background of how positive deviance and disruptive innovation in the education setting have the potential to mitigate a non-voluntary transition to remote learning (Ahmad et al., 2023; H. Clark et al., 2020; He et al., 2019; Katz et al., 2020; Koris et al., 2021; Nasu, 2021; Shoss et al., 2021; Thom et al., 2021; Trout, 2020). This chapter will state the problem of this study: how to objectively measure acts of positive deviance and disruptive innovation that traditional classroom teachers created during the non-voluntarily transition to remote learning (Koris et al., 2021; Thom et al., 2021; Trout, 2020). The purpose of this single case study is to investigate and catalog the types of positive deviance and disruptive innovation by traditional in-person public K-12 teachers created during their non-voluntary transition to remote learning (Christensen, 1997; Christensen & Ganser, 2017; Enayat et al., 2022; Heckert et al., 2021; Heckert et al., 2022; Heckert, 1985; Kluwe-Schiavon et al., 2021; Sidorkin, 2021). This chapter will ask one central research question and three sub-research questions and

conclude with a list of definitions and a chapter summary.

Background

The recent COVID-19 event was a change agent that altered the social landscape worldwide; although this event is a new phenomenon in the living memory of those who experienced it, this event is just another example of historical disruptions of social norms compelling society to find alternatives to mitigate the impacts of such events (Clark et al., 2020; Kersten et al., 2020; Khlaif et al., 2021a; Kupczyk et al., 2021; Makamure & Tsakeni, 2020; Nasu, 2021). What makes this event unique is that for the first time in human history, advanced technologies have helped mitigate political, economic, and social disruptions that many government and health organization's restrictions to flatten the curve (Kersten et al., 2020; Khlaif et al., 2021b; Morens et al., 2020).

In the education domain, the two significant inventions that have helped mitigate school closures are the commercial success of the Internet and the invention and popular acceptance of online education (Favale et al., 2020). Online course offerings began as a just-good enough solution to solve a niche problem for an isolated target audience that eventually pushed through as a global disruptive innovation (Christensen, 1997; Christensen et al., 2006; Christensen & Ganser, 2017; Flavin, 2021). The genesis of disruptive innovations is traceable to acts of positive deviance that solve an organizational problem due to limited resources that produce non-normative, unique, extraordinary, uncommon, intentional, novel, and honorable outcomes (Brière et al., 2021; Heckert, 1985; Sharma, 2020, 2022).

This section will begin by summarizing relevant literature about the history and evolution of positive deviance and disruptive innovation as a general framework (Brière et al., 2021; Christensen, 1997; Christensen et al., 2006; Dadich, 2023; Singhal & Svenkerud, 2019), as well

as summarize the types of social opportunities and key pedagogical areas where public school teachers can adapt and apply positive deviance as an innovation strategy (Ruggeri & Folke, 2021; Singhal & Svenkerud, 2019). Finally, this section will conclude by discussing the evolution of social exchange theory as it emerged from the social behavior sciences as a theoretical context for this study (Enayat et al., 2022; Homans, 1958)

Historical Context

Historically, the study of individual behavioral attributes is the foundation of human control systems (Boman & Mowen, 2020). A human control apparatus is worth mentioning because when individuals engage in deviance, it is not the individual but the individual's actions that violate the community's social norms (Payette et al., 2020). The community uses social norms as a right-left spectrum; actions to the left of the norm are negative deviance, and actions to the right are positive deviance (Baxter & Lawton, 2022).

Positive deviance belongs to a set of behavioral approaches that claim that individuals achieve uncommonly unique outcomes within all communities, even when there are social and organizational constraints and limited or absent resources (Petrou et al., 2020; Sharma, 2020, 2022). The general premise of positive deviance is a community-based approach to solving problems from the point of view that assumes the community working on the problem are the experts with the needed domain knowledge and discipline to develop a positive outcome (Sharma, 2020, 2022; Singhal & Svenkerud, 2019). The first use of positive deviance was in the early 1970s to explain the outcome of child nutrition in rural Viet Nam (Pascale et al., 2010); since those early studies of positive deviance, the theory has continued to gain support to explain novel, unique, unexpected, non-normative, and deliberate acts that benefit society (Brière et al., 2021). A unique benefit is the psychological and philosophical mindset change about how people

solve problems from a reasoned point of view that it is easier to act your way into a new way of thinking than thinking your way into a new way of acting (Christensen & Ganser, 2017; Evans et al., 2021).

There is ample literature on positive deviance in multiple social and organizational domains. The general theme of those studies suggests scoring positive deviance as a subjective measure and under somewhat controlled scenarios (Albanna & Heeks, 2019; Brière et al., 2021; Ruggeri & Folke, 2021; Sharma & Chillakuri, 2023; Sharma, 2020, 2022; Sutton, 2021). However, at this point of this study, no studies discussed or suggested an objective, repeatable measure of how to score acts as a positive deviance in a product outcome. Although extrapolating the studies that identify subjective measures, a common measure that surfaces is the unpredictability, deliberate, and intentional acts of creating a positive deviant outcome (Albanna & Heeks, 2019; Brière et al., 2021; Sharma & Chillakuri, 2023; Ruggeri & Folke, 2021; Sharma, 2020, 2022; Sutton, 2021).

Disruptive innovation is a specific and deliberate change to an existing practice or process that disrupts organizational procedures from the ground up. The ground-up element distinguishes disruptive innovation from sustaining innovation (Christensen et al., 2006; Honigsbaum, 2019). Disruptive innovation can be an intentional or unintentional action that an organization recognizes as a new market solution that serves a new audience (Christensen et al., 2006). The objective measure of disruptive innovation is creating a new product that meets a specific need, reduces cost, increases efficiencies, or alters existing processes that produce new wealth (Christensen, 1997). This pattern is evident in how online learning pushed through as a new “just good enough” augmentation of traditional brick-and-mortar schools into a first-choice online disruptive innovation option to achieve education advancements (Benito et al., 2021;

Ronkowitz & Ronkowitz, 2021).

Social Context

The social impact of a non-voluntary transition to remote learning has altered the pedagogical approaches to in-person teaching practices (Martin & Mulvihill, 2021; McGoron et al., 2022). Social disruptions always tend to inspire and motivate actors to create new innovations to solve or mitigate the impact of an unwanted or unplanned event with new alternative methods and practices to restore social equilibrium (Amini & Minca, 2022). Thinking about the equilibrium of what acts of positive deviance and disruptive innovation might occur in the education setting, there are four key areas in which schoolteachers can influence and create new positive deviance and disruptive innovation outcomes. Those four key areas are classroom design (Peterson, 2020), instructional design (Shakeel et al., 2023; Gamson et al., 2019), pedagogy and interpersonal interactions (Torres-Olave, 2021; Martin & Mulvihill, 2021; McGoron et al., 2022; Popielarz, 2022), and the use of technology (Hong & Ma, 2022; Wargo et al., 2021).

The classroom is a social experience where students and teachers gather for the express purpose of gaining knowledge, skills, and intellectual growth (Jill Dewald, 2021). Learning growth is the teacher's first responsibility, and their charge is to influence and control the learning environment regardless of whether the class is physical or online (Lohmann et al., 2021). However, the level of influence and control over remote learning environments is a different challenge because the teacher cannot firmly mitigate all remote environment factors (Hartikainen et al., 2021; Irfiana & Romadhon, 2023; Peterson, 2020). In the physical classroom, the teacher can leverage objects such as chalk/whiteboards, visual learning tools, classroom technology, and other educational materials that add to a positive learning experience.

Additionally, the teacher can control classroom disruptions by limiting outside distractions and imposing behavioral discipline when needed (Lohmann et al., 2021). However, the teacher's ability to apply these same principles is impossible in the virtual classroom environment (Hartikainen et al., 2021; Peterson, 2020).

The virtual classroom is a disconnected and connected paradox, disconnected from the physical classroom and connected to the World Wide Web (Adair, 2019; Oddone et al., 2019). The disconnected world needs more proximity and discipline to keep students engaged (Hartikainen et al., 2021). Although teachers can be trained to mitigate engagement factors by extending the human-centric perspective in their student's learning, there is evidence that a partnership alliance between the school, teacher, and parent(s)/guardian(s) has a corresponding reinforcing effect on the student's knowledge and skill acquisition (Bahdanovich Hanssen & Erina, 2021; Gan & Bilige, 2019; Hyassat et al., 2024; Jabar, 2021; Shao et al., 2022).

Instructional design for online learning emerged as a transformation of computer-based training software installed locally on personal computers and extended to a Web-based platform (Abuhassna et al., 2020; Di Gesú & González, 2020). Instructional design for online learning requires a more sophisticated approach because teachers must consider design elements and social constructs different from in-person classroom instruction (Fitria, 2020). Online instruction can leverage visual design and communication elements for a small-screen presentation (Torrez et al., 2019; Simon et al., 2022). Teacher presentation of design elements can leverage principles from multiple knowledge domains, and there is supporting evidence that using attributes of game theory is a creative and effective way to engage students (Babichenko & Rubinstein, 2022; Javora et al., 2019; Rosar & Weidlich, 2022; Tomita, 2022). The advantage of using a game design approach is that it structures learning based on strategic decision-making (Babichenko &

Rubinstein, 2022; Paccagnan et al., 2019). Since the platform for online learning is based on a connectivist model of instruction, teachers can improve their student's success by teaching connectivist skills to access remote knowledge and information sources (AlDahdouh, 2020; Bakki et al., 2020; Siemens, 2019).

Pedagogical changes to adapt to remote learning have endless options and opportunities (Popielarz, 2022). Most acts of positive deviance and disruptive innovation in the classroom emerge through the lens of new values teachers wish to share with their students (Fried, 2018; Popielarz, 2022). Pedagogical approaches and interpersonal interactions contribute to social interactive learning because they are, by nature, a direct contribution to learning behavior. They are malleable and easily adapted based on the circumstances (Beach et al., 2020; Breslin, 2021). In a non-voluntary transition to remote learning circumstance, among the important skills teachers must develop in their students is how to interact with the online platform and connect to remote knowledge and information sources (Greenhow et al., 2022). George Siemens and Stephen Downes introduced connectivism in the late 1990s and early 2000s to explain learning in the digital age (Downes, 2020; Siemens, 2019). The premise of the connectivist pedagogical approach is on how well the connected learner can search for a whole body, or fragmented parts of knowledge, through networked information sources (Downes, 2020; Shearer et al., 2020; Siemens, 2019).

The final key area where teachers can create positive deviance and disruptive innovation is by using education technology in the online classroom (Otterborn et al., 2019; Yilmaz, 2023). Technology in the classroom is not a new phenomenon; an example of a nascent technology was the invention of the printing press (Moore, 2017). The printing press changed social characteristics because the monopoly of knowledge and learning could be distributed to the

common population (Warrick, 2023). Likewise, the invention, growth, and commercial success of the Internet were pushed through as disruptive innovations that led to the rise of the electronic society (Pandita, 2017). The electronic age is a prime area where teachers can create and innovate positive deviance by selecting the appropriate technology to augment and enhance learning opportunities (Harrison et al., 2022; Milligan, 2022; Yilmaz, 2023). However, the role of technology in the classroom must be properly managed and disciplined to avoid the perception that it is nothing more than a technology toy or technology disruption (Yilmaz, 2023).

Theoretical Context

The relationship between student and teacher is a complex behavioral interaction based on the benefits and transactional value each actor gains during the pedagogical engagement (Brieger et al., 2021). Homans (1958) introduced the concept of social behavior as an exchange to explain the equilibrium of dyadic relationships between the cost-benefit and mathematical models of strategic interaction commonly explained in game theory. Homans was influenced by Skinner's (1953) operant conditioning and Bales's (1951) original research in interaction process behavior and believed that individuals in a transaction would continue the exchange if a benefit were possible. Additionally, Homans (1958) argued that actors in a transaction do so voluntarily, expecting an equilibrium of maximizing benefits while minimizing cost.

Blau (1964) expanded on Homans's work by emphasizing the economics of voluntary actions and the patterns of exchange in small groups. Blau differs from Homans in that he discounts the psychological factors that motivate individuals' expectations of returns. Blau argues that motivation has more to do with exchange power than exchange economics. Emerson (1976) further extended Homans's equilibrium of dyadic relationships and Blau's psychology of motivating factors and argued that social exchange is like a framework of dependence, resources,

and power as the primary factors of remaining in a transaction. Emerson (1976) also believed that the organization contributes to the influence of power and dependence as a structural function of exchange reciprocity.

Reciprocity in social exchange depends on the value the actors apply to the reward novelty to avoid perceiving routine outcomes (Blau, 1964). Since behaviors are prone to operant conditioning, the amount of external effort to keep the reward meaningful depends on the scarcity of the exchange. Therefore, to maximize the value of the reward, the behavioral pattern must have changing circumstances that impact the value of the reward (Blau, 1964; Emerson, 1976). Blau (1964) explains that a reward is a behavioral bi-directional benefit, and actors will remain in the transaction if they receive beneficial value.

Problem Statement

The unique circumstances of pandemic-mandated school closures imposed a significant alteration of existing pedagogical practices, and teachers had to develop alternative approaches during the transition (McGoron et al., 2022; Mgutshini et al., 2021; Nasu, 2021). The problem is that a non-voluntary transition to remote learning disrupts the normal social interaction between teachers and their students accustomed to in-person classroom instruction. Although online learning has pushed through as a successful disruptive innovation, online learning is not a viable option for every learner population because there is a variety of psychological, behavioral, and cultural issues that factor into both teacher and student motivation to engage in remote learning (Ithriah et al., 2020; Muljana & Luo, 2019; Reisenwitz & Fowler, 2021). This study will add to the literature about practices, techniques, and tactics that teachers and education leaders can use to serve an underserved population in the event of any future prolonged school closure.

Purpose Statement

This single case study aims to discover and describe the types of positive deviance and disruptive innovation during the non-voluntary transition to remote learning for teachers from San Juan County, New Mexico. At this stage in the research, the collective and general definition of positive deviance and disruptive innovation is any new novel, just good enough, product/outcome that adds value to a target audience. This study specifically seeks to identify and catalog if classroom teachers altered their pedagogical practices through acts of positive deviance from their face-to-face classroom juxtaposed to their non-voluntary transition to the remote classroom.

Significance of the Study

This study will investigate teachers' perceptions and actions regarding creating positive deviance and disruptive innovation values between teachers and students during the COVID-19 pandemic. Classroom teachers' acts of positive deviance and disruptive innovation have literature from a traditional classroom-only experience, an online classroom, or a hybrid classroom model (Baxter & Lawton, 2022; Blochowiak, 2021; Heckert, et al., 2022; Petrou et al., 2020; Seeley et al., 2023; Singhal & Svenkerud, 2019). However, at this point in the research, no studies have investigated what traditional classroom teachers did to mitigate the transition to a remote environment. This study addresses a gap in the literature on classifying and categorizing patterns and perceptions of positive deviance and disruptive innovation in public schools. This case study aims to define a roadmap that educators and education leaders can use to adapt better and adopt pedagogical innovation in any future disruptive event (Baxter & Lawton, 2022; Blochowiak, 2021; Mahto et al., 2020; Paramore Jones, 2022; Seeley et al., 2023).

Theoretical Significance

The theoretical significance of this study leverages Homans's (1958) social exchange theory and draws from Heckert's (1985) theory of positive deviance and Christensen's (1997) business theory of disruptive innovation to explain the value outcome received by the actors in a socioeconomic education transaction. The genesis of social exchange theory emerged from sociology in the 1950s to explain the behavior in interactions between two parties (Blau, 1964; de Montlibert et al., 1960; Emerson, 1976; Homans, 1958; Thibaut, 1959; Thoenig, 1967). Social exchange theory guides and explains the understanding of the value and benefit between the classroom teacher and their students as a value proposition (Kemp et al., 2021).

Empirical Significance

Among the existing studies of positive deviance and disruptive innovation in education, the investigations are a cross-sectional, phenomenological, or qualitative study of K-12 teachers' development of positive deviance (Blochowiak, 2021; Flavin, 2020; Seeley et al., 2023). The assumption is that there are qualitative, practical, and pragmatic data that support an objective standard for creating and measuring acts of positive deviance and disruptive innovation. This study will contribute to the empirical evidence of positive deviance and disruptive innovation as a single case study to describe the changes to teacher pedagogical practices and approaches to teaching in a nonvoluntary remote environment.

Practical Significance

The social outcomes and impacts of closing schools during COVID-19 will be a topic of scholarly research and debate, and this study will contribute to that debate. However, the practical significance of this study is that it investigates what teachers changed about their pedagogical tactics, techniques, and procedures during the pandemic as a qualitative case study

(Alam, 2020; Kumar et al., 2021). This study anticipates that the data will uncover specific details with sufficient examples to support a best practice change in basic assumptions from lessons learned that educators and education leaders can leverage to mitigate any future type of similar prolonged disruption.

Research Questions

The development of the following research questions emerged after a review of the literature. There is a pattern of four key areas where acts of positive deviance and disruptive innovation occurred in the education setting. These four key areas are, classroom design (Peterson, 2020), instructional design (Shakeel et al., 2023; Gamson et al., 2019), pedagogy and interpersonal interactions (Torres-Olave, 2021; Martin & Mulvihill, 2021; McGoron et al., 2022; Popielarz, 2022), and the use of technology (de Vries et al., 2019b; Wargo et al., 2021). A central research question and two sub-research were developed using these four key areas.

The central research question asks where the teacher may have innovated or created positive deviance outcomes in the four key areas. The central research question is broad enough to ask questions about lessons learned and what types of adaptive change occurred. Sub-research question one seeks to discover and measure the influence of teacher-student feedback interaction and what teachers did to adjust their pedagogical approaches as ad hoc adaptations. Sub-question two ask general interactions between the teacher and their peer groups and organizational influences on any act of positive deviance and disruptive innovation.

Central Research Question (CRQ): What acts of positive deviance and/or disruptive innovations did classroom teachers report adapting their pedagogical approaches when transitioning to remote learning during the pandemic?

Sub Question Two (SRQ1): What are the general perceptions and ad hoc adjustments

teachers reported about their experience with remote learning during the pandemic?

Sub Question Three (SRQ2): What was the impact/influence of peer and/or organizational collaboration on the development of positive deviance and disruptive innovation innovations?

Definitions

Context is everything when communicating ideas and sharing thoughts. The following definitions, terminology, and key concepts help the readers understand the context to reduce or avoid misunderstandings.

1. *Connectivism*: A skills-based approach to learning by searching for a whole body, or fragmented parts of knowledge, through networked information sources (Downes, 2020; Shearer et al., 2020; Siemens, 2019).
2. *Disruptive Innovation*: A business theory that explains an interruption of existing practices, processes, and procedures from the ground up (Christensen, 1997)
3. *Education Technology*: The use of, and implementation of, any technology that facilitates learning (de Vries et al., 2019a)
4. *Instructional Design for Online Learning*: A transformation of computer-based instruction delivered through the Internet (Abuhassna et al., 2020; Di Gesù & González, 2020).
5. *Pedagogy*: A bridging term to describe theories about how we teach (Fried, 2018).
6. *Positive Deviance*: A term to describe a novel outcome given a significant constraint (Heckert, 1985).
7. *Remote Learning*: This is any self-paced learning away from the formal classroom environment (Gares et al., 2020).

Summary

In summary, the purpose of this single case study is to discover and describe the types of positive deviance and disruptive innovation during the non-voluntary transition to remote learning for teachers from San Juan County, New Mexico. At this stage in the research, the collective and general definition of positive deviance and disruptive innovation is any new novel, just good enough, product/outcome that adds value to a target audience. This study specifically seeks to identify and catalog if classroom teachers altered their pedagogical practices through acts of positive deviance from their face-to-face classroom juxtaposed to their non-voluntary transition to the remote classroom.

The unique circumstances of pandemic-mandated school closures imposed a significant alteration of existing pedagogical practices, and teachers had to develop alternative approaches during the transition (McGoron et al., 2022; Mgutshini et al., 2021; Nasu, 2021). The problem is that a non-voluntary transition to remote learning disrupts the normal social interaction between teachers and their students accustomed to in-person classroom instruction. Although online learning has pushed through as a successful disruptive innovation, online learning is not a viable option for every learner population because there is a variety of psychological, behavioral, and cultural issues that factor into both teacher and student motivation to engage in remote learning (Ithriah et al., 2020; Muljana & Luo, 2019; Reisenwitz & Fowler, 2021). This study will add to the literature about practices, techniques, and tactics that teachers and education leaders can use to serve an underserved population in the event of any future prolonged school closure.

The recent COVID-19 event as a change agent altered the social landscape worldwide. However, this event is a new phenomenon in the living memory of those who experienced it; this event is just another example of historical disruptions of social norms compelling society to find

alternatives to mitigate the impacts of such events (Clark et al., 2020; Kersten et al., 2020; Khlaif et al., 2021a; Kupczyk et al., 2021; Makamure & Tsakeni, 2020; Nasu, 2021; Warrick, 2023).

What makes this event unique is that for the first time in human history, advanced technologies have helped mitigate political, economic, and social disruptions of the many government and health organization's restrictions to flatten the curve (Kersten et al., 2020; Khlaif et al., 2021b; Morens et al., 2020).

In the education domain, the two significant inventions that have helped mitigate school closures are the commercial success of the Internet and the invention and popular acceptance of online education (Favale et al., 2020; Pandita, 2017). Online course offerings began as a just-good enough solution to solve a niche problem for an isolated target audience that eventually pushed through as a global disruptive innovation (Christensen, 1997; Christensen et al., 2006; Christensen & Ganser, 2017; Flavin, 2021). The genesis of disruptive innovations is traceable to acts of positive deviance that solve an organizational problem due to limited resources that produce non-normative, unique, extraordinary, uncommon, intentional, novel, and honorable outcomes (Brière et al., 2021; Heckert, 1985; Sharma, 2020, 2022). The next chapter, the literature review, will explore relevant literature (Creswell & Creswell, 2023; Yin, 2018). Chapter two will articulate a theoretical framework that will guide this study, discuss the literature about positive deviance and disruptive innovation, and explore gaps in the existing research (Christensen, 1997; Heckert, 1985).

CHAPTER TWO: LITERATURE REVIEW

Overview

The literature review is a vital part of a research project because it is a scholarly examination of what is known within the pool of knowledge but is also an essential activity for the researcher to explain gaps in the literature, as well as an opportunity for the researcher to tell a mosaic story of the studies topic (Creswell & Creswell, 2023; Yin, 2018). This chapter will discuss the theoretical framework of how social exchange theory explains acts of positive deviance and disruptive innovations by classroom teachers creatively adapting their approaches to teaching during a nonvoluntary transition to remote learning (Christensen, 1997; Heckert, 1985; Homans, 1958). This chapter will explore the related literature about positive deviance and disruptive innovation (Albanna & Heeks, 2019; Flavin, 2020; Brière et al., 2021; Mahto et al., 2020; Sharma, 2020, 2022; Sutton, 2021), and explore four key areas where acts of positive deviance and disruptive innovation might be found in the education setting (Shakeel et al., 2023; Hong & Ma, 2022; Torres-Olave, 2021; Gamson et al., 2019; Martin & Mulvihill, 2021; McGoron et al., 2022; Peterson, 2020; Popielarz, 2022; Wargo et al., 2021). This chapter will conclude with a summary of the literature and reasoning of the proposed research questions introduced in chapter one.

Theoretical Framework

A theoretical framework is a construct that identifies all of the elements supporting a theory explaining the problem of a study or the behavior of the study's participants (Creswell & Creswell, 2023; Crabtree & Miller, 2023; Yin, 2018). The theoretical framework for this study uses social exchange theory to explain the transactional relationship between teachers and students engaged in a non-voluntary transition to remote learning when their schools closed

during the recent pandemic event (O. B. Jensen, 2021; Kumar et al., 2021; Nasu, 2021). Social exchange is a behavior science theory explaining how two or more actors engaged in a transaction will continue interacting if the parties perceive and receive value (Blau, 1964; Emerson, 1976; Enayat et al., 2022; Homans, 1958). The value propositions this study will use is a unique approach that applies a triad contribution of two sub-theories, positive deviance, and disruptive innovation combined to explain social exchange value by actors engaging in socioeconomic and sociocultural transactions (Kemp et al., 2021; Thomas & Gupta, 2021).

Generally defined, transactions emerging through positive deviance are unexpected or novel outcomes that benefit the group or organization (Heckert, 1985). Transactions that emerge through a business theory of disruptive innovation are best explained as a just good enough solution created for a niche target audience that pushes through as an innovation (Christensen, 1997). These two transaction types support independently, and in combination, the needed components required in a social exchange calculus; therefore, this study considers the benefits of acts of positive deviance and disruptive innovation as a methodology to measure the value desired by actors engaged in an economic or social transaction (Christensen, 1997; Heckert, 1985; Homans, 1958). The practical application of social exchange theory for this study is to explain the benefits that teachers and students gain while engaged in a pedagogical exchange transaction.

The premise of actors engaging in a social exchange transaction is an economy of scale (Homans, 1958; Thomas & Gupta, 2021). It is a complex social-psychological behavioral motivation of the benefits each actor seeks to gain (Emerson, 1976; Kemp et al., 2021). Otherwise, if one of the actors in the exchange does not perceive a benefit, the dispossessed actor will either abandon the transaction or seek another benefit worth the time and effort to pursue

(Enayat et al., 2022).

George Homans (1958) developed his theory of social exchange theory based on Skinner's (1953) operant conditioning and Bales's (1951) interaction process behavior. Homans theorized that individual actors in a transaction would remain in the exchange if there were a perceived benefit. Homans developed his theoretical assumptions by asking essential questions about how society works by breaking down human behavior into basic needs and higher-order desires. Homans wanted to understand the effects of individual emotions and their perceptions about how everyday actions influence how they see their place in society. Homans believed that individuals freely exchange values in interpersonal and group engagements based on an expectation that affects their behavior (Enayat et al., 2022). Behavior influences social exchange transactions because they are voluntary opportunities between two agents that have a perceived benefit between each party. Homans summarized those exchanges as either historical or exploratory (Ahmad et al., 2023; Enayat et al., 2022; Homans, 1958; Thomas & Gupta, 2021).

Historical exchange exists between two agents based on previous interactions, and exploratory exchange occurs between two agents new to a transaction. The transaction behavior testing the value can range from stable to volatile interactions and is dependent on the expected exchange value (Enayat et al., 2022; Homans, 1958). Exchange value is a natural and intuitive social behavior between agents remaining in the transaction and is directly motivated by the reciprocity of a benefit. Reciprocity is an interpersonal judgment by either agent in the transaction, and reciprocity breaks down when an unequal benefit emerges, causing the dispossessed agent to abandon the transaction. The degree of transaction abandonment is a sliding scale between the agents and can range from a complete disengagement to various degrees of lackluster commitment in the transaction (Blau, 1964; de Montlibert et al., 1960;

Ahmad et al., 2023; Homans, 1958; Thibaut, 1959; Thoenig, 1967). Because social exchange theory emerged out of behavioral sciences, the theory is amenable to merging with other behavioral theories constructed on the actor benefit theorem (Bandura, 1969, 1974, 2006; Hoeben & Thomas, 2019). A review of the theories of positive deviance and a business theory of disruptive innovation can provide supporting evidence and contributions to how actors perceive benefits (Christensen & Ganser, 2017; Heckert, 1985; Mahto et al., 2020; Sharma, 2020, 2022). Social exchange theory by itself is sufficient to evaluate the benefit value of both teacher and students in the exchange; however, since the teacher is creating new novel, non-normative innovations, it is worth noting that a theory of positive deviance and a business theory of disruptive innovation help frame the exchange value.

Heckert's (1985) dissertation proposed a theory of positive deviance built upon Pitirim Sorokin's (1950) groundwork for understanding social relationship dynamics. During the period of post-World War II, sociologists developed and worked on a number of theories to help explain and understand the morality of social behavior (Becker, 1963; Lemert, 1967; Mowrer, 1960; Skinner, 1953, 1965; Thibaut, 1959). The general theme in those early days was a need to understand, describe, and expand the possibility that deviance is not always a social negative. Positive deviance theory emerged as a way to explain when individuals or groups achieve an outcome with limited or restricted resources or when the outcome impacts the organization in a positive direction. The positive deviation is a taxonomy measure of the behavior of the outsider and the reaction of the insider to the degree of conformity and non-conformity of the possible outcomes (Albanna & Heeks, 2019; Heckert, 1985; Tolbert & Darabi, 2019; Wice & Davidai, 2021). Positive deviance is a behavior and social change approach to solving problems based on the assumption that all problems are solvable within the community. Dadich (2023) built upon

the work of Pascale et al. (2010), who argued that within the community resides all knowledge, intelligence, expertise, and motivation needed to self-organize the necessary available resources to produce an outcome that benefits all actors engaged in solving the problem.

Disruptive innovation emerged as a business theory that explains how developing a new breakthrough system of low quality is just good enough for one part of a market while the innovation is not a high-quality standard viewed by a current customer base (Christensen, 1997; Christensen et al., 2006). Disruptive innovation operates under an analytical assumption: do not tell people what to think but how to think innovatively (Brynjolfsson & Saunders, 2019). In the education setting, teachers in the classroom have the best field of vision about what will work with the technologies and resources they must create and produce better and improved innovations for their students (Williams & Barlex, 2020).

Summarizing the theoretical framework, this case study uses social exchange theory to understand and explain the relationship between teachers and students during a transition to remote learning due to school closures during the pandemic. Social exchange theory posits that interactions continue if all parties perceive and receive equal value; otherwise, either actor may abandon the transaction. The study combines the sub-theories of positive deviance and disruptive innovation to investigate the social exchange value in socioeconomic and sociocultural transactions between actors in this context.

Positive deviance theory focuses on how individuals or groups achieve positive outcomes with limited resources and the belief that all the knowledge, talent, and resources to solve the organizational problem reside within the community. Transactions emerging through positive deviance are unexpected outcomes benefiting the group, while those from disruptive innovation are “just-good-enough” solutions for niche audiences. Disruptive innovation involves

introducing a breakthrough system that may not meet the current high-quality standards but is good enough for a specific market segment. It encourages innovative thinking and allows for developing improved solutions in various fields, including education, where teachers are in a prime position to identify technologies and resources that can benefit their students.

Related Literature

The recent events of school closures because of the COVID-19 event have introduced a new level of social disruption that demands educators rethink their pedagogical approaches to be more adaptable and accommodating in the event of a non-voluntary transition to a different learning paradigm (Boyd, 2021). The pandemic was a social change event that impacted all education systems worldwide. The disruption to students' educational progress was unimpeded for institutions with policies, practices, and technology infrastructure to support online or remote learning options (Daniel, 2020). Unfortunately, schools that did not have those pre-existing structures found themselves in an organizational dilemma. Those dilemma consequences for education organizations ranged from significant financial disruptions to, in some cases, complete and permanent closure (Booth et al., 2021; Makamure & Tsakeni, 2020; McGoron et al., 2022; Nasu, 2021; Xu & Tang, 2021). The remainder of this chapter will focus on the literature about positive deviance and disruptive innovation through the lens of social exchange theory in education (Ahmad et al., 2023). This literature review will also cover key areas where educators can create new innovations to adapt their pedagogical practices to any classroom type (Champa et al., 2020; Lazarus et al., 2020; Robinson, 2021).

Three general assumptions of how organizations view product outcomes are within the literature about positive deviance and disruptive innovation. The first assumption is that positive deviance and disruptive innovation are deliberate, non-normative, novel, unique organizational

outcomes (Brière et al., 2021; Sharma, 2020, 2022). The second assumption is that positive deviance is a framework that reasons that all organizational problems are solvable within the expertise of the community tasked with creating a solution (Sutton, 2021). The third assumption is finding acts of positive deviance and disruptive innovation in the education setting in four key areas: classroom design (Peterson, 2020), instructional design (Shakeel et al., 2023; Gamson et al., 2019), pedagogical practices (Martin & Mulvihill, 2021; McGoron et al., 2022), and the use of technology (Hong & Ma, 2022; Wargo et al., 2021). There is a gap in the literature that justifies this study and why this study will add to the empirical evidence about how to measure acts of positive deviance and disruptive innovation objectively in the remote classroom through the lens of social exchange theory (Enayat et al., 2022; Flavin, 2020, 2021; Brière et al., 2021).

Positive Deviance

Literature on the topic of positive deviance emerged out of the field of sociology in the mid-1950s to expand and broaden the definition that deviance can be used to explain positive social behavior that benefits society (Brière et al., 2021; Dadich, 2023; Sorokin, 1950; Sutton, 2021). Positive deviance, by its implied definition and implementation, is a practice that makes a bad or difficult situation possible through innovation and outside-the-inside-box thinking, producing net gain (Albanna & Heeks, 2019). While conducting a review of literature directly related to positive deviance and disruptive innovations focused on pedagogy, the number of study's is limited, and there are no studies that specifically researched positive deviance and disruptive innovation through the lens of social exchange value (Bisel et al., 2020; Gemmel et al., 2020; Rizun & Strzelecki, 2020).

Within the literature, two studies focused on developing a clear definition of positive deviance (Sharma, 2020, 2022). Spreitzer and Sonenshein (2004) concluded that the literature

before their study lacked a well-developed and practical definition of positive deviance. Sharma (2020, 2022) and Spreitzer and Sonenshein (2004) argued for a need to separate positive deviance as a different type of behavioral phenomenon compared to other prosocial types of behavior. They suggest a normative definition that evaluates the individual's deliberate intention as a key indicator of positive deviance. Andrews (2015, as cited in Atolia et al., 2020) claimed that individuals engaged in positive deviance try to push through an extraordinary solution driven by a specific problem when other attempts fail to achieve a positive outcome (Atolia et al., 2020; Ochieng & Gyasi, 2021). Moore (2017, as cited in Girardier, 2023) found a consistent behavior pattern in individuals engaged in positive deviance, and they behave with deliberate and intentional actions using uncommon approaches and methods (Girardier, 2023).

Given the evidence of individual intent as an ordinary verb, it might suggest that organizational leaders view outcomes through the lens of unexpected value instead of an autocratic expectation of a rules/policy-based measurement (Bisel et al., 2020; Bonicalzi & Haggard, 2019; Shuman et al., 2021). Bisel et al. (2020), Bonicalzi and Haggard (2019), Shuman et al. (2021), and Moczydlowska et al. (2023) argued and suggested that when leaders review outcomes that deviate from the established norms, they should consider the individual or group's actions through three lenses: Was the action intentional, was the action nonnormative, or was the action honorable? Intentional acts imply a level of behavioral non-conformity and rate-busting that moves society toward greater satisfaction with the outcomes of a problem. Non-normative acts imply unique or unexpected contributions that deviate from expected norms when addressing or solving problems. Honorable acts imply the genuine interest of the individual or team in creating an outcome characterized by integrity and values that benefit society.

Before getting into the unique possibilities of positive deviance by classroom teachers'

non-voluntary transition to remote learning, there must be a reflective consideration of what the definitions about deviance were up until the 1950s. From a sociocultural point of view, the definition of deviance as a social order perception of negative behavior exists outside acceptable social boundaries (Baxter & Lawton, 2022). The study of deviance has historically focused on attributes and characteristics society labels as deviating from a recognized social normal or marginal human behavior (Tittle, 2018). Social order is the desired neutral state that collective groups organize themselves so that a recognized set of expected behaviors are achievable. Therefore, cohesive social order is achievable only when a common bond exists. Emile Durkheim (1933, 1973) is recognized as an original thinker in the era of modernity on social organization and characterized the bond between the individual and society as weak, and because there is weakness, society was obliged to set regulated boundaries as a collection of codified laws (Bernburg, 2019; Durkheim, 1933, 1973; Durkheim & Lukes, 2014; Olsen, 1965).

The codification of laws governing human conduct has its roots in the biblical Ten Commandments (Exodus 20:2-17 KJV; Deuteronomy 5:6-21 KJV). However, over time, societies needed to create more granular regulations and governance of social behavior. The historical demarcation points between ancient cultures and what is now seen as the modern Western culture common law began with the Greek and Roman societies structuring their social order and defining crimes as *Malum in se* and *Malum Prohibitum* (Lee, 2021; Plessis & Bell, 2020). Lee (2021) explains the difference between the two: crimes that were wrong or evil by their nature, *Malum in se*, and crimes that are wrong because of prohibited behavior, *Malum Prohibitum*. From a cultural and social point of view, a natural social stigma is associated with lawbreakers, and society uses labeling theory to describe deviant behavior outcomes (Barmaki, 2019).

From the late 1940s through the 1960s, sociologists started researching and questioning the prevailing view that deviance was always negative anti-social behavior (Becker, 1963; Lemert, 1967; Mowrer, 1960; Skinner, 1953, 1965; Thibaut, 1959). Sociologists reasoned that the over-used negative label loses its potency when the focus is only on social control; therefore, the need to expand a definition to acknowledge and reward positive anti-social behavior began attracting researchers' attention (Becker, 1963; Lemert, 1967; Valenty, 2021). Positive anti-social behavior became necessary to explain the phenomenon when individuals and groups deviated from the social norm and produced a positive outcome sociologist called rate-busting (Shoenberger et al., 2015).

Since rate-busting was gaining interest in describing a positive outcome from negative behavior, Shoenberger et al. (2015) theorized a need to calculate an objective outcome as either a negative or positive benefit to society. The common denominator is the types of conformity filtered by the reaction of the outsider's reward to the behavior of the insider's social contribution. Figure 1, deviance topology, is a simplistic way to score individual deviance with four outcomes (Shoenberger et al., 2015). This taxonomy model was derived and extrapolated using the Johari Window, a psychological model developed by Joseph Luft and Harry Ingham in 1955 to help individuals understand their interpersonal communication and relationships (Spennemann, 2023). The outsider group is the social reactor to acts of deviance as either a positive social benefit or a negative social loss. The insider is the actor's behavior producing the social outcome.

Figure 1

Deviance Taxonomy: Positive Deviance Magic Quadrant

		Outsider Reaction	
		Positive	Negative
Insider Behavior	Positive	Over-Conformity, positively assessed (Positive Deviance)	Over-Conformity negatively assessed (Rate-Busting)
	Negative	Non-Conformity, positively assessed (Deviance Admiration)	Non-Conformity negatively assessed (Negative Deviance)

Note. The positive deviance quadrant was derived from inputs from Nicole Shoenberger, Alex Hecker, and Druann Heckert's 2015 article *Labeling, Social Learning, and Positive Deviance: A Look at High Achieving Students*. The taxonomy is derived and extrapolated using the Johari Window (Spennemann, 2023)

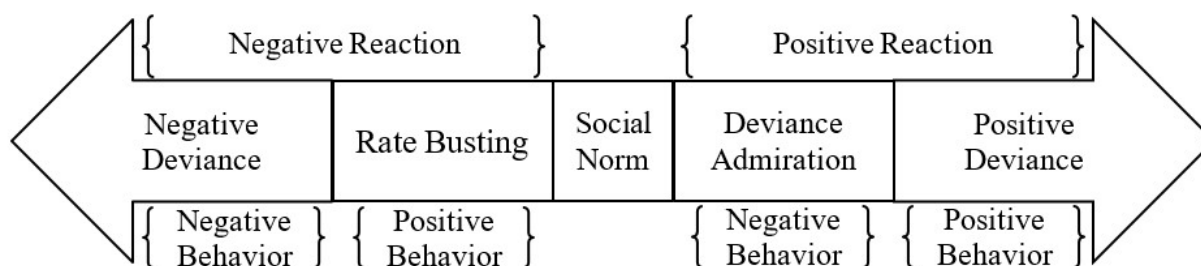
Given this construct, any social exchange can expect its actors to fit the quadrant scenario. For example, suppose the outsider teacher expects positive learning outcomes. In that case, they can influence the classroom variables, curriculum, pedagogical practices, and technology to achieve positive goals through operant behavior and constructivist learning techniques (Banihashem et al., 2021; Nist & Shahan, 2021). Likewise, school administrators and education leaders can apply the same techniques to influence and provide feedback to their teachers. Hence, the pattern at each level of outsiders relinquishing their role and becoming insider actors to the next level of leadership accountability becomes a progressive exchange (King et al., 2020). Although this example might be an oversimplification, the deviance taxonomy can be a valuable tool for educators to modify their continuing learning and

pedagogical practice approach.

However, the weakness of the deviance topology is the lack of a subjective anchoring scoring baseline. Another way to think of deviance is as a movement from the left and right of the center. In statistics, we call the distance from the median a deviation. Negative deviance is an act that takes away from society, and positive deviance is an act that adds to society (Brière et al., 2021; Heckert, 1985; Ruggeri & Folke, 2021). Figure 2, deviance spectrum, illustrates the original premise of Shoenberger et al. (2015, as cited in Heckert et al., 2021; Heckert et al., 2022) deviance topology as a left-right spectrum using accepted social norms as the starting point for labeling negative and positive deviance. There are two advantages of using a deviance spectrum analysis to illustrate and understand acts of deviation. First, it opens the possibilities of a multi-variant subjective measure to provide ultimate evidence of negative or positive deviance. Second, real-world examples can be easily applied as a workflow-type activity to determine negative or positive deviance.

Figure 2

The Deviance Spectrum



Note. The deviance spectrum was derived from inputs from Nicole Shoenberger, Alex Hecker, and Druann Heckert's 2015 article Labeling, Social Learning, and Positive Deviance: A Look at High Achieving Students. The deviance spectrum is an interpretation using the positive deviance magic quadrant.

The key difference between deviance topology is the measure on the deviance spectrum. The deviance spectrum measures the actions and activities based on a prevailing social norm. The deviance topology measures behavior based on conformity about what the outsider group expects. Conformity is an operational term describing descriptive norms of prosocial behavior influencing individual choices and general group behavior values compliance with social rules (te Velde & Louis, 2022). However, knowing the context of how to conduct oneself requires the rules to be clear and explainable to individual actors, and the acculturation of these rules forms the foundation of group identity (Camera & Hohl, 2021; Dekel, 2023; Panizza et al., 2021; te Velde & Louis, 2022).

Conformity to group identity is often at odds with the creation of positive deviance and disruptive innovation because it instills an emotional response within the actor or community, trying to solve a problem (Tolbert & Darabi, 2019). The risk is that strict conformity by education leadership in such extreme scenarios as experienced during a non-voluntary transition to remote learning can suppress the actor closest to the problem needing a solution (Sedov, 2019; Sharma, 2020, 2022). Solving problems drives positive deviance through a deliberate and individual decision tree and often sees actors choose an alternative pathway at odds with leadership directives. When actors deliberately choose to pursue innovations that benefit their students, it is an active act of rate-busting; the alternative solution becomes a morally superior product, and then negative deviance quickly transforms into deviance admiration and translates into a positive deviance outcome (Heckert et al., 2022).

The intentional behavioral outcome from a positive emotional psychological point of view on the individual's desire to achieve a positive outcome as quickly as possible and will

demonstrate disagreeable traits to get there. Although the individual may demonstrate disagreeable behavior, their focused intent on a positive outcome (Swift & Peterson, 2019; Zou et al., 2019). The disagreeable person is someone who creates a new positive deviance and disruptive innovation by delivering an outcome that leverages both positive and negative behavior for the insider, and the insider experiences both a negative and positive reaction with the delivery of the better superior product outcome (Swift & Peterson, 2019). Because the superior outcome exceeds the original deliverable expectation, the perceived benefit might be an act of supererogation (Archer & Ware, 2020).

Supererogation derives its meaning from the Latin *supererogatio*, an individual act that is payment beyond an expected action or any action viewed as going above and beyond the call of duty (Archer, 2020; Archer & Ware, 2020; Bales & Benn, 2021). The roots of supererogation originated in Christianity and the story of Jesus Christ's atonement at the garden of Gethsemane (Matt 26: 36, 39 KJV; Mark 14:32 KJV; John 18:1 KJV). At the Garden, Christ paid the ultimate price for the remission of sin, and Christ's sacrifice exemplifies the meaning of payment beyond what is asked for (Matt 26: 36, 39 KJV; Mark 14:32 KJV; John 18:1 KJV). Furthermore, Christ's triumphant resurrection broke the bonds of death and made it possible for all humanity to rise from their graves in the appointed time of resurrection (Matt 22:23, 28, 30-31 KJV; Luke 20:27, 33, 35-36 KJV; John 11:24-25 KJV). These two actions by Christ were acts that could not be performed by any other, and these examples motivate many to behave selflessly and do more than what is required of them (Archer, 2020).

Sociologists studying supererogation appropriately associate an individual's actions with a set of common-sense morality (Archer, 2020). Stangl (2020) argues an explanation of supererogation through the lens of moral theory and the actions of moral worth. Archer and Ware

(2020) echo an argument of moral theory; however, they claim that morality requires action; however, if the individual is required to act, then that raises the question of whether an action can be demanded. Bales and Benn (2021) discuss the implications of the agent's duty concerning the sequencing cost, time, and efforts as contributing variables in creating a supererogate positive deviance. Therefore, the simplest way to score positive deviance is to judge the outcome that benefits the organization, and supererogation is a personal exemplification that magnifies the positive deviance product (Muñoz & Pummer, 2021).

In summation, positive deviance is a concept that emerged from sociology in the 1950s. It suggests that deviant behavior can have positive impacts on society. It involves innovative thinking and actions that lead to beneficial outcomes in challenging situations. The literature highlights positive deviance's deliberate and intentional nature, where individuals develop extraordinary solutions to achieve positive results when traditional approaches fail. Intentional deviant behavior can produce positive outcomes by creating superior products and solutions. Delivering a superior product that exceeds expectations can be viewed as going above and beyond the call of duty, known as supererogation. Supererogation refers to actions beyond what is expected or required having roots in Christianity and is explained through moral theory.

Disruptive Innovation

Disruptive innovation is a business theory developed by Clayton Christensen (1997) while at Harvard Business School that describes a set of principles for interrupting existing business practices and creating new opportunities designed for a niche market audience. Additionally, disruptive innovation is the opposite of enhancing or modifying existing practices designed to sustain (Mahto et al., 2020). Disruptive innovation can be granular to specific industries or global outcomes for entire economies, especially if characterized as glorifying

novelty about how new problems and products can break through as a new market inevitability (Sidorkin, 2021). The inevitability of market innovation only applies to innovations that push through as a new paradigm. However, there is no guarantee of a new market paradigm, and innovation may iterate through many incarnations before it pushes through for all market audiences (Mahto et al., 2020; Nickel, 2020; Sidorkin, 2021).

Christensen et al. (2006) describe disruptive innovation as a specific and deliberate change to an existing practice or process that disrupts organizational procedures from the ground up. The ground-up element distinguishes disruptive innovation from sustaining innovation (Nickel, 2020; O'Reilly & Binns, 2019). Disruptive innovation can be an intentional or unintentional action that an organization recognizes as a new market or an innovation that serves a new audience (Christensen et al., 2006; Anderson, 2019; Horn, 2020; O'Reilly & Binns, 2019). An example of a disruptive innovation in the new market is the invention and worldwide adoption of online learning (Abedini et al., 2021; Al-Nuaimi & Al-Emran, 2021; Granic, 2022). Online education started as a niche offering to augment learning but grew to accommodate a broader student population (Anderson, 2019; Horn, 2020; O'Reilly & Binns, 2019).

The first online education offerings were low-level innovations using a static hypertext markup language Web page and were not viewed as a threat to the existing education paradigm. However, over time, the growth in technology capability and a cultural acceptance of online education broke through as a disruptive innovation (Mahto et al., 2020). Online education created a new abundance by connecting remote and diverse audiences that did not have the opportunities for continuing education (Mahto et al., 2020).

Although online learning was pushed through as a disruptive innovation in the late 1990s and early 2000s, there is a gap in the literature specific to a non-voluntary and unwanted

transition to remote learning (Wilczewski et al., 2022). The best example in the literature that comes close to the phenomenon of non-voluntary and unwanted transitions is research on the improvements to remote learning leveraging blended and flipped online models (MacLeod et al., 2019). Although blended and flipped classroom design allows the teacher to innovate new ideas to mitigate the impact of remote learning, the examples and recommendations found in the existing literature do not address disruptive events that persist with any significant duration (Flavin, 2021; Wilczewski et al., 2022). Therefore, the field of research on how to capture lessons learned from the last disruptive event can provide visibility and ideas on how teachers can create abundance from scarcity by leveraging positive deviance and disruptive innovation (Flavin, 2021; Mahto et al., 2020; Wilczewski et al., 2022).

However, a risk comes with a disruptive innovation from the belief that any solution will push through and be adopted immediately and that a simple alternative can fit a one-size-fits-all accommodation for all audiences is a flawed assumption (Bandura, 2006; Slavin, 2020). Disruptive innovation operates in its own life cycle, meaning the integration of innovation's ability to penetrate and saturate a market moves at its own speed of adoption independently of the change actors pushing or resisting adoption (Sidorkin, 2021). Social change innovation depends on organizational acceptance, and if innovation does not align with an organizational culture, cultural resistance exacerbates adoption (Sidorkin, 2021; Smith, 2019). Therefore, accounting for this risk is a multivariant factor that must anticipate the iterative innovation development process (Konst & Kairisto-Mertanen, 2020).

In summation, disruptive innovation, a theory by Clayton Christensen (1997), focuses on creating new opportunities by challenging existing business practices for niche markets. Disruptive innovation is a deliberate change that completely disrupts organizational practices

from the bottom up. Disruptive innovation can be intentional or unintentional and often involves tapping into new markets or audiences. An example is the global shift towards online learning, which initially served a niche market but expanded to cater to a wider student base. Disruptive innovation doesn't guarantee immediate universal adoption and may face resistance due to organizational culture.

Collaboration in Positive Deviance

A general assumption in the literature about positive deviance and disruptive innovation is that the solution to all organizational problems resides within the community tasked with solving the problem (Sharma, 2020, 2022; Tolbert & Darabi, 2019). The basic theme of positive deviance and disruptive innovation is the problem-solving aspect of its outcome. Problem-solving, as a social activity, can be both an automatic and controlled behavior process that has the potential to produce a net positive outcome (Beda et al., 2020). Beda et al. (2020) described potential outcomes as a bridging concept to explain the easiest way to account for differences in the variety of unique individual solutions. The unique possibilities can become exponential as each innovation opens visibility into other pathways influencing positive deviance and disruptive innovation customized to fit the size of the target audience being served (Evans et al., 2021; Sharma, 2022, 2022).

The evidence about collaborative efforts indicates a perceived mechanics that every outcome is positive; however, one of the most significant risks to positive deviant collaboration is a top-down expectation that a developed outcome shall meet pre-defined organizational expectations (Schmid & Kwon, 2020; Yang et al., 2022). Although collaboration intends broader inputs into a proposed solution, the recent literature lacks enough supporting evidence that aligns with the original premise Heckert (1985) and Christensen (1997) proposed in their definitions.

Therefore, for any act of positive deviance and disruptive innovation to live in harmony with the original intent, the actors must be free to explore an unexpected implementation versus the intended production of a predefined outcome expectation (Frelin & Grannäs, 2021). Although the intended expectation will start out as an unknown, the process is mitigated through iterative prototyping of any solution type (Frelin & Grannäs, 2021). Solution type means the outcome will fall within an expected domain range aligning with the project charter authorized by organizational leadership (Frelin & Grannäs, 2021; Northouse, 2019).

This would mean the assumption is that organizational expectations about the desired outcome will govern leadership directives and instructions (Northouse, 2019). The conduct about how the actors shall proceed will depend on how tightly management and leadership objectives form a strict or loose set of governance directives (Northouse, 2019). The degrees of freedom leadership give production implementors influence the actors' performance (Northouse, 2019). The most common performance influencer on the project team members will be either the designated lead or a team member who emerges as the subject matter expert (Malette & Gehrke, 2019; Schiniotakis & Divini, 2020). Subject matter experts can either push or pull inputs, and lines of authority depend on the ecosystem of organizational power, meaning the subject matter expert will have recognizable authority as defined by direct organizational span and control or by the subject matter expert operating as a power behind the throne role (Northouse, 2019).

For the project team in this scenario, understanding the role of authority can predict the levels of project team collaboration or an exercise in a bureaucratic groupthink model (Sharma & Chillakuri, 2023; Scott & Davis, 2015). Groupthink and collaboration operate as a desired production of truth; however, a weakness in seeking the governing truth by individual bias (Henriques, 2020). Henriques (2020) stated that the cost measures are a degree of compliance

ranging from an open, unique, unexpected product based on open team iterative collaboration, or a solution dominated by the imposition of actions and activities that conform with organizational governance and interest. In an ideal world, individual interests would have a high degree of actions coinciding with others' interests; however, those interests will always diverge, and the outcomes have real-world consequences that have the potential to disrupt social norms (Henriques, 2020; Payette et al., 2020; te Velde & Louis, 2022). Developing an appreciation for the consequence of collaborative choices is part of the human mental and emotional development stages that explain performance when teams increase their understanding of the rules of collaborative conduct (Henriques, 2020).

This means that individuals may act cautiously and lean on team leaders' perceived authority while the rules are still maturing (Resnik & Smith, 2020). The direction of the maturing culture, led by the subject matter expert, does have a risk of a rising group of social cliques that often dominate team contributions to a product outcome (Ouyang et al., 2020). Cliques occur when an echo chamber develops at the institutional leadership level and solidifies around a corporate bias about how to perform operating practices (Ouyang et al., 2020; Resnik & Smith, 2020). Institutional and organizational bias has a significant role in the outcome of a product and creates a scenario where evidence may alter and overcome the potential bias review or acceptance (Resnik & Smith, 2020). The threat of bias within the sub-strata of subordinate leadership can create operational disruptions for the production members, especially when the subordinate leadership has the institutional power to impose consequences for members deviating from the anticipated expected outcomes (Resnik & Smith, 2020; Schmid & Kwon, 2020).

This means leadership will directly or indirectly imply extensive pressure on dissenting

voices to modify or alter the testable evidence of a superior product in favor of achieving a predefined institutional outcome (Resnik & Smith, 2020; Schmid & Kwon, 2020). Consequently, the outcome is that a group consensus develops and forms a perceived influential power in the decision tree. As group consensus grows and gains membership, the group begins to exert a coalition influence that manipulates the outsider team membership, eventually isolating dissent so the original evidence-based objection is hidden or rejected (Resnik & Smith, 2020; Yim & Park, 2021).

In summation, in the literature, solutions to organizational problems can be found within the community trying to solve them, known as positive deviance and disruptive innovation. Collaborative efforts can lead to positive outcomes, but there is a risk of top-down expectations hindering innovation. Actors in positive deviance and disruptive innovation must be free to explore unexpected implementations rather than sticking to predefined outcomes. Authority dynamics within a project team can impact collaboration and innovation, with subject matter experts playing a significant role. Individual biases and organizational power dynamics can influence groupthink and collaboration, potentially leading to outcomes that conform to organizational interests rather than true innovation. Understanding the consequences of collaborative choices and navigating biases within leadership structures are crucial for successful outcomes in projects involving positive deviance and disruptive innovation.

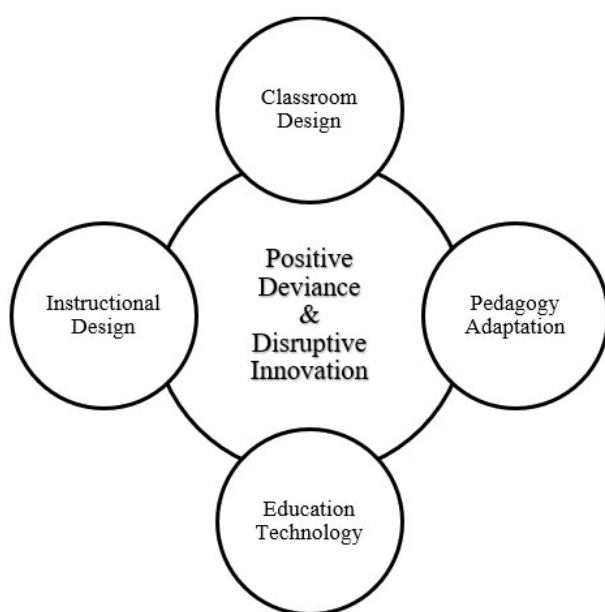
Evidence of Positive Deviance and Disruptive Innovation

Reflecting on an equilibrium evidence-based approach where acts of positive deviance and disruptive innovation might occur in the education setting, four key areas emerge in the literature where schoolteachers can influence their education setting (Peterson, 2020; Shakeel et al., 2023; Hong & Ma, 2022; Torres-Olave, 2021; Gamson et al., 2019; Martin & Mulvihill,

2021; McGoron et al., 2022; Popielarz, 2022; Wargo et al., 2021). Reflecting on the literature, the four key areas discussed will be presented from the least to the most frequent opportunities for positive deviance and disruptive innovation outcome: classroom design (Peterson, 2020), instructional design (Shakeel et al., 2023; Gamson et al., 2019), pedagogy and interpersonal interactions (Torres-Olave, 2021; Martin & Mulvihill, 2021; McGoron et al., 2022; Popielarz, 2022), and the use of technology (Hong & Ma, 2022; Wargo et al., 2021). Figure 3 illustrates the four key areas as contributors to acts of positive deviance and disruptive innovation.

Figure 3

Four Key Areas of Positive Deviance and Disruptive Innovation.



Classroom Design

The first discussion of the four key areas where positive deviance and disruptive innovations may occur is how teachers organize their classroom design. The literature about classroom design is well supported for the in-person learning environment, but studies about how to create, design, and build the virtual classroom are limited and tend to focus on Web site approaches to classroom design and content delivery (Chen et al., 2021; Counselman Carpenter

& Redcay, 2019; Eames & Aguayo, 2020; Hartikainen et al., 2021; Nubani & Lee, 2022; Peterson, 2020). Content delivery in the virtual classroom has shifted from a paradigm of the traditional sage on the stage exchange of information to a shift of teachers as learners in a new disconnected world (Oddone et al., 2019). The disconnected online environment allows learners to gather the information and knowledge they need to achieve the next levels of competencies deliberately and proactively (Burns et al., 2020; Larsen et al., 2022a).

The bulk of the literature on the topic of managing a virtual classroom study began in the late 1990s and early 2000s and focused on the psychology of learning using virtual reality (Bansal et al., 2021; Fisher, 2021; Mystakidis, 2023; Vergara et al., 2019), adapting, accommodation, and collaboration of virtual teams (Kutz et al., 2022). Immersive and interactive virtualization using remote technologies (Coleman & Derry, 2023). Socialization and creating virtual relationships (Montero, 2021). Best practices recommendations to make the online experience mainstream (Bansal et al., 2021; Clark & Mayer, 2023; Fisher, 2021; Hark Söylemez, 2023; Soepriyanto et al., 2022; Aroles & Küpers, 2022).

Reflecting on the literature about virtual classroom design, the key behavioral demand by the classroom teacher is how to manage learning expectations (Lohmann et al., 2021). Teacher awareness of the interpersonal psychology of virtual learning is a skills-based experience, and the best way teachers can prepare for virtual work is to enroll in an online course (Cranston, 2019; Cueva et al., 2019). Since the online classroom exists without borders, educators must be aware of their potential audience's cultural and demographic differences (Cranston, 2019; Cueva et al., 2019). The specific demographic population this study is exploring has a significantly large Native American population; unfortunately, the little literature about classroom design aimed at a Native American demographic is wide open for future study (Di Gesú & González,

2020; Darling-Aduana et al., 2022; Kumi-Yeboah et al., 2020).

Because demographics will vary, the teacher must exercise higher-order considerations for the sociocultural variations of their student population and be on the look-out for home environments that are susceptible to learner bias, learner preferences, and learning distractions (Graves et al., 2021; Khlaif et al., 2021b; Moore & Piety, 2022). The key threat to the virtual classroom is distractions (Bringman-Rodenbarger & Hortsch, 2020; Mac Domhnaill et al., 2021; Volpe et al., 2023). Distraction is the most aggravating element teachers will experience in a remote environment because they have no ability to mitigate competing disruptive events (Flanigan & Babchuk, 2022). For example, in the physical classroom, the teacher can manage distractions by manipulating the environment or through span and controlling student behavior (Flanigan & Babchuk, 2022). If the learner is distracted by something outside the classroom, the teacher can draw blinds or curtains to reduce the visual stimuli of activities in the outside world, or the teacher can issue verbal instructions and commands to focus the student's attention on the learning (Flanigan & Babchuk, 2022).

The constraint of the virtual classroom requires teachers to operate within the limits of the platforms their school leadership provides. In all cases, the technical expertise of the teacher in altering the restricted environment to whatever manual configuration settings they have access to (Barrett, 2020; Hartikainen et al., 2021; Nistor et al., 2019; Peterson, 2020). However, the assumption is that most acts of positive deviance and disruptive innovation will emerge in education technology, instructional content development for online learning, Instructional sequencing, scaffolding, and skills-based instruction to help learners maximize disconnected learning (AlDahdouh, 2020). Sequencing instructional delivery and scaffolding learning are within the configuration settings of the learning management system, and teachers can

personalize the learning experience (Korhonen et al., 2019; Mamun et al., 2020; Sridharan et al., 2021). Scaffolding is a very useful strategy for teaching because it allows the teacher to guide the learning through a journey of sequential discovery while leveraging peer interaction; therefore, scaffolding applies to both classroom design and instructional design for online learning (Korhonen et al., 2019; Mamun et al., 2020; Sridharan et al., 2021).

In summation, the focus is on how teachers organize their classroom design for virtual learning. The literature points out the shift in content delivery from traditional methods to a more learner-driven approach in the online environment. Studies on managing virtual classrooms have evolved over the years, emphasizing aspects like the psychology of learning, collaboration in virtual teams, and best practices for online experiences. Teachers need to manage learning expectations and cultural differences in a diverse student population, including considerations for Native American demographics. Distractions are a significant challenge in virtual classrooms, and teachers must navigate the limitations of the platforms provided by their schools. Positive deviance and disruptive innovations are expected to emerge in education technology, content development, instructional sequencing, and scaffolding for disconnected learning. Scaffolding is crucial in guiding student learning in both physical and virtual classroom settings.

Instructional Design for Online Learning

The second discussion of the four key areas where positive deviance and disruptive innovations may occur is how teachers construct their lesson plans and build their instructional design for the remote classroom. This discussion area has the most concrete impact on teaching and instruction because, within this domain and discipline, teachers can be creative and innovative (Shakeel et al., 2023; Lowell & Moore, 2020; Tomita, 2022). The physical and virtual classrooms share many characteristics; however, in the virtual environment, these characteristics

have positive and negative multiplier implementation and achievement effects (Fitzpatrick et al., 2020). Although creating online courses follows the same construction methods for building in-person learning, the literature over the past four decades about computer-based curricula suggests online environments do benefit by leveraging visual design elements that focus learners and reduce distractions (Javora et al., 2019; Jiang, 2022; Rosar & Weidlich, 2022; Tomita, 2022).

The literature about learner competency building suggests the best practice approach to instructional design is based on measurable alignment outcomes (Gamson et al., 2019; Morley & Jamil, 2020; Spady, 1977; Sullivan & Higgins, 1983; Thom et al., 2021). The concept of alignment outcomes is a product of the education accountability reforms in the late 1960s and early 1970s that motivated several groundbreaking schools of thought that matured in the late 1970s and early 1980s on constructing effective competency-based instruction (Olsson Rost, 2020). Competency-based instruction is a skill, capabilities, and knowledge improvement approach to instructional design that is measurable in the change between pre-competencies and post-competencies in a learner's abilities to complete organized tasks (Stewart, 2021). Spady (1977) and Sullivan and Higgins (1983) were among the first to argue for rethinking how the instructional design model should focus on developing worthwhile instructional objectives and creating a curriculum that aligns with objectives and assessment. The alignment demand in competency-based instruction is a skills approach to curriculum development that transforms learning from a complex ordeal to an intuitive learning flow (Li et al., 2022a; Stewart, 2021). The simplicity of the learning flows through the lens of competency-based instruction is a one-objective, one-assessment practice, meaning the objective is the assessment (Gamson et al., 2019; Spady, 1977; Stewart, 2021; Sullivan & Higgins, 1983). Therefore, if the proposed course

curriculum has five new skills, there would be five instructional objectives, five learning objects, and five instructional assessments (Gamson et al., 2019; Olsson Rost, 2020).

The skill to create curriculum and instruction development is an outcome component of all teacher training (Young, 2021). Teachers can create their own content or leverage already-developed curricula with reusable learning objects (Young, 2021). Reusable curricula, such as Massive Open Online Courses (MOOC), allow quick, adaptive building of courseware content. The MIT Open Course Ware project created and promoted MOOCs starting in 2008, and the project has emerged as a disruptive transformation (Al-Adwan, 2020; Shanshan & Wenfei, 2022; Reich & Ruipérez-Valiente, 2019). Teachers can leverage the lessons learned from the MOOC community to build alternative pedagogical approaches to meet their curriculum development. The MOOC community has various learning objects teachers can select from to aid and augment their instructional delivery (Liu et al., 2019). The MOOC advantage is the variety of learning objects that cater to different learning psychology and adaptive social and cultural communities (Reich & Ruipérez-Valiente, 2019). Additionally, teachers can structure instruction by scaffolding their MOOC courseware to adaptively change depending on the difficulty, success, and failure assessment thresholds (Al-Adwan, 2020; Shanshan & Wenfei, 2022).

Scaffolding instruction offers the teacher a critical path to guide learners through a workflow of activities by increasing or decreasing the intensity of information instruction to meet the immediate learning advantage or deficiency of their student's expected learning outcomes (Korhonen et al., 2019; Mamun et al., 2020). The teacher can mitigate the risk of student disengagement by managing the learners' expectations by throttling instruction levels of difficulty (Federmeier, 2022; Torres, 2022). Instructional difficulty introduces a threat of learner disengagement, and three generalized themes are highlighted to isolate disengagement related to

instructional design. First, there is a lack of learner interest in the subject at the time and pace of state standards (Allen et al., 2019; Fredricks et al., 2019). Second, an order of operation conflict that introduces a learner to a subject with a prerequisite knowledge or technical skill required to complete a given learning task or activity (Allen et al., 2019; Pyne, 2019). Third, a cultural difference exists between what learners see as relevant alignment to their sociocultural connections (Evans & Cleghorn, 2022).

Learner disengagement is rooted in the psychology of learning (Federmeier, 2022; Torres, 2022). Educators can reduce learning psychology by exploring new ideas and knowledge to understand what was previously unknown or error-correcting, learning how to alter or displace what was previously known (Torres, 2022). Mitigating the psychology of learning demands that teachers continuously develop and improve the skills necessary to level-set and adapt with ad hoc strategies to keep their students engaged (Liu et al., 2019; Pak et al., 2020). For teachers and students accustomed to in-person learning, the psychology of learning is advantageous for teachers who can adapt and make ad hoc changes based on observable behavioral, emotional, or social queues in the classroom (Alam & Suhendra, 2019). However, in the online learning environment, those visible queues are more challenging to observe and anticipate, so teachers must use alternative inputs to adjust and adapt to specialized learning needs (Wong, 2020).

Specialized learning needs have a sufficient amount of research that teachers can mitigate deficits in student engagement by customizing their curriculum to include examples of authentic learning using real-world examples that students can follow and make mental connections with (Shakeel et al., 2023; Cook & McDuffie-Landrum, 2020; Cuba, 2020; Forkosh Baruch & Gadot, 2021; Simone et al., 2019). Lowell and Moore (2020) point out that students and teachers learn best when the learning activity connects with a real-world problem. Montuoro and Lewis (2018)

caution teachers to govern their behavioral assertiveness using real-world problems since these examples sometimes carry an emotional connection that can inadvertently cloud instructional design.

Another strategy teachers can consider is rethinking their approach to instructional design development to incorporate as many demographic-appropriate visual design elements as possible and even develop their designs leveraging game theory (Babichenko & Rubinstein, 2022; Javora et al., 2019; Rosar & Weidlich, 2022; Tomita, 2022). The advantage of using a game design approach is that it structures learning based on strategic decision-making (Babichenko & Rubinstein, 2022; Paccagnan et al., 2019). Game design, as described in Nash's equilibrium, explains how a solution between two non-cooperative players can be achieved (Babichenko & Rubinstein, 2022; Paccagnan et al., 2019). In a non-voluntary transition to remote learning scenario, the non-cooperative players by default are the teacher and students, and each actor tries to negotiate as a non-volunteering participant in an unfamiliar environment (Honebein, 2021). The uniqueness of the unfamiliar environment boldly motivates both participants to embark on trial-and-error practices until both actors achieve the same level of acceptance and behavioral attitude shift in the new environment (Babichenko & Rubinstein, 2022; Honebein, 2021). The bottom line is that the opportunities teachers have to innovate and create positive deviance through their creative design of instruction are only limited to the teacher's imagination (Hocenski et al., 2019; Kurok et al., 2022; Saban & Özcan, 2022).

In summation, teachers have an opportunity to be creative and innovative in constructing lesson plans and instructional design for remote classrooms, which can have a significant impact on teaching and learning outcomes. Competency-based instruction emphasizes measurable outcomes and aligning instructional design with objectives and assessments. Teachers can

leverage reusable curricula like MOOCs to build engaging and adaptive course content. Scaffolding instruction and addressing learner disengagement through personalized and real-world examples are strategies for effective instructional design. Incorporating visual design elements and game theory can enhance engagement and learning experiences in online classrooms. Teachers can explore new ideas and approaches to adapt to the challenges of remote learning and create positive deviations in their instructional design.

Pedagogy

The third discussion of the four key areas where positive deviance and disruptive innovations may occur is adaptation and changes in teacher pedagogical practices. The origins of pedagogy emerged from the two-part Greek word paidagogia, paidos meaning the child or boy, and agogos meaning to lead or the leader (Prokopenko, 2019). Paidagogia was the responsibility of trusted slaves to lead boys to school. These trusted leaders would reinforce the child's learning through examples of proper social etiquette, individual manners, and positive social behavior (Downes, 2020; Prokopenko, 2019). The definition of pedagogy since the Industrial Revolution has become a bridging term to describe theories about how we teach (Fried, 2018).

Pedagogy now describes learning delivery systems such as online pedagogy (Yu et al., 2019), flipped learning pedagogy (Sargent & Casey, 2020), and student-centered pedagogy (Miechie et al., 2019). Pedagogy describes skills-based and other problem-solving pedagogy approaches (Lyons & Bandura, 2020) and connectivist pedagogy (AlDahdouh, 2020). Over the past century, teaching practices have explained pedagogy through different lenses of behavioral, constructivist, and cognitive learning models (Bičanić & Brust Nemet, 2020; Koptseva, 2020; Levina et al., 2020).

Behavior pedagogy is how we teach and reinforce learning through behavioral

experiences and conditional trial and error with new pieces of knowledge that lead the learner to construct understanding (Bičanić & Brust Nemet, 2020; Callander & Matouschek, 2019).

Constructivist pedagogy is a higher-order concrete learning approach where learners form and connect existing knowledge based on tangible fact-based examples (Burns et al., 2020; Larsen et al., 2022b). Cognitive pedagogy is a higher-order abstract learning approach in which learners form new knowledge by piecing what they already know into a new mental schema (Agarwal, 2019). The combination of these pedagogical approaches at various levels of learning maturity, is documented in Bloom's (1956) taxonomy of educational objectives. Bloom (1956) proposed that certain action verbs are expressed at different learning levels and grouped as either concrete or abstract learning.

Piaget (1964) identified different learning capabilities of students at various stages of their emotional and mental development. As individual learners mature, they make more abstract connections with the world and develop an appreciation for each learning success or failure (Alston et al., 2022; Young, 2021). Success and failure in the learning experiences are vital to developing coping skills for making learning mistakes and opportunities for forming more abstract thoughts (Alston et al., 2022; Young, 2021; Mann et al., 2021). Therefore, classroom teachers can optimize learning success and failure by layering and leveraging teacher-led and peer learning strategies in their online environments (Counselman Carpenter & Redclay, 2019; Gonda et al., 2021).

The online learning environment is a platform framework where learning occurs in the non-traditional virtual classroom (Wuryaningsih et al., 2019), and online pedagogy is the art form of how we teach in a virtual classroom (Julia et al., 2021; Young, 2021). Online pedagogy can utilize various instructional designs and connective technologies to facilitate learning in a

disconnected interaction (Lind et al., 2022). Interactive options include broader access to online libraries, learning through social media, and remote individual or group collaboration (Androutsos & Brinia, 2019). However, establishing identity is a key missing reality between the physical and virtual classrooms, and there is evidence that using flipped learning can bridge those missing realities (Nichol et al., 2023).

Flipped learning pedagogy has the potential to bridge learner identity and is an active learning approach where learning takes place as a group-focused, inquiry-based, interactive role-playing workshop between peer learners (Counselman Carpenter & Redclay, 2019). The advantage for learners in a flipped pedagogy approach is peer reinforcement that reduces procrastination. Gonda et al. (2021) identified that the procrastination gap is significantly higher among younger learners. The key contributing factor to avoiding procrastination is the discipline teachers bring to the physical learning environment. Adapting online environments to leverage flipped pedagogy is within the teacher's influence and creativity to organize and post content with learners and then allies with older students to encourage completion of the learning objectives and promote student-centered pedagogy (Lindeiner-Stráský et al., 2022).

Student-centered pedagogy has gained traction with online education's adoption and acculturation (Lindeiner-Stráský et al., 2022). The popular advantage of student-centered learning is the deliberate promotion and focus on active and inquiry-based learning that all learners experience at different times in their lifelong learning pursuits (Miechie et al., 2019; Santos et al., 2022). Learning pursuits encompass more than students in a diploma or degree-awarding institution; the introduction of online learning can facilitate skills-based acquisition in many industries, such as technology certifications, project management, automotive continuing education, etc. (Dalton et al., 2021).

Skills and problem-based pedagogy is an acquisition approach to learning, but gaining new skills often has a steep adaptive learning curve (Juszkiewicz & Houck, 2019). Juszkiewicz and Houck (2019) suggested a strategy for skill development that incrementally walks students through a five-step strategy that echoes the competency-based recommendations offered by Sullivan and Higgins (1983) and White and Gagné (1978) evaluation of the learning hierarchy. The fundamental principle is to focus and direct the learner, explain what the student will do, develop worthwhile instructional content, provide students with opportunities to practice their learning and evaluate their progress throughout their skills development.

Gagné (1985) argued that new knowledge acquisition is a building process where the learner connects their existing mental schema to fill the gaps that strengthen their understanding of what they know. Torres (2022) studied learning from a neuromotor control systems point of view and defined learning as a two-mode process; the first is exploratory engagement, which is widely observable in children; the second is error-correcting learning specific to goal-oriented knowledge schema formation. From the learner's point of view, as they build deeper knowledge schemas through exploration and error correction with what they already know and understand about their world; thus, the speed at which the learner acquires knowledge increases (Bragilovski et al., 2021; Gagné, 1985). From the teacher's point of view, understanding how knowledge acquisition occurs is an opportunity to change their pedagogical practice to emphasize generic and ubiquitous problem-solving skills (Evans et al., 2021; Petrou et al., 2020).

The psychology of problem-solving skills teaches learners to look at the problem holistically and then figure out how to break the problem into smaller individual solvable efforts (Federmeier, 2022). Breaking the problem into smaller elements also exposes the learner to view the problem from different points of view (Lemmetty et al., 2021). Problem-solving is intrinsic

to human learning and is observable in infants within weeks of birth (Torres, 2022). Although problem-solving skills are well-known as a teaching strategy, problem-solving pedagogy has gained popularity now that connectivist technologies through the Internet have reached the classroom (AlDahdouh, 2020; Torres, 2022).

In the late 1990s, George Siemens and Stephen Downes introduced the term connectivist pedagogy to explain learning in the digital age (Siemens, 2019; Downes, 2020). The pedagogical approach is premised on the connected learner being able to search for a whole body, or fragmented parts of knowledge, through networked information sources (Siemens, 2019). Connectivist pedagogy is a skills-based approach to learning because it requires a higher degree of awareness to maximize the efficiencies of surfing for knowledge (AlDahdouh, 2020; Oddone et al., 2019). From a knowledge acquisition point of view, connectivism can produce positive deviance and disruptive innovation because the connected teacher, or learner, has access to an exponentially increased knowledge base beyond what is available in localized libraries (AlDahdouh, 2020). Connectivism is unique from other learning phenomena because it fits well with an open-system network model (Adamides & Karacapilidis, 2020; Camero & Alba, 2019; Scott & Davis, 2015). The open organization system as a model leverages networking capabilities from two or more organizations to fill the gap in producing outcomes. The ability to fill the gaps in learning and knowledge acquisition becomes a strength because of the decentralized diversity that brings together the bits and pieces from diverse systems, organizations, or individuals that create new opportunities (Ramirez-Montoya, 2020)

The connectivist pedagogy psychology means learning through networked information sources exposes individuals to greater awareness of their knowledge gaps. Through connectivism, the learner can fill in the missing parts of their knowledge schema (AlDahdouh,

2020; Downes, 2020; Gagné, 1985; Oddone et al., 2019). Therefore, the learner has degrees of freedom to find knowledge and information from whatever source they can access (Siemens, 2019). Finding digital resources is where the classroom teacher can demonstrate the skills needed to navigate Internet search engines or access digital libraries for information as an active or passive activity (Hunjet et al., 2019). Another unique characteristic of connectivist learning is that as individual skill increases, new active and passive awareness develops, and knowledge searches become more complex and comprehensive (Bragilovski et al., 2021; Fuller et al., 2021; Park et al., 2021).

However, Siemens (2019) recognized that the weakness of connectivist pedagogy is the lack of learner interaction with others. Siemens (2019) argued that seeking disconnected information by an individual learner only increases the knowledge gain to a certain extent, but when the learner is engaged with their fellow learner (or group of learners), the knowledge experience is magnified (Fuller et al., 2021). Siemens (2019) also argued that in the digital age, technology advances are rapidly bridging the social interaction gap through social media and teleconferencing technologies; therefore, teachers should tailor their instruction to instill social awareness and passive curiosity in their students (Downes, 2020; Siemens, 2019).

The opportunities teachers must create and innovate pedagogy have a significant body of literature to leverage. Research suggests innovative pedagogy is the one area in which the teacher has the most logical, flexible, and adaptive influence on how they can approach learning (Arora, 2020; Bao, 2021; Foley & Deocampo, 2021; Shemer Elkayam, 2022). Pragmatically, anything the teacher creates or produces that might come from an outside the box can be explained through the lens of innovative pedagogy and can be an achieved level of positive deviance and disruptive innovation (Juszkiewicz & Houck, 2019). Therefore, it is reasonable to

conclude that disruptive and adaptive pedagogical innovation may be the only option for teachers who were non-voluntarily transitioned to remote learning during the pandemic.

In summation, the third key area highlights the importance of adaptation and changes in teacher pedagogical practices, focusing on the evolution of pedagogy from its origins to current approaches such as online pedagogy, flipped learning, and student-centered pedagogy. It explores different learning models like behavioral, constructivist, and cognitive pedagogy and emphasizes the role of teachers in optimizing learning experiences, especially in online environments. The text delves into the benefits of flipped learning and student-centered pedagogy, as well as skills and problem-based approaches to learning. It also discusses how connectivist pedagogy in the digital age can lead to positive deviance and disruptive innovation by leveraging networked information sources. The dialogue underscores the importance of teacher innovation in pedagogy, especially in light of transitions to remote learning due to the pandemic.

Education Technology

The fourth and final discussion of the four key areas where positive deviance and disruptive innovations may occur is the adaptive use of education technology. Technology in the classroom is not a new phenomenon; historically, one can argue that technology was part of the Academy in Greece and the library at Alexandria in the fourth century BCE in the form of written language on parchment and wax tablets (Kalligas et al., 2020; Waterfield, 2021). In the modern era, technology has transitioned from physical to electronic media, and many of the just good enough technology innovations have pushed through as new disruptive innovation paradigms (Mahto et al., 2020). The computer in the classroom has enabled learning opportunities for every participant in those learning environments (Greenhow et al., 2022;

Venter, 2019).

Sahin and Yilmaz (2023) conducted a series of investigations about using technology and computers in the classroom. They concluded several important points that both students and teachers often perceive technology as a toy. Sahin and Yilmaz built upon Yilmaz's earlier work that was premised on Papert's (1980) argument that the mind is naturally curious, there remains a high probability that learners in an unstructured technology environment risk developing a distorted view of the world (Sahin & Yilmaz, 2020). Exacerbating the distorted perceptions of the learner's world, especially younger learners, is their ability to hide behind a technology façade (Björktomta & Hansen, 2018; Spyer, 2017). Among the dominant education technologies, teachers in the virtual classroom have access to online libraries, instant text messages, team collaboration, social media, and computer-aided learning tools (L. J. Jensen, 2019; Lambton-Howard et al., 2021; Venter, 2019).

The evolution and maturity of the online library are the outcomes of early efforts to gather and catalog a collection of worldwide knowledge (Kirsch, 2020; Li et al., 2022b). The invention and commercial success of the Internet was the technology bridge that facilitated the connection between existing physical libraries, and the result pushed through as a new disruptive innovation now called the online digital library (Favale et al., 2020). The connection to worldwide sources of knowledge is a key component of connectivist pedagogy, and the diversity of knowledge sources means collaborative learning can source more than a single repository (Kirsch, 2020; Siemens, 2019). Teachers can innovate and facilitate learners' opportunities by teaching search skills and introducing new knowledge sources (Siemens, 2019).

The use of instant messaging has a significant body of literature in health care, computer science, political science, and many other social education domains (Cetinkaya, 2020; Yasuda,

2021). Instant messaging technology has developed as a valuable and vital component for teams to work on projects securely and develop new products (Yi, 2019). Additionally, the wide use of instant messaging in public and private organizations is the primary method for broadcasting communication between group members (Huang & Zhang, 2019; Soares et al., 2021). The key benefit between individuals is the “instant” aspect of communication and the persistence of having a transcript between users for historical context (Huang & Zhang, 2019). However, the risk of instant messaging is its use in cyberbullying (Kshetri & Voas, 2019; Kim et al., 2021; López-Vizcaíno et al., 2021). Controlling cyberbullying is well documented and is the cause of legislation to provide protection and criminal sanctions for those engaged in bullying; however, the first line of defense to protect learners from cyberbullying is the proactive monitoring of instant messaging chats (Kim et al., 2021; López-Vizcaíno et al., 2021). Although there are technologies able to detect and quarantine cyberbullying messages, teachers must do all they can to provide a safe, positive, and productive learning environment for all their students (Kim et al., 2021; López-Vizcaíno et al., 2021).

Software that supports team collaboration has matured and improved over the last two decades, and connectivist integrations to share documents and research in a single source solution can now support larger learning efforts (Collazos et al., 2019; Ens et al., 2019). Solutions such as Microsoft Teams, Zoom, GoToMeeting, and other groupware video conferencing tools mean face-to-face collaboration bridges virtual workforces and adds strength to the open systems, open networks, organizational model (Herskovic et al., 2019; Reese, 2021; Scott & Davis, 2015). Using video conferencing provides opportunities for real-time interpersonal virtual contact for group formation and development (Reyes et al., 2021). The immediate eye-to-eye contact in video conferencing is an advantage for teachers and learners in a

non-voluntary online learning environment, but there is a risk that total reliance on continuous video conferencing can be frustrating and fatiguing to active participation (Oducado et al., 2022). The literature about the best approaches to mandated video conferencing suggests that the practice should be optional and limited to a specific interaction goal (Al-Samarraie, 2019; Castelli & Sarvary, 2021; Francescucci & Rohani, 2019).

Social media platforms assist schema building because of the individual and group collaboration knowledge pool (Veletsianos, 2020). However, a notable exception to using social media is how teachers and students perceive their use (Lambton-Howard et al., 2021). Social media perception impacts two personality dynamics, perceived happiness interacting in a disconnected community and the social impacts influencing individual psychology and behaviorism (Bekalu et al., 2021). Therefore, the classroom teacher must be aware of the psychological and behavioral considerations for the age level of their students (Spyer, 2017). Additionally, unsupervised access to social media sites introduces risks of cheating or facade hiding that threatens learning outcomes for learners in all age groups (Bizami et al., 2023; Spyer, 2017).

Björktomta and Hansen (2018) studied the unnatural ability of all social media users to hide behind the technology façade, and they argued that there is a serious social negative reality that when learners are in their Internet sandbox, they have more space for actions they can hide behind, and the learner risk cutting off, and cutting out, direct communication with the outside world. Spyer (2017) pointed out that the overuse of social media alters the outside world in the learner's mind and that social media purposefully lets learners hide behind an avatar or pseudo-personality, which cultivates a false perception of reality. This is what both the Spyer (2017) and Björktomta and Hansen (2018) studies illustrate that potentially disruptive and distracting

activities are a constant threat to learning opportunities if not managed well (Björktomta & Hansen, 2018; Spyer, 2017).

In summation, the use of education technology in the classroom has evolved from physical to electronic media, with disruptive innovations like online libraries and instant messaging impacting teaching and learning. Online libraries provide access to worldwide knowledge, while instant messaging facilitates team collaboration and communication. Teachers must educate students on responsible technology use to prevent issues like cyberbullying. Software supporting team collaboration like Microsoft Teams and Zoom has advanced, enabling virtual collaboration and connecting virtual workforces. Social media platforms can aid in knowledge sharing but also pose risks such as cheating and distraction. Teachers need to consider psychological and behavioral factors when incorporating social media into the learning environment to ensure positive outcomes. Additionally, excessive use of social media can hinder direct communication with the outside world and distort learners' perceptions of reality. Managing technology use in the classroom is crucial to prevent distractions and disruptions to learning opportunities.

Summary

In closing, chapter two focused on the literature on the theoretical framework of Homans's (1958) social exchange theory with contributions from Heckert (1985), a theory of positive deviance, and Christensen (1997), a business theory of disruptive innovation. The rationale for creating this framework was to explain the transactional value teachers and students gained from their non-voluntary and unwelcome transition to remote learning. Social exchange theory explains the behavior of two actors engaged in a transaction, and each actor will continue in the transaction if they perceive a benefit. However, if one party in the exchange does not

benefit or receive value from the transaction, the dispossessed party will abandon the transaction (Blau, 1964; Emerson, 1976; Enayat et al., 2022; Homans, 1958).

Acts of positive deviance are creating a novel, unique, non-normative outcome given the availability, or lack of available, resources to develop a new product. According to Shoenberger, Heckert, and Heckert (2015), positive deviance is measured as a taxonomy quadrant of positive and negative reactions by the insider group and positive and negative behavior by the outsider group. The insider and outsider labeling of deviance uses a deviance spectrum, which can illustrate how one action of positive behavior can have a negative reaction resulting in rate-busting. In contrast, a negative behavior can have a positive reaction resulting in deviance admiration (Albanna & Heeks, 2019; Dadich, 2023; Heckert, 1985; Tolbert & Darabi, 2019; Wice & Davidai, 2021). Disruptive innovation is a deliberate process of creating a new novel, just good enough solutions to meet the needs of a niche market or audience (Christensen, 1997; Mahto et al., 2020; Sidorkin, 2021). Disruptive innovation is the new market solution that pushes through as a new paradigm. Online education is an example of disruptive innovation (Nickel, 2020; Sidorkin, 2021).

Finally, there are four key areas where positive deviance and disruptive innovation might occur between actors who non-voluntarily transitioned to remote learning during the school closures due to the recent pandemic. In classroom design, teachers have little control over modifying the learning management system used by their schools, but awareness of their learners' background distractions can mitigate the risk to learning (Chen et al., 2021; Counselman Carpenter & Redcay, 2019; Eames & Aguayo, 2020; Hartikainen et al., 2021; Nubani & Lee, 2022; Peterson, 2020). For instructional design for online learning, teachers can develop new learning objects and lesson delivery using visual design elements to target and

inspire learning (Javora et al., 2019; Jiang, 2022; Rosar & Weidlich, 2022; Tomita, 2022).

Pedagogy is the area where teachers can innovate positive deviance and disruptive innovation because there are many skills-based techniques to help learners connect with new knowledge sources (Fried, 2018; Prokopenko, 2019). Education technology and the use of technology to enhance learning opportunities; however, the use of technology in the classroom must overcome the perceived threat of a classroom toy (Greenhow et al., 2022; Venter, 2019; Yilmaz, 2023).

CHAPTER THREE: METHODS

Overview

This qualitative single case study aims to discover and describe the types of positive deviance and disruptive innovation during the non-voluntary transition to remote learning for teachers from San Juan County, New Mexico. At this stage in the research, the collective and general definition of positive deviance and disruptive innovation is any new novel, just good enough, product/outcome that adds value to a target audience. This study specifically sought to identify and catalog what classroom teachers did to alter their pedagogical practices and if any of those alterations were acts of positive deviance. Therefore, since more data is needed to understand this phenomenon, the best research methodology rationale to conduct this study was a single case study (Merriam & Grenier, 2019; Ridder, 2020; Yin, 2018).

As Yin (2018) described, the single case study is a design methodology for understanding individual-specific actions versus collective averages found in groups. In this chapter, I will explain the research questions and the data collection rationale best suited to each of the three collection methods. I will describe the target community and the reasoning for choosing classroom teachers in San Juan County, New Mexico. I will then present my researcher's positionality, philosophy, assumptions, and my direct role in the research. I will discuss the technologies used for all data collection and define my granular data analysis rationale for each method. Finally, I will conclude this chapter by stating my processes, methods, and rationale for ensuring the trustworthiness of this study.

Research Design

I selected a qualitative research design to understand why things happen rather than find some numerical justification to explain a hypothesis (Ridder, 2020). Let me explain my rationale

with this metaphorical example. Let us use the scenario of someone hitting their thumb with a hammer. A quantitative researcher would record the number of hammer blows to the thumb, the speed of the hammer swing, and the amount of damage done to the thumb, and then perform a statistical analysis to support a hypothesis that using a hammer to hit your thumb does [fill in the blank] analysis. Compare that approach with a qualitative researcher who wants to understand why anyone would want to hit their thumb with a hammer.

The next selection rationale was to choose if I wanted to understand the phenomenon of lived experiences or investigate what the teachers did during the non-voluntary transition to remote learning. After some deep reflection, I concluded it was more important that the contribution of this study was to categorize and describe the unique practices and processes of what teachers did in the transition to remote learning. This approach does leave open an analysis of the interpersonal experiences study participants would share, and those experiences have value, especially for future study recommendations. I reasoned that if I focused on the steps and processes, I could map those complexities into a set of best practices that educators and education leaders can use in the future.

Therefore, the best selection rationale was a single case study. A single case study is appropriate for understanding a baseline of a phenomenon that is not clearly definable, or data is needed to understand better a larger context (Merriam & Grenier, 2019; Ridder, 2020; Yin, 2018). Specifically, a single case study is the best method selection when the research is critical, unique, and revelatory (Ridder, 2020). My rationale for deciding on a qualitative single case study is that this approach fits my natural ability to document complex events into understandable and repeatable processes.

This study has two practical and pragmatic goals. The first is to catalog and enumerate

using objective measures if teachers created positive deviance and disruptive innovation in their physical classroom and what processes and changes they made to their pedagogical approaches for their remote classrooms. The second is to discover what social, cultural, and organizational factors influenced positive deviance and disruptive innovation during the transition to remote learning. There is practicum evidence that positive deviance and disruptive innovation are anticipated and that any example will emerge within four key areas described in Chapter One: classroom design (Peterson, 2020), instructional design (Shakeel et al., 2023; Gamson et al., 2019), pedagogical practices (Freire, 2020; Popielarz, 2022), and the use of technology in the classroom (Hong & Ma, 2022; Wargo et al., 2021). These four key areas are based on my practicum experience as an adjunct professor; therefore, I will be keenly alert to deviations from the teacher's pedagogical practices using their pacing guide and lesson plans they developed.

I used Microsoft Teams (MS Teams) to interact with, capture data, and transcribe individual interviews. MS Teams is a communications platform component of Microsoft Office 365 (O365), but the ability to leverage MS Teams does not require participants to have subscriptions to O365. Using MS Teams as the meeting organizer, I shared a Web link to the meeting session with study participants who can join through an Internet Web browser (Wea & Dua Kuki, 2021). Finally, I used MS Teams transcription and video/audio conferencing feature, so I could iteratively review each participant's personal interview or recorded reflective journal.

I used Atlas.ti Qualitative Data Analysis (QDA) software to create a structured analysis of unstructured data (Wright, 2019). Atlas.ti features an Artificial Intelligence (AI) capability to assist in organizing, coding, classifying, categorizing, and modeling data captured in study participants' transcripts and documents (Alam, 2021). My rationale for using Atlas.ti QDA software solutions was to leverage artificial intelligence and bracket the study's data to control

and reduce the risk of human error in the coding process before conducting a human peer analysis. I hired an independent editor, a public school teacher who was not part of this study from San Juan County, to conduct a human peer review as part of my data analysis. My rationale for selecting a human peer reviewer from San Juan County was to have a professional educator familiar with the cultural and social norms of the community (Creswell & Creswell, 2023; Parameswaran et al., 2020; Yin, 2018).

In summation, the rationale for choosing a qualitative research design was to understand the reasons behind actions rather than seeking a numerical explanation of a social phenomenon. A Single case study method was selected to categorize and describe the unique practices and processes of teachers during the transition to remote learning from San Juan County, New Mexico. This study aimed to identify if positive deviance or disruptive innovations in pedagogical approaches occurred and to better understand the factors influencing those changes. This study focuses on four key areas: classroom design, instructional design, pedagogical practices, and technology use in the remote classroom. This study used Microsoft Teams to interview study participants, including Atlas.ti QDA software to analyze and organize the data collected.

Research Questions

The following research questions were developed after a review of the literature. Upon reflecting on the possibilities of positive deviance or disruptive innovation occurring, a pattern emerged from the literature that acts of positive deviance and disruptive innovation in the education setting manifest in four key areas; independent of whether the classroom setting is traditional or online. These four key areas are classroom design (Peterson, 2020), instructional design (Shakeel et al., 2023; Gamson et al., 2019), pedagogy and interpersonal interactions

(Torres-Olave, 2021; Martin & Mulvihill, 2021; McGoron et al., 2022; Popielarz, 2022), and the use of technology (de Vries et al., 2019b; Wargo et al., 2021).

The central research question focused on teacher disruptive innovation or positive deviance outcomes in the four key areas. The design of the central research question was intended to be broad enough to probe about lessons learned, adaptive change, and other interpersonal experiences that were mitigation factors used during the non-voluntary transition to remote learning. Sub-research question one sought to discover and measure the influence of peer collaboration or organizational influence in any innovation or creation of positive deviance. Sub-question two asked general perceptions about real-time interaction between teachers and their students and if the teacher created any ad hoc pedagogical changes to help meet the learning expectations of their students.

Central Research Question (CRQ): What acts of positive deviance and/or disruptive innovations did classroom teachers report adapting their pedagogical approaches when transitioning to remote learning during the pandemic?

Sub Question One (SRQ1): What was the impact/influence of peer and/or organizational collaboration on the development of positive deviance and disruptive innovation innovations?

Sub Question Two (SRQ2): What are the general perceptions and ad hoc adjustments teachers reported about their experience with remote learning during the pandemic?

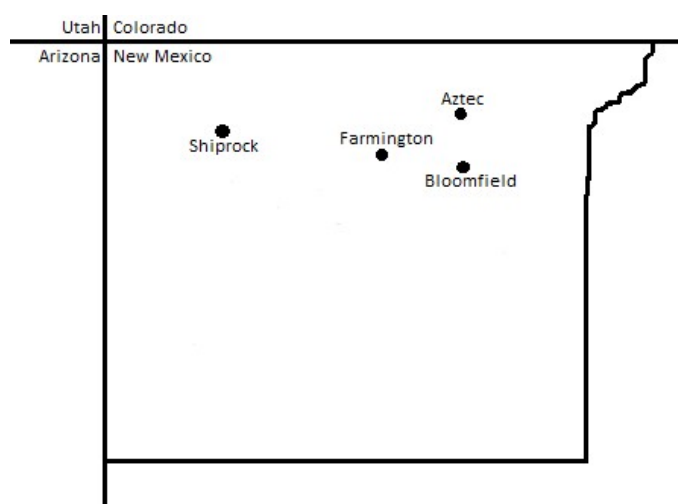
Setting and Participants

The location for this study is San Juan County, located in the northwestern corner of the state of New Mexico in what is geographically known as the Four Corners area bordering Arizona, Utah, and Colorado (See Figure 4) (U. S. Census Bureau, 2022). The bulk of the

population in this area resides in four incorporated communities: Aztec, Bloomfield, Farmington, and Shiprock (See Figure 4). This geographic area is an industrial-based economy comprised of energy production and agriculture (Bureau of Labor Statistics, 2021). A unique characteristic feature of the Four Corners area is its isolation from a major population center, with the largest urban center being Albuquerque, New Mexico, located approximately 180 miles southeast of Farmington, New Mexico.

Figure 4

Map of San Juan County, New Mexico



Note. This approximation illustrates the major population centers in San Juan County, New Mexico. Site

Within San Juan County, New Mexico, as of 2024, there are four K-12 school districts, with 60 public schools serving a student population of 22,305 and 10 private schools serving 693 students (Public School Review, 2024). I used pseudonyms to mask the identities of these districts to protect their identity and add a layer of anonymity for the study participants: Municipal School District One; Municipal School District Two; Municipal School District Three; Municipal School District Four. According to the State of New Mexico Public Education Department (2022), each of the four school districts is led by a superintendent of public schools

who is accountable to the local school boards. Each local school is led by a school principal who reports to the superintendent of public education.

There are two rationales for selecting San Juan County, New Mexico. First, San Juan County is an industrial-based rural community that is considered a blue-collar community. Second, San Juan County has a nearly equal ethnic demographic distribution of Anglo, Native American, and Hispanic populations. However, a significant Native American population is unique to San Juan County. Given these demographic characteristics, it is anticipated that the data collected will contain a unique localized cultural theme not found elsewhere in larger urban, more technology-based economic communities (see Table 1).

Table 1

San Juan County Population Demographics

Location	Anglo	Native American	Hispanic	Other	Total Population
Aztec	3,485	788	1,742	186	6,201
Bloomfield	2,961	1,588	2,701	171	7,421
Farmington	19,909	12,635	11,982	2,098	46,624
Shiprock	131	7,340	185	62	7,718
Unincorporated	16,105	28,624	8,695	282	53,697
San Juan County	42,581	50,976	25,305	2,799	121,661

Note. Collected from the U. S. Census Bureau as of 2022.

Participants

The primary target population for this study was public K-12 schoolteachers who currently teach at one of the San Juan County schools and transitioned their students to a remote online learning environment during the COVID-19 restrictions. Based on data and information from the New Mexico Public Education Department (2022) and the Bureau of Labor Statistics (2021), I had a potential participant pool of more than one thousand public school teachers in San Juan County. I contacted thirty-seven public school teachers and had eleven teachers agree to participate in this study (Yin, 2018).

Researcher Positionality

I have ties to San Juan County, New Mexico; I attended junior high and high school in Bloomfield, New Mexico, and graduated from Bloomfield High School in 1980. I hold a Bachelor of Science in criminal justice and a Master of Education in educational technology and curriculum psychology from Arizona State University. I am a former adjunct instructor with the University of Phoenix and the Maricopa County Community College System. I am an Air Force veteran and served as a Law Enforcement Specialist for four years. I have worked in the computer sciences for over four decades and have led and mentored small to mid-sized teams throughout my profession. My philosophical worldview is through the lens of an evidence-based behavioral pragmatist, and I view real-world phenomena and events through a pragmatic interpretive framework. Therefore, my researcher positionality will draw upon my life's pragmatic experiences.

Interpretive Framework

The pragmatist considers phenomena and events as single or multi-variant causation that form one's perspectives (Crabtree & Miller, 2023). I also argue that a pragmatic interpretation is about collecting and understanding the real-world historical and philosophical traditions people connect with during life (Dewey, 1904, 1905; Paine et al., 1993; Simonson, 2019). The pragmatist has a practical idea that ideas can be tested in human experiences (Dewey, 1904, 1905; Wiener & Dewey, 1972). Therefore, as a pragmatist, I believe in an evidence-based view that life's social meanings and actions must be open to an interpretive philosophical change in basic assumptions when new evidence emerges and presents itself as a new truth.

As a software and systems technology engineer, I have developed a pragmatic approach to solving difficult problems based on the best option to meet the requirements; therefore, I

remain agnostic to what a potential solution might look like upon delivery (Crabtree & Miller, 2023). Pragmatism fits well since my goal is to explain positive deviance and disruptive innovation through the lens of social exchange theory (Blau, 1964; Thoenig, 1967; Emerson, 1976; Homans, 1958).

Philosophical Assumptions

Creswell and Poth (2024) describe the importance of developing a philosophical assumption framework as a guide for analyzing real-world phenomena and a rationale for interpreting data. My pragmatic methodology for breaking down and finding hidden meaning will be through a systematic analysis to tag and label group-like attributes and characteristics in the data. My assumption about the data is that all the elements will be present to construct a reasonable determination through inductive and deductive analysis about how teachers adapted their pedagogical approaches when transitioning from their physical classroom to their remote classroom. However, I approached this study with the assumption that online remote learning is not a viable solution for all learners, and teachers were ill-prepared to transition to online pedagogy (Ithriah et al., 2020; Muljana & Luo, 2019).

Ontological Assumption

The power of the ontological assumption is having a belief that something exists but acknowledging the probability that something might not exist (Nkwake, 2019). Although the premise of an ontological assumption is that there is one truth, it is expansive enough to ask logical and probing questions about truth and who defines it (McCormick, 2020; Petit & Ballet, 2021). From a pragmatist point of view, truth depends on what evidence the individual chooses to believe, yet the role of evidence means truth is independent of what the person believes. This perplexity, known as Moore's paradox, is the quintessential philosophical problem because what

we believe today as the truth might not be our truth tomorrow (Cowie, 2020; McCormick, 2020).

This threatens perceptions of consistent interpretation of evidential truth because individuals tend to group around like-minded philosophies (Simonson, 2019). This raises the question of whether truth, reality, and perceptions are fungible (Páez, 2020). If our realities are based on our truths, then we can only achieve philosophical acceptance when truths, realities, and beliefs reach certainty of evidential predictability (Páez, 2020). Therefore, I am making an ontological assumption that I believe teachers will do all they can within their own creative capacity to develop new positive deviance and disruptive innovations to achieve at least a minimum viable product (MPV) while anticipating the possibility that the teacher may achieve a level of supererogation in their pedagogical outcome (Archer, 2020; Bales & Benn, 2021).

Epistemological Assumption

What does knowledge mean, and how do we know anything (Hardy & Stiles, 2019)? An epistemological assumption is a justifiable belief based on our knowledge of evidence as we observe it in nature (Creswell & Creswell, 2023; Crabtree & Miller, 2023; Yin, 2018). Our perceptions are statements of what we believe, but the belief does not have to be associated with truth (Nkwake, 2019; Prelevic, 2019). The human mind is naturally motivated to search to know and understand continually. Each new cognitive learning increases the intellectual schemas that push us to find more evidence to reinforce our beliefs.

Reflecting on Gagné's (1974, 1985) description of how we build our knowledge as an epistemological approach since we actively map our knowledge and fill in the gaps in our understandings. Therefore, the epistemological assumption is inexorably connected, linking our study of knowledge; knowledge and understanding beget more pieces of knowledge and understanding. Since I am interested in understanding and discovering the practices of how

teachers create new positive deviant and disruptive innovations, my epistemological assumption is that teachers will increase their associated knowledge based on their analytical review of what has worked well before.

Axiological Assumption

Since nobody can ever know the extent of the researcher's knowledge and experience, there is an assumption by study participants that the researcher has mastered the topic of the investigation, and that assumption may influence study participants to answer in a certain way (Chashina et al., 2021; Danaher, 2021; Yin, 2018). This inherent reflexive bias might discourage study participants from answering questions with complete candor, so as the researcher I must take care to capture the pure intent and be alerted to avoid inadvertently influencing the participant's inputs by carefully calculating any ad hoc question that may arise during the data collection process (Yin, 2018). Since this study assumes teachers have some ideas on how to alter pedagogical models to fit their online classroom, my study will objectively and subjectively consider teachers' inputs in that context.

Therefore, my axiological assumptions are based on my pragmatic experience as an educator and computer science professional creating innovative solutions. I acknowledge that my perceptions and assumptions may influence or bias my interpretations of the data. I also acknowledge that the literature influences my axiological assumption on teacher-student-technology interactions (Alston et al., 2022; Young, 2021; Moore & Diehl, 2019), and the importance of online classroom design (Chashina et al., 2021). I also recognize a risk of assumption knowledge spillage, meaning the reality that my prejudices and preconceptions based on my known and unknown reflexive biased expectations may contaminate my conclusions (Toelle, 2021). I have accounted for and identified my potential bias as part of this study's

limitations. Therefore, to control for assumption spillage, I will use bracketing to control for potentially biased interpretations of the data and information collected (Koch & Nafziger, 2019).

Researcher's Role

As an independent researcher, I assume the role of an outside observer of human behaviors. I am an active listener, and I can detect examples of hidden meaning in conversations with others. I rely on my talents and listening skills to identify hidden meanings in what people say and be observant of detecting meaning in body language and other non-verbal communication, so I leverage the psychology of listening and watching for meaning (Acquisto, 2024). Contextual meaning is a combination of breaking down what people say and do and connecting it with interpersonal observations, and then extending and extrapolating a deeper understanding of the phenomenon of real-world experiences (Kang et al., 2023; Swift & Peterson, 2019).

I acknowledge my mastery in this study area given my understanding of existing research; therefore, I was cognitively aware of my presence in these types of settings. I disciplined my presentation during my interactions with study participants and limited my discussions scripted by the research questions. During my personal interview interaction with study participants, I had opportunities to ask ad hoc probing questions to dig deeper to find hidden meaning. I noted those instances and was cognitively aware to ask those same ad hoc questions in each successive personal interview.

Procedures

The procedures section for this study is a descriptive set of tactics, techniques, and procedures for securing permission to conduct a study. This study is completely bootstrap by the researcher, meaning no educational grant will be used to fund any necessary expenses. While

planning the procurement phase of this study, I set a research budget of \$3,500.00 to cover the expense of software licenses, telecommunication charges, Web site hosting and development, configuration management, hiring an independent human peer reviewer, and compensation to the participants for their time. These disclosures will be captured in the Institutional Review Board letter and my study expense report (see Appendix A: IRB Approval Letter; Appendix I: Study Expense Report).

Permission

The steps I worked through to gain and secure permission to conduct this study will be quantified using Liberty University's Institutional Review Board template, which is included in Appendix A: IRB Approval Letter. After receiving IRB approval, I contacted thirty-seven potential study participants to see if they would be willing to participate. I received 11 confirmations from participants and sent and received consent form permission to join my study. Those signed consent forms were uploaded to my study's Website, secured with an SSL certificate, and password-protected (see Appendix D: Consent Form).

Recruitment Plan

I used snowball network sampling and contacted a non-participating teacher I know to get an initial list of teachers, and then used my participant's peer networks of public-school teachers in San Juan County, New Mexico (Creswell & Creswell, 2023; Yin, 2018). Snowball sampling, sometimes called chain referrals, is a useful technique because it has the potential to identify study participants from hidden groups (Tille, 2020). An example of a hidden group I encountered was trying to recruit study participants in the Navajo Nation. I was informed that I would have to present my research proposal to the Navajo Nation Institutional Review Board. As an alternative, I was permitted to use snowball methods in schools that were not in the Navajo

Nation. Snowball sampling assumes that study participants will be aware of others in their peer networks who share similar characteristics, making them eligible and relevant to the study (Boyle & Schmierbach, 2020). A downside to snowball techniques is the potential risk of group conflict point-of-view perceptions of events and community bias, which may influence data collection (Boyle & Schmierbach, 2020; Dosek, 2021).

Data Collection

Central to qualitative research is collecting and analyzing data to find supporting evidence for this case study of acts of positive deviance and disruptive innovation created by classroom teachers transitioning to remote learning (Creswell & Creswell, 2023; Yin, 2018). This section will discuss the rationale for the three data collection methods that best support this study: document analysis, a reflective journal for participants, and an individual interview (Creswell & Creswell, 2023; Yin, 2018). The rationale for the sequence of data collection is important to establishing baseline evidence, and the document review of teachers' lesson plans is where that concrete evidence will be found. The New Mexico Department of Education has adopted common core standards for public education instruction, and each school district provides a pacing guide for teachers to follow. Teachers can choose any common core references aligning with the pacing guide codes to retrieve guidance on building lesson plans.

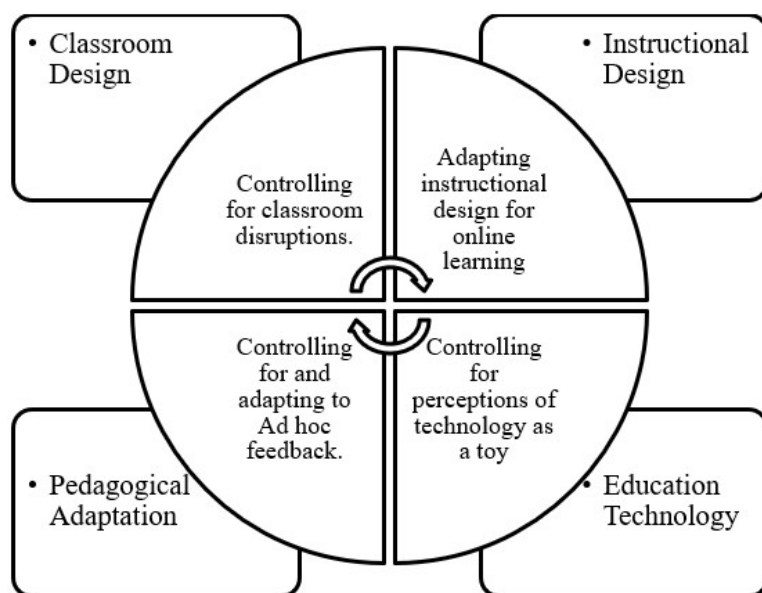
Table 2 illustrates how the pacing guide is used so teachers can develop their lesson plans for their students (see Appendix F, Example of Master Pacing Guide). In this example, the topic is English Language Arts (ELA), and the grade level is RL5.3 (fifth-grade third month). Using the reference Wiki Teacher (www.wiki-teacher.com), the teacher would search for and examine the requirements for RL5.3. The alignment for this instruction is to compare and contrast two or more characters, settings, or events in a story.

Table 2*Example of Fifth Grade Master Pacing Guide*

Instruction	Standard Code	Assignment	Innovation Options
ELA Core	RL 5.3	RL.5.3 Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).	Writing worthwhile instructional objectives. Developing supplemental learning materials. Use education technology.

Note. This is an excerpt example. See Appendix F for an example of quarter one master pacing.

The possible innovations that may emerge by the teacher are writing worthwhile instructional objectives (Gamson et al., 2019; Sullivan & Higgins, 1983), developing supplementary learning material (Holland, 2019), or using education technology to illustrate how to accomplish the learning objective (Escueta et al., 2020). To organize and define the baseline inputs from the document review. I created a modeling tool for evaluating pedagogical practice change (see Figure 5) so I could point to specific activities and code the data to visualize themes. The data points I captured were cross-referenced and triangulated to find other supporting evidence from the reflective journal and personal interview (Morgan, 2022; Saldaña, 2021). Therefore, the justification rationale for a sequential order beginning with the document review was logical since the document review source had pre-existing data independent from any other external source (Morgan, 2022; Saldaña, 2021). The other data collection method asked study participants to write a reflective journal to draw out their actions, opinions, and perceptions, adapting their pedagogical approaches in an essay format of two to three pages. The final data collection method will be a personal interview (Crabtree & Miller, 2023; Creswell & Creswell, 2023; Yin, 2018).

Figure 5*Modeling Tool for Evaluating Pedagogical Practice Change*

Note. Figure 5 is a thumbnail illustration of what the classroom teacher is controlling for during instruction that is independent of a face-to-face or virtual environment (Peterson, 2020; Shakeel et al., 2023).

Document Review

The document review in qualitative research provides for thematic data collection independent of a planned or anticipated participant response often captured from an interview or survey instrument (Merriam & Grenier, 2019). For this study, I requested a copy of the participants' New Mexico Department of Education pacing guides and a sample of at least three lesson plans: one before transitioning to remote learning, one lesson plan used during remote learning, and one created and delivered after returning to in-person instruction. This data set was captured to assess and compare differences between lesson plan creation and delivery and establish a baseline dataset. I anticipated that the lesson plans might not show a difference in pedagogical approaches, and their lesson plans could be applied to both the physical and virtual

classrooms.

Document Data Analysis Plan

The lesson plan documents were reviewed, and it was discovered that the format used by the study participants was a general outline. It was anticipated that the lesson plans would have developed instructional objectives, lesson activities, and assessments. I reconsidered my assessment for the document review and implemented a two-phase strategy. In phase one, I printed out each participant's lesson plans and set them side-by-side to see what structural and process differences existed. In phase two, I cross-referenced a review of the participant's pacing guide to confirm that all the elements from the pacing guide were found in the lesson plan. The final step in phase two was to read each participant's reflective journal to cross-reference and triangulate to see how they explained their pedagogical adjustments in their lesson plans.

Reflective Journal

The purpose of the journal analysis was part of my data triangulation effort to ensure the credibility and trustworthiness of the study's data and was cross-referenced by the data collected in the document analysis (Creswell & Creswell, 2023; Merriam & Grenier, 2019; Morgan, 2022; Saldaña, 2021). I asked participants to self-reflect and assess their adaptive experience transitioning to remote learning without having a time constraint that is normally anticipated as part of a personal interview (Yin, 2018). The decision to ask for a journal data source was meant to give participants the potential opportunity for greater elaboration (Yin, 2018). Yin (2018) points to three benefits of journal document analysis. They are a point of authority for exact language; they can corroborate information about practices and individual behavioral actions and activities, and the researcher can extrapolate and make inferences about clues and indicators of additional inquiry to uncover hidden data.

A strength of journal document analysis is the stability of the data since the researcher less influences any journal document; however, a weakness of the journal document is the lack of opportunity to observe participants (Creswell & Creswell, 2023; Morgan, 2022; Saldaña, 2021). The primary justification for collecting journal document data was to triangulate participant behavior adaptive experiences transitioning to remote learning with their personal interview reactions to the research questions (Merriam & Grenier, 2019; Morgan, 2022; Saldaña, 2021). Participants were given three options for delivering their journals. Option one was to write their responses in an MS Word document and upload it to the study's website or email attach the document to the researcher. Option two, an email would be sent with the journal questions, and participants could reply to the email and provide their responses in a return email. Option three, the participants could record their journal answers using MS Teams, Zoom, or Google Workspace and attach the audio file via email. The audio file would then be transcribed.

Journal Questions

Participants were asked to write a two-to-three-page journal assessment about their experience adapting their pacing guides and developing their lesson plans for remote learning. However, the average page length ranged between one and three pages. I asked these journal questions to elicit personal experiences to catalog and categorize potential themes influencing the participant's thought processes. The following five questions were asked:

1. Please describe your activities and reflections about adapting your pacing guides and create a lesson plan for remote learning. CRQ
2. From your point of view, what was different in your approach to adapting your lesson plans from your traditional classroom? CRQ
3. What support did you have in adapting your lesson plan for remote learning? CRQ

4. What was the most difficult issue you had to overcome adapting your pacing guide and lesson plan for remote learning? CRQ, SRQ2
5. What lessons did you learn/take away from your experience adapting your pacing guide and lesson plan remote learning? CRQ, SRQ2

Journal Document Data Analysis Plan

The first step of my journal document data analysis was to proofread each journal to ensure that it is grammatically correct and that the responses are explanatory enough that a reader can discern the meaning and intent of the participant. When necessary, I contacted the participant to ask elaboration questions for clarity; however, I recognized the potential and risk of injecting research bias, so I was careful to only ask questions for clarity. After validating that I had a complete journal, I uploaded the journal to my study's website in an isolated password-protected SharePoint document library. Then, I imported a copy of the journal into Atlas.ti to conduct data coding to generate themes. The second step was to review each participant's pacing guide and three historical lesson plans: one lesson plan developed before, one lesson plan developed during remote learning, and one lesson plan after returning to the physical classroom. The third step was to create a mapping matrix aligning their reflective journal theme to a specific change in their lesson plan from pre- and post-transition.

My analysis of the journal document data involved taking the raw transcripts and interview recordings captured using Microsoft Teams and conducting an iterative process to validate the accuracy of a final transcript that captured the deliberate intent of the study participants. Using Atlas.ti I uploaded the final transcript into a folder called "Journal Documents" and then started reading through the transcript and conducting an initial coding activity. After completing an initial coding iteration, I highlighted each paragraph from the

transcript and used Atlas.ti artificial intelligence features can make recommended coding suggestions so that I can generate categories of themes. I continued this process through seven iterations until I was satisfied that I had exhausted all possible coding and theme generations from the data.

The next analysis process I started was generating a concept word-frequency mind map to identify trends and patterns in the data. In the next activity, I used Atlas.ti Opinion Mining to extract sentiments and subjective information to determine the attitude or emotional tone expressed in the text (Hemmatian & Sohrabi, 2019; Liu, 2022). I then iterated through the codes to group like terms and streamlined the codes into a meaningful dataset. My final activity was to generate memos that I used to report the findings in Chapter Four.

Personal Interviews

In qualitative research, the personal interview is an expressive opportunity for the researcher and participant to engage in an open dialog governed by the study's research questions (Creswell & Creswell, 2023; Yin, 2018). The interview was designed as semi-structured questions to elicit and explore hidden experiences and reflections about changes to the teacher's pedagogical practices when transitioning to remote learning. The semi-structured interview has the freedom and flexibility to uncover deeper meaning than could be achieved through a structured survey. The personal interview was also designed to allow for elaborations and ad hoc follow-up questions (Crabtree & Miller, 2023; van Manen, 2023; van Manen & van Manen, 2021).

Since the nature of the research questions can be influenced by the researcher and a single participant, I intended to treat each participant's contribution as if it could stand independently as a single case (Ridder, 2020). Individually, the personal interview's goal was to

drill down to find and uncover granular details and identify themes, codes, and categories in the data that can explain an inductive and deductive measure of positive deviance and disruptive innovation that adds exchange value between the teacher and their students (Enayat et al., 2022; Porter, 2018).

To achieve this goal, the interview asked eleven baseline questions; however, given the open-ended nature of the questions, I anticipated elaboration, and ad hoc questions did emerge (Crabtree & Miller, 2023; Yin, 2018). I conducted a try-out personal interview question with a non-participating volunteer to better understand the dynamics of the interview duration, and I anticipated the personal interview may take 45 to 60 minutes based on my try-out interview. While conducting the personal interview I had opportunities to ask elaboration questions, but I metered and paced the interview tempo and wrapped up all interviews within a 50 to 65 minute session (Yin, 2018).

Personal interview participants were conducted using MS Teams collaboration software, and each participant connected using a guest link to join the interview through a web browser. To protect the identity of the study's participants, when they joined the interview, participants used their assigned pseudonyms to mask their transcript's identity (Creswell & Creswell, 2023; Yin, 2018). When the participant joined the interview, a technology check was conducted to confirm that all software features worked as designed. Before the interview recording began, I read and explain, the order of operation of the personal interview in three parts (See Appendix D: Consent Form):

1. A reading of the research purpose and a reading of the participant volunteer and privacy statement.
2. A description of the question segments; this includes a set of introduction questions

and the research question.

3. A statement about concluding the interview and any final thoughts or questions.

Once all statements were shared with each participant, I announced that the interview was beginning and activated the transcript and interview recording features in MS Teams. I noted reflective notes about the background, the participant's behaviors, and other non-verbal communication queues observed during the interview (Yin, 2018). After the interview concluded, I asked each participant if they had any closing ad hoc statements they wished to make. I asked if they had any questions or concerns I could clarify about questions or the process. I concluded by thanking each participant and arranged to send them an Amazon gift card to compensate them for their time (Creswell & Creswell, 2023; Yin, 2018).

The transcripts and audio-video recordings were captured using MS Teams. The process of validating the transcript was iterative until all discrepancies and differences were resolved and accurately reflected in the personal interview. I manually reviewed each transcript and audio recording through seven iterations. The purpose of the iterations was to ensure the transcripts were grammatically correct and aligned with the interview audio recording so that the final artifact accurately reflected the intention of each participant (Yin, 2018).

The personal interview questions were governed by the central research question (CRQ): “What acts of positive deviance and/or disruptive innovations did classroom teachers report adapting their pedagogical approaches when transitioning to remote learning during the pandemic?” Sub-research question one (SRQ1): “What was the impact/influence of peer and/or organizational collaboration on the development of positive deviance and disruptive innovation innovations?” And sub-research question two (SRQ2): “What are the general perceptions and ad hoc adjustments teachers reported about their experience with remote learning during the

pandemic?”

(See Appendix I: Personal interview survey slide deck.)

Personal Interview Background Question

1. Please share your current role, how many years you have been teaching, the number of years you have taught in San Juan County, and the number of years teaching at the grade level when you were transitioned to remote learning. CRQ

Personal Interview Questions

2. What behavior or psychological challenge did you experience transitioning to remote learning? CRQ, SQ2
 - a. What were your personal challenges?
 - b. What were your students’ challenges?
 - c. How did you adapt/cope with these challenges?
3. What is your routine/thought processes for adapting your pacing guide and lesson plans for your face-to-face classroom? CRQ, SRQ2
4. What is your routine/thought processes for adapting your pacing guide and lesson plans for your remote classroom? CRQ, SRQ2
5. What is your routine for controlling your physical vs. remote classroom (classroom design)? CRQ, SRQ2
6. What is your routine for using education technology in your physical vs. remote classroom? CRQ, SRQ2
7. What innovations did you create/experiment with during your transition to remote learning? CRQ, SRQ2
 - a. Why did you choose to innovate?

- b. What did you learn from your innovation?
8. What was your process for adapting student feedback into your instruction? CRQ, SQ2
- a. How did student show/display/manifest feedback, and how did student feedback influence your pedagogical approaches?
 - b. How did student show/display/manifest feedback, and how did student feedback influence your use of technology?
 - c. How did student feedback a factor into any development of a positive deviance or disruptive innovation outcome?
9. How often do you collaborate with your peers and discuss/explore pedagogical ideas, practices, and procedures? CRQ SQ1
- a. Is your collaboration organized, or is your collaboration ad hoc?
 - b. Where do you collaborate (in person, online)?
 - c. How do you organize your collaboration (is there a leader, spontaneous)?
10. How did your collaboration change your pedagogical approaches or alter your approach to innovate and try new ideas? CRQ, SRQ1
11. What lessons did you learn from your experience transitioning to remote learning? CRQ, SQ1, SQ2
- a. What worked well?
 - b. What could have worked better?
 - c. What actions would you do differently in the event of a future transition to remote learning?

These interview questions were organized into six groups. Group One, Question one,

asks a general demographic and ice-breaker question to establish rapport and set the tone for the interview tempo. This question will be the first formal interaction with the participant, so it is important to set a professional yet relaxed environment to conduct the interview (Creswell & Creswell, 2023). Question two is included so I could capture educational background data about the participant's interpersonal and psychological experiences and how they coped with and adapted to transitioning to remote learning. Questions three, four, five, and six are designed to ask in-depth and probing questions to understand the routines and habits of each participant as they process through the constraints imposed on them when they transitioned to remote learning (van Manen, 2023; van Manen & van Manen, 2021). Questions seven and eight ask about specific innovations and how the participants adapted to ad hoc real-time feedback from their students (Kamper, 2020). Questions 9 and 10 ask about the teacher's collaboration efforts and how they influenced and impacted their approaches to remote learning. Peer collaboration can be a source of success but also the genesis for failure depending on the lines of authority or perceived line of authority influencing an outcome (Baxter et al., 2023; Vittori et al., 2024). These two questions are important for controlling peer influence, impacting a teacher's inclination to follow a different path (Schmid & Kwon, 2020). Finally, question eleven asks a general reflective question about the participant's experience, what they learned through the experience, and how their approaches to future events can be mitigated (Creswell & Creswell, 2023; Crabtree & Miller, 2023; Kamper, 2020; van Manen, 2023; van Manen & van Manen, 2021).

Individual Interview Data Analysis Plan

My analysis of the personal interview data involved taking the raw transcripts and interview recordings captured using Microsoft Teams and conducting an iterative process to

validate the accuracy of a final transcript that captured the deliberate intent of the study participants. Using Atlas.ti I uploaded the final transcript into a folder called “Personal Interviews” and then started reading through the transcript and conducting an initial coding activity. After completing an initial coding iteration, I highlighted each paragraph from the transcript and used Atlas.ti AI features that can make recommended coding suggestions so that I can generate categories of themes. I continued this process through seven iterations until I was satisfied that I had exhausted all possible coding and theme generations from the data.

The next analysis process I started was generating a concept word-frequency mind map to identify trends and patterns in the data. In the next activity, I used Atlas.ti Opinion Mining to extract sentiments and subjective information to determine the attitude or emotional tone expressed in the text (Hemmatian & Sohrabi, 2019; B. Liu, 2022). I then iterated through the codes to group like terms and streamlined the codes into a meaningful dataset. My final activity was to generate memos that I used to report the findings in Chapter Four.

Synthesis of Data

My data analysis procedures used triangulation of all data sources from the three data collection methods (Creswell & Creswell, 2023; van Manen, 2023; van Manen & van Manen, 2021; Yin, 2018). Triangulation methods let the researcher explore possibilities from more than one point of view and reduce the possibility of building a false assumption based on the researcher's known and unknown biases (Spennemann, 2023; van Manen, 2023; van Manen & van Manen, 2021).

I used Atlas.ti QDA software solutions to code, model, and create data themes to compare (Patton, 2023; Wright, 2019; Yin, 2018). Atlas.ti has excellent training and user support and can be customized to narrow in on key data elements and themes to reduce the potential

noise in the data (Wright, 2019). For example, if the participant responded by saying, “I started the class by telling them a story of Snoopy’s great novel opening: it was a dark and stormy night...” and the QDA software tagged “started the class” or “telling them a story” when the most important code is “Snoopy’s great novel.” Because Atlas.ti can be configured to ignore, a list of non-essential keywords that can improve the possibilities of a better raw data analysis (Wright, 2019).

I conducted an analysis by sorting the themes and keywords to refine and iterate through a coaxial process to explore and extrapolate actions and activities of what teachers did when they were preparing their pedagogical approaches to teach remotely. My data synthesis included a cross-reference matrix between the participants to see where the overlaps and gaps may occur. The purpose of the matrix was to map back to a specific requirement that is found in the teacher's pacing guide and the development of their lesson plans (Patton, 2023; van Manen, 2023; van Manen & van Manen, 2021; Yin, 2018)

Other emergent themes were synthesized from document review, participant journals, and personal interview data, considering if the data supports evidence that positive deviance and disruptive innovation exist. A synthesis was conducted to see how the data could be generalized to other study populations, geographical areas, and cross-domain utilization beyond the public school environment. I analyzed and interpreted the data, reported shortcomings, and explained how those deficits influenced the findings (Yin, 2018). My findings were shared with outside colleagues to solicit their concurrence in my interpretation and findings (Crabtree & Miller, 2023).

Trustworthiness

Trustworthiness in qualitative research is an anatomy of ethical principles of autonomy,

non-maleficence, beneficence, and justice as a definitive statement of the researcher's duty to protect and preserve all elements of data collected and the privacy of study participants (Kyngäs et al., 2019). The duty to protect implies that the research will be honest, and ethically objective so that readers have confidence that the work can be counted on as a contribution to the body of knowledge (Kyngäs et al., 2019). Therefore, I leveraged the recommendations and practices in the Belmont Report to ensure that the roadmap clearly explains and documents the steps used to protect the participants, research transparency, credibility, confirmability, dependability, and transferability (Beauchamp, 2020; Siddiqui & Sharp, 2021).

Credibility

Credibility in research is an outcome of how the data is collected and protected to ensure the data accurately reflects the study participants' intent and meaning (Adler, 2022; Bičanić & Brust Nemet, 2020). In qualitative research, credibility is strengthened when multiple data collection methods are used (Creswell & Creswell, 2023; Crabtree & Miller, 2023; Yin, 2018). The variation in data collection methods is called triangulation (Bičanić & Brust Nemet, 2020). This study will triangulate document analysis, participant reflective journals, and personal interviews to produce three independent data sources. I used Atlas.ti QDA software to take advantage of AI and machine learning features to spot trends and patterns in the data and add a level of independent bracketing to reduce the risk of human error in data interpretation and increase analysis credibility (Kyngäs et al., 2019; Wright, 2019).

Transferability

Transferability refers to how well the study's findings can be used or transferred to other study populations using similar methods (Adler, 2022; Creswell & Creswell, 2023). The research method used in this study is a single case designed to describe the tactics and techniques teachers

used or altered between their face-to-face and virtual classrooms. The boundary of this case study is K-12 public school teachers in San Juan County, New Mexico; however, the expected outcomes of this study are transferable to any public-school setting. The lessons learned from this study are openly intended to be shared with other teachers and education leaders looking for examples to mitigate learning disruption during future extended school closures. This study will also benefit from the peer review of my dissertation committee as a thorough and thoughtful examination of my methods and findings from an associated external review process (van Manen, 2023; van Manen & van Manen, 2021)

Dependability

Dependability in research data is a priority challenge in any research effort (Yin, 2018). Therefore, the design for this study uses a single case methodology and will collect three data sources to evaluate and analyze for evidence that teachers did alter their pedagogical approaches when transitioning to remote learning. I had a three-part strategy. First, I used MS Teams Communications software to record audio, video, and transcription features to capture individual interview sessions. I used MS Teams transcription features to create an independent transcript from the MS Teams recordings so the transcript could be manually reviewed to ensure data accuracy. Second, if the transcript was not clear, or the recording was unintelligible; I reached out to that study participant to clarify, confirm, and validate their responses (Creswell & Creswell, 2023; Crabtree & Miller, 2023; Yin, 2018). Third, I leveraged the coding and data modeling features using Atlas.ti advanced qualitative data analysis software to create a representation of the data. Atlas.ti had advanced AI features that are useful to organize modeling data and are helpful in reducing human error (Saldaña, 2021).

Confirmability

Confirmability validates the alignment of the study's analysis with the data collected that is directly referenceable in the study's findings (Adler, 2022). I accomplished confirmability using a technique I use in my profession as a software engineer. This technique is called a software traceability matrix to align a software requirement with a design element. I used a traceability matrix based on a mind-map of data codes from Atlas.ti that aligned each participant's exact statements and contributions to a direct reference linked to specific quotes from the data collected (van Manen, 2023; van Manen & van Manen, 2021).

This study sample size consisted of 11 participants, and I noticed when reviewing the data I was achieving data saturation after about the sixth participant (Creswell & Creswell, 2023; Yin, 2018). Saturation is reached with no more new or unique data/information that can be captured or discerned from the study participants. Creswell and Creswell (2023) recommend using thick description and detailed accounts from study participants that describe the social and cultural connections how teachers adapted their transition to remote learning. These data points were cross-referenced between the three data sources to confirm a reasonable expectation that all elements asked in the research questions are reached (Kamper, 2020).

Ethical Considerations

My guidance to ensure ethical considerations in this study was inspired by the recommendations from the Belmont Report for studies of human subjects in research (Beauchamp, 2020; Siddiqui & Sharp, 2021). My research efforts also followed Liberty Universities Institutional Review Board (IRB) standards, and there was an iterative effort with my research committee to ensure all ethical issues would be addressed. However, since this study may invoke an emotional response to the mandatory transitions to remote learning due to the

COVID-19 pandemic, I anticipated that some participants' responses may include personal philosophical, social, and political opinions that might distract from the goals of this study. For this reason, I specifically designed my study to focus on the practical mechanics of what teachers did to adapt their pedagogical practices for remote learning as a single case study instead of pursuing a phenomenological study.

I protected the study's participants by assigning pseudonyms to mask their identities in all data sources collected (Creswell & Creswell, 2023). Since the outcomes of this study will be published, to prevent any identifiable information that has the potential for tracing to any individual or school district, I masked to protect anonymity. I also limited the demographic information I collected from participants (Yin, 2018). I carefully and methodically reviewed each participant's transcript and reflective journal to mask or remove any reference to gender and ethnicity. My rationale was my assumption that the teacher's experience would have a stronger contribution to the mitigation strategy participants created.

At the beginning of the research, a statement was read to all participants informing them of the voluntary nature of their participation and that they were free to withdraw from the study at any time without any influence from the researcher. Furthermore, each participant was informed that if they withdrew, any recording, transcript, or data collected from them would be immediately destroyed and would not be used in this study (Creswell & Creswell, 2023; Yin, 2018). Finally, my personal ethos has evolved from my parents' teachings and my faith to do unto others as you would have them do unto you (Matthew 7:12; Luke 6:31 KJV). I remain open to whatever possibilities may be discovered in the data collected in this study, and I have faith that whatever is discovered was meant to be found.

Summary

In conclusion, chapter three discussed how I plan, organized, and conducted this qualitative case study to discover and describe what K-12 public-school teachers working in San Juan County, New Mexico, did to alter and adapt their pedagogical approach for remote learning. This single case study design was selected because it focuses on the practical mechanics of what teachers did rather than how they felt or experienced in their transition. This study will collect three data sources from study participants' document reviews to gather a baseline data set, from which triangulation is used, from the participant's reflective journal and personal interview.

My researcher's positionality assumes the master expert of my study based on my pragmatic worldview that the evidence is my truth (Crabtree & Miller, 2023). My ontological assumption is based on my belief that something exists, but I am open to the possibility that something might not exist (Nkwake, 2019). My epistemological assumption is based on my evidence, which is justified as we observe it in nature (Prelevic, 2019). My axiological assumption is based on my belief that no one can know the extent of my knowledge and experience, which puts a responsibility on me to ensure I share what I know as clearly as possible (Chashina et al., 2021).

My procedures for conducting this study will start by recruiting study participants using snowball techniques and by soliciting study participants using a LinkedIn group of public-school teachers that I can filter for teachers in San Juan County, New Mexico. I contacted 11 study participants to confirm they were qualified to participate. Participants will read and acknowledge their willingness to join the study and sign a consent form. Upon submitting the consent form, participants will receive an email with a pseudonym to mask their identity and log-in instructions for accessing my study's website (Creswell & Creswell, 2023). Participants upload their pacing

guides and lesson plan documents to my website or attach them to an email.

The personal interview used MS Teams software to host and record video conferencing and create transcripts. The audio and video recordings were iterative until the transcripts accurately represented what study participants shared. The transcripts were imported into Atlas.ti qualitative analysis software for coding, categorizing, and data modeling. Using Atlas.ti AI features, the data were triangulated, and bracketing technique was used to ensure the data was as free from human error and bias as possible. The data analysis capture will be discussed in Chapter Four.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this qualitative single case study was to discover and describe the types of positive deviance and disruptive innovation during the non-voluntary transition to remote learning for teachers from San Juan County, New Mexico. This chapter reports the study's results after an iterative analysis of the data collected from 11 study participants. It will describe each study participant using a pseudonym to protect their identity, a triangulated data analysis from participants' lesson plan documentation, personal reflective journal, and personal interview. Followed by reporting the themes generated and then responses to each research question. This chapter will conclude with a summary of the findings and transition to the discussion in Chapter Five.

Participants

This study interviewed 11 public school teachers who taught in San Juan County, New Mexico, before, during, and after the COVID-19-mandated school closures. To protect my participants' identities throughout this study, I used pseudonyms generated from the movies *Top Gun* and *Top Gun Maverick*. The rationale for masking identities was to allow the participants to share their thoughts without holding back out of concern of being identified by their comments. Additionally, my masking efforts extensively reviewed keywords and idioms common to San Juan County to remove any reference to gender, age, ethnicity, etc., to achieve a neutral and unbiased transcription that did not distract or diminish the valuable inputs each participant provided. Table 3 shows the teacher seniority scale used to categorize group tenure levels as a variable for study participants. The rationale for using a seniority scale illustrates how education and professional development background directly influence the outcome of any final product.

Table 3*Teacher Seniority Scale*

Descriptor	Years of Experience	Description
Master Educator	25 years or above	A master educator is someone who can lead. They can be department chairs, school principals, or other faculty and staff supervisors.
Journeyman Educator	9 to 24 years	Is an educator with senior experience, is tenured, and has the seniority to supervise other faculty staff.
Apprentice Educator	1 to 8 years	A teacher in training. These teachers generally do not have supervisory roles.

Note. The teacher seniority scale was created to group participants based on years of experience.

These categories are delineated using a rationale of seniority and leadership roles.

Table 4 lists study participants' masking, years of teaching, years of teaching in San Juan County, core subject areas, and grade levels they taught during the non-voluntary transition to remote learning.

Table 4*Participant Pseudonym Mask Naming Convention*

Participant	Seniority	Tenure	Tenure SJC	Content Area	Grade Level
Fanboy	Journeyman	9	9	SP ED, History, English	10,11,12
Hangman	Master	26	26	Early Child Education	K
Hollywood	Master	26	11	GEN ED	4,5,6
Iceman	Journeyman	12	12	GEN ED	4,5,6
Jester	Master	34	34	SP ED	2
Maverick	Master	28	21	SP ED	4,5,6
Merlin	Journeyman	15	12	Math, SP ED	4,5,6
Rooster	Master	32	24	Math	6
Stinger	Master	31	21	GEN ED, Principal	2,4,5
Viper	Apprentice	8	8	GEN ED	6
Wolfman	Journeyman	20	20	GEN ED	3

Note: Table 4 provides the professional background of 11 study participants. It illustrates the total years of teaching experience, the total years of teaching in San Juan County, the content areas the participants taught before, during, and after COVID-19, and the grade levels.

Table 5 is a descriptive statistic showing the total number of years teaching compared to the number of years teaching in San Juan County, New Mexico. It illustrates the stability of teacher tenure in San Juan County and shows the community commitment of teachers there.

Table 5

Descriptive Statistics of Participants' Years of Experience

Descriptive Statistic	Total Teaching Years of Experience	Total Teaching years in San Juan County
Mean	20.81	16.54
Median	21	12
Mode	25	12
Standard Deviation	8.95	8.44
Sum of Years	229	182

Note. These descriptive statistics are based on the teacher's years of teaching experience and the years of teaching in San Juan County. This table illustrates the tenure and longevity of the study's participants.

There are four K-12 school districts in San Juan County, New Mexico, and the number of participants from each district. Table 6 illustrates the names of each school district in San Juan County and the number of study participants from each district.

Table 6

Participants School District Population Distribution

School District	Participants From Each District
Municipal School District One	2
Municipal School District Two	4
Municipal School District Three	3
Municipal School District Four	2

Note. There are four K-12 school districts in San Juan County, New Mexico, and the number of participants from each district. The names of each school district in San Juan County and the number of study participants from each district.

Participants engaged in three data collection activities. Activity one: Participants produced and uploaded a copy of their approved New Mexico State Department of Education Pacing guide and a minimum of three lesson plans. One lesson plan from before the state-mandated school closures because of the COVID-19 pandemic. One lesson plan was developed and delivered during the non-voluntary transition to remote learning. One lesson plan was created and delivered after returning to face-to-face instruction. Activity two: Participants answered five journal prompt questions. These questions were sent to each participant as an inline email reply to response, as an MS Word or Google Docs email attachment, or by recording their journal responses and delivering an audio file. Table 7 illustrates the journal prompt media selection.

Table 7

Journal Media Response Delivery Mode

Media	Number of Participants
Inline email reply	6
Email attached MS Word or Google Doc	3
Recorded Journal	2

Note. To accommodate study participants' busy schedules, they were given options for delivering their reflective journal prompts using three modalities.

Activity three: Participants participated in a personal interview using Microsoft Teams lasting 50 to 65 minutes. During the personal interview, participants were asked eleven questions grouped into six categories. One background question, one behavior and psychology question, four teacher routine questions, two innovation and adapting questions, two collaboration questions, and one lesson learned question. The format I used to report my participants' contributions was to tell a story about their background and triangulate each data set collected from their documents, journal answers, and personal interviews. The journal prompt questions were explicitly designed to benchmark what teachers did to adapt their lesson plans in alignment

with the New Mexico State Board of Education pacing guide. The personal interview was designed as an exploratory interactive interview focused on what teachers experienced in the remote environment, their adaptive approaches, and any innovation they may have tried or experimented with. I captured their reflections on what worked well and what they would do differently if a future disruptive event occurred.

I then developed a data matrix and canonical data mapping from the 2,197 codes I captured using Atlas.ti qualitative data analysis software. I used inductive and deductive reasoning to distill these codes into three themes and found evidence indicating two outliers. I then used direct quotes from the participants as evidence to support my theme generation, align it, and map it to my research questions.

Fanboy

Call sign Fanboy is a Journeyman Educator with nine years of teaching experience, all of those years in San Juan County. Fanboy teaches high school special education, English, and history courses. Fanboy's approach to teaching is "I'm a hands-on learner and a hands-on educator." Fanboy emphasized the importance of building relationships with students and interpersonal connections in teaching. Fanboy was asked to provide examples of three lesson plans that were reviewed and triangulated using answers from the five journal prompt questions. The triangulation of data did not indicate that Fanboy had made any changes to lesson plan development before, during, and after returning to the physical classroom. Fanboy's lesson plans were delivered as an outline showing when a specific topic would be delivered to students.

From a behavioral and psychological point of view, Fanboy recognized that remote learning would suffer from low student engagement and technology dependence. A specific challenge Fanboy shared was learning to adapt remote monitoring tools so students could

connect with their friends and teachers. One strategy Fanboy used was to make the new environment as personal as possible, saying, “I individually greeted them and asked questions about how they were doing.” Fanboy is very interpersonal and empathizes with what students are going through during the transition. I found evidence that Fanboy was willing to go over and beyond the call of duty, “I think adapting and coping with it was that they understood I cared about their well-being.”

When analyzing Fanboy’s responses about accounting for changes based on accommodations and modifications, there was evidence that transitions occurred in two areas; the first was an approach to adopting a flipped learning model of pairing students with more substantial reading, English, and math skills with students who struggled in those topics. Fanboy described pairing student groups into cohorts with similar learning accommodations and modifications, saying, “I tend to group students who have the same modifications without making a big deal of it.” The second was setting high expectations, holding students accountable, and proactively seeking parental involvement during remote learning. Fanboy said, “They are responsible for their education at the high-school level because the next step is adulthood.”

Fanboy’s routine for developing lesson plans is focused on student preparation, saying, “This is a competitive world, and high school students seem to understand that.” Fanboy proactively developed truncated lesson plans that were flexible and customized for the paired student cohort and then let students form a social structure with stronger-skilled students helping weaker-skilled students. Fanboy describes this strategy as a leadership trait: “If you help your classmates, that makes you a leader.”

As the transition to remote learning started, Fanboy spoke of challenges in getting students engaged in class, but even over time, Fanboy continued to struggle to get students

involved. Fanboy did everything possible in the new remote learning environment to emphasize the importance of persevering through adversity. Fanboy shared a philosophy of not accepting excuses, saying, “You can’t make excuses; you have to endure adversity.” Fanboy underscores the idea that facing challenges head-on can lead to success.

Fanboy kept students attentive and interested by showing care and building relationships. Despite personal dislikes, Fanboy excelled in using educational technology, despite not being a big fan of using it, saying, “I did not like relying on the Internet, I had a slow connection, and I didn’t like the process.” However, Fanboy adapted to using technology over time, saying, “I tried not to stress out over things I have no control over.” There is evidence that because the transition was so abrupt, getting organized impacted everything, including trying to collaborate with colleagues. Fanboy’s thoughts about collaboration: “It was a twice-weekly meeting using Google Meets and Google Classroom, but Collaborating was boring at times because most teachers did not take it seriously. It seemed like all anyone wanted to do was complain.”

Fanboy demonstrated a heightened awareness of community, family, and cultural roots in anyone’s development of an education philosophy and understanding of life’s journey. Fanboy emphasized the importance of balancing traditional and Western education values. Fanboy’s grandfather profoundly influenced a spiritual worldview anchored to culture and community, “You build relationships with all living things; all living things have a spirit.” This living spirit belief led Fanboy to help expand an understanding and connection between “what we learn has to be connected to the land and culture.” Fanboy stated, “Awareness is essential for building relationships with students and families.”

Fanboy was asked about lessons learned and what strategies might be helpful to mitigate any future disruption. Fanboy said, “I learned to be more patient, I learned to be more open, I

learned to understand more, I learned the more you understand, the more you can see things differently.” Fanboy reflectively spoke about motivation and strategy: “If another disruption occurs, try to maintain as much of a normal life as possible.” Fanboy said, “The experience taught us lessons, and the school is better equipped with technology now.”

In summation, Fanboy faced challenges with students' engagement and motivation, emphasizing the importance of perseverance and involvement in learning. By personally connecting with each student and showing care for their well-being, Fanboy managed to keep their attention and foster a supportive learning environment. Building relationships and prioritizing student welfare proved key to student engagement and success. Despite facing obstacles like slow internet and technology issues, Fanboy excelled through adaptability and dedication to students' growth.

Hangman

Call sign Hangman is a Master Educator with 26 years of experience, all of those years working in San Juan County. Hangman has taught early childhood education at the same school, and cheerfully commented, "I am teaching the kids of the kids I had in the first years of my career.” Hangman currently teaches Kindergarten; at first, I was hesitant about including Kindergarten teachers' experience, but after reading the data collected from Hangman, it was clear Hangman’s contribution is inclusive and richly extensive.

Hangman provided three examples of lesson plans developed before, during, and after the COVID-19 mandatory school closures and a copy of the New Mexico department of Education Pacing guide for developing Kindergarten instruction. Hangman said adapting pacing guides and lesson plans for remote learning was challenging, especially for kindergarten teachers, saying, “We really didn’t have a lot of resources, and our school did not have technology for our

students.”

Hangman said that most of the families in our school live out in the Navajo Nation, and some of them do not have a computer or even the Internet. Hangman said it took the school district time to gather the mobile technology to loan out to those families, saying, “We had to figure out a way of getting students ready to interact with the computer because kindergarten-age kids do not have the motor skills to be completely interactive online.” Due to limited technology resources, Hangman relayed, “We had to adjust our lessons to fit into 30-minute online sessions and create take-home packets.” Hangman said the team developed a strategy based on a 30-minute block of instruction, but all teachers felt a concern, “We weren’t really sure if the students were even able to do the skills we were teaching.”

Adapting from traditional to remote teaching meant a loss of opportunities for individualized instruction, “We focused on assessing students and adjusting our teaching strategies.” The lack of initial support made the process harder, but prior experience with online teaching helped. Hangman stated, “I had prior experience teaching remotely in China, and I leveraged those experiences and shared ideas with my colleagues.” Hangman said, “The biggest challenge was accommodating learning gaps and ensuring students had the necessary materials at home.” Hangman reported that support was non-existent at the beginning of the transition and that teachers had to do their best. However, the lack of support was not deliberate because the school administration was also trying to figure it out.

The key lesson learned was focusing on essential teaching points within limited time frames and the hope that students could use technology. Unfortunately, according to Hangman, at the kindergarten grade level, there was a very low expectation that these kids could use a computer. Hangman said that over time, with much trial-and-error practice, “we, teachers (*sic*),

figured out how to adapt lessons.” One area in which Hangman reported an improvement was reading more when the kids were online sharing screens. One feedback point Hangman reported was assessing learning to include as many items as possible the kids had in their home that were in common with their physical classroom.

Hangman reported several lessons learned from adapting the curriculum for the remote learning environment. Hangman said, “We had to rethink how we did things, and we did a lot of iterative trial and error incremental discovery that led to improved efficiency and ideas on overcoming technology limitations.” Hangman added, “We learned to prioritize what and when to teach.” Hangman reflected on time management, saying, “Changing one’s mindset helped me learn how to adapt and manage my time better.”

In summary, Hangman shared insights on adapting kindergarten teaching during remote learning due to COVID-19. Hangman faced challenges like limited technology and support and emphasized the importance of prioritizing teaching points within short sessions and leveraging past experiences to adjust strategies. Through trial and error, Hangman was able to create improvements, find ways to engage students and bridge learning gaps. Hangman’s key lesson was figuring out how to reconstruct and adapt curriculum as well as manage time more effectively.

Hollywood

Call sign Hollywood is a Master Teacher with 25 years total teaching experience, and 11 of those years in San Juan County. Hollywood taught in San Juan County for five years before COVID-19 school closures and was teaching first-grade students during the transition to remote learning and affectionally referred to first graders as “firstees.” Hollywood shared examples of three lesson plans. An analysis of the pacing guide and lesson plans illustrated slight

modifications where the curriculum delivered to students online was shortened and focused on the minimum pacing guide skills. Hollywood said, “Issues span across pedagogical, technological, logistical, and socio-emotional aspects.” Hollywood reported that the biggest threat to the online environment was that “Keeping firstees engaged through a screen was much harder.” Hollywood further stated, “I found it challenging adapting lessons that are interactive and engaging like I had in the in-person classroom.”

While technology was helpful, Hollywood believes there should be a balance between its use and promoting creative and critical thinking skills, especially in older students. Hollywood learned the importance of embracing technology and continuous innovation in teaching. From a technology point of view, Hollywood was working with several students living in remote areas on the Navajo Nation without reliable high-speed Internet or even an adequate computer. Hollywood shared personal challenges about managing and setting up a remote classroom at home, “I have a very small home, so I set up my classroom in a small area near my laundry room.” Hollywood had empathy with students who did not have computers and said, “I had to buy a new laptop because my school computer was so old.” Hollywood also had a microwave Internet service provider, and “on a cloudy day, I had very unreliable and slow internet.” Hollywood said to mitigate the connectivity problem, “I drove down to the school parking lot and sat in my car so I could connect to the Internet.”

Despite difficulties, Hollywood continues to have a positive disposition and attitude and did everything possible to adapt by using technology like Google Forms for assessments, accommodating students' varying learning speeds, and incorporating brain breaks and online resources to engage students. Hollywood said, “We did a lot of brain breaks; we would get up and wiggle some because you can't teach what the buck can't handle,” a reference to a local

colloquialism Hollywood grew up with living the country. Hollywood learned how to adapt away from a top-down lecture learning model, saying, “I’m not the sage on the stage; I try to be the guide on the side now.”

Hollywood also spoke of the value of using ChatGPT AI tools but recognized the threat and concern about students potentially using them to cheat; however, Hollywood emphasized, “We need to be as knowledgeable as the students to prevent deception.” Hollywood shared a concern about AI-generated tools, particularly regarding potential bias. Hollywood shared a positive yet guarded opinion of AI, “I can use AI and give it text, and AI will create a test, and you can level it to your student’s ability,” but “I don’t trust it.”

Collaborating was a school-administered organized weekly meeting. Generally, collaboration was used as, “We would have specific skill sets that we were going to be teaching in the coming week, and we would make those plans.” Hollywood referenced collaboration sessions as “launching points where I should be pacing wide, wise, and all that stuff.” Hollywood shared that collaboration helped improve the level and pace of the curriculum and resulted in better learning outcomes. I referenced Hollywood’s comment about “level and pace” and asked about using scaffolding in lesson development. Hollywood said, “You have to have intuitive ability as a special education teacher, and from my teaching experience, I always adjust to the learning ability of my students.”

Hollywood intuitively anticipated behavior issues; however, Hollywood believed going the extra mile would make a small difference: “I was willing to go there,” but the transition to remote learning was expensive and disruptive, saying, “COVID-19 costs a lot of money, and I personally paid for things that I didn’t get reimbursed by the school.” Hollywood shared thoughts about the behavioral disruptions, saying, “Some of the behavior challenges were with

kids and the parents trying to navigate the whole COVID thing.” Additionally, Hollywood said, “Of the thirty students I had in my class, on average, I’d have between two and six kids show up in a day.” Hollywood was asked about extended family influences, specifically the impact of grandparents; Hollywood said, “Oh yes, the grandparents of these kids was what saved most of them because they were with the kids because their parents were at work.”

Hollywood shared a concern in a belief that “I think we are dumbing down our older kids by giving them too much technology.” Hollywood shared an example, “I handed my students a piece of paper and a pencil and told them to write a paragraph, and they’re like, huh,” meaning the students were at a loss about what to do. Hollywood spoke of a need for educators to leverage technology as an assistant, not a replacement, saying, “They are addicted to their technology.” Hollywood drew a compare and contrast saying, “I can give my firstees Play-Doh, and they knew how to play with it and make things,” saying about older kids, “They don’t know how to construct things, they don’t know how to create things. We’re losing that creativity because of too much technology.” Hollywood said of the COVID-19 experience that the big lesson learned was how and when to apply technology versus paper-based learning and how to “think outside the box.”

In summary, Hollywood adapted to remote teaching and overcame challenges of how to engage first-grade students online and dealing with technology limitations. Despite obstacles, Hollywood stayed positive, using technology for assessments and engaging students with brain breaks and “wiggle time.” Hollywood highlighted how adapting teaching using AI tools could be a net positive but expressed concerns about AI tools and potential biases. Hollywood adjusted and scaffolded lessons based on students' learning abilities rather than by grade level. Hollywood addressed behavioral disruptions during remote learning and acknowledged the role of

grandparents in supporting students. Reflecting on the experience, Hollywood stressed balancing technology use and fostering student creativity. The lesson learned was finding a balance between technology and traditional learning methods.

Iceman

Call sign Iceman is a Journeyman Educator with 12 years of teaching experience, all of those years teaching in San Juan County. Iceman teaches fifth-grade students and taught fifth-grade students during the mandatory COVID-19 school transition to remote learning. Iceman shared a copy of a pacing guide and three lesson plans before and during the transition to remote learning. Iceman's lesson plans were organized, clearly stating learning objectives, lesson activities, learning assessments, and a teacher's guide. Iceman said the district guidance was to align the pacing guide to remote instruction as much as possible. Iceman said, "I had some experience in online learning during college, so I had an idea how to adapt." Iceman was asked if the adaptation meant truncating or shortening the lesson duration. Iceman responded, "Yes, that was the only way I could do it because I had kids just disappear during the transition."

Iceman said, "Kids in the fifth grade are in that mental and psychological transition from concrete to abstract learners." Iceman made several references to Jean Piaget and was better informed on the causal relationship between a child's mental development and the ability to learn cognitively." Therefore, Iceman's approach to modifying lesson plans for remote learning was to develop a curriculum based on the psychological impact that a new way of learning would have on the students.

Iceman said there were disparities in attendance among different groups of kids during remote learning, saying, "I was kicking and screaming, but I couldn't do anything about it. It seemed that people were doing whatever they wanted." Iceman realized that most kids would not

successfully learn online, and several kids “simply disappeared” during that school year. One strategy Iceman tried was building instruction with more visuals and finding learning games to stimulate participation. Iceman said, “I had to be creative to keep my kids engaged, and I looked for interactive learning games the kids could access online.” This approach was marginally successful, but “I had to resort to concrete ways to monitor my kids.” Iceman said the district had a monitoring tool called Go Guardian so teachers could see what the students were doing online.

Iceman said collaborating with peers helped the teacher cohort team share resources and adapt to remote teaching challenges, saying, “I was fortunate because I had already established good relationships with my peers.” Most collaborations centered on and emphasized the importance of stability for children facing trauma and disruptions. Iceman said, “Part of our collaboration was learning to use technology before we could create anything to teach, but I struggled to learn how to use Google.” Iceman said all teachers drew from personal experiences and modified their pedagogical approaches. Iceman reflected on personal experiences, saying that “advancements in pedagogical approaches are crucial for future disruptions, but the exact innovation remains uncertain.”

Iceman’s lessons learned from the COVID-19 experience included working with children online. “Learning how to make it work online for children was more than just finding some websites to use.” Iceman indicated many excellent websites to help compile and develop curriculum, saying, “One thing I’ve reflected on a lot is just how unpredictable the world is; I know we will face disruptions again, so I look at all of these problems recursively.” Iceman concluded by sharing an optimistic view of all possibilities and shared thoughts about how growing up with grandparents influenced a living philosophy tied to reality.

In summary, Iceman adapted to remote learning during COVID-19 by creating thought-

out lesson plans, focusing on psychological impacts on fifth-grade students transitioning to abstract learners. Iceman utilized visuals and games to engage students but faced challenges with attendance disparities. Collaboration with peers and using technology tools helped adapt to remote teaching. Though Iceman encountered struggles, the experience of learning how to mitigate and work with what you have was a valuable lesson. Iceman demonstrated a positive mental attitude working with children online and expressed optimism for the future.

Jester

Call sign Jester is a Master Educator with 34 years of experience teaching, all of those years teaching in San Juan County. Jester taught general education from kindergarten through eighth grade. Jester taught second grade for five years before the COVID-19 event and taught second grade during COVID-19. Jester began specializing as a reading teacher and had been teaching reading in the second grade for two years before COVID-19.

Jester provided a pacing guide and three samples of lesson plans. A review of these documents did not produce any outstanding differences since all the lesson plans were in the form of an outline. I used those lesson plans and triangulated Jester's journal prompts to see what pedagogical approaches differed from before, during, and after the COVID-19 mandatory school closures. Jester's approach to adapting lesson plans used two methods, first as packets that parents could pick up outside the school weekly. The second was using a media selection rationale to determine which learning content would be most appropriate for packet learning vs. online learning.

Jester used a media selection rationale approach by subjecting all lesson plans to a process of adjusting to the student's academic skill level rather than curriculum by grade level, saying, "I work directly with those students trying to get them, not necessarily the grade level,

but trying to determine if there was a lack of instruction.” Secondly, Jester collaborated with peers to triage which content was essential for packet learning vs. online learning. Jester talked about the reasoning for having a blended, or a dual pathway, type of learning materials approach to accommodate kids who had difficulties getting online, saying, “We discussed challenges of how to get to those kids who would not log in,” and, “We had to consider students who had no internet access.” However, Jester shared that it was not just kids who were not logging in, but they had completely detached and disappeared, saying, “We had a problem with kids not turning in their packets.”

Another factor Jester elaborated on was getting over the tendency to compare in-person learning vs. remote learning, especially from the point of view of “an ability to fix or correct content on the fly.” Jester said fixing content online took more time than fixing defects from the physical classroom. The online environment was a “completely different mindset” because when teaching math, the teacher uses “manipulatives and other school supplies to reinforce learning.” Therefore, these factors influenced how teachers “considered if a worksheet would translate to online learning, or if the worksheet would be better suited for packets.”

Jester said, “Technology use was a crash course on how to use Google Classroom.” Although, “We did not post that much in the classroom, we did more read-aloud,” and, “We muddled our way through it.” Additionally, Jester said guidance from the school district restricted them from asking parents to “supply anything except the basics like paper and pencils.” However, “We also had to learn how to anticipate problems and figure out how to be flexible.” Jester indicated that among peers “We spent time beyond what was required.” Unfortunately, Jester said that after posting lessons and thinking they would go well, the lessons flopped for several reasons, e.g., technology failure or defects in the curriculum.

Jester was asked what innovations and lessons learned emerged from the COVID-19 experience. Jester reflected, saying, “I learned a whole lot more about how to do some of these things, and we advanced as far as technology goes.” Jester reiterated a common frustration: “In a classroom setting, if something goes wrong or doesn’t work correctly, you can always have them pull out their reading book and read while you fix the problem, but online, you didn’t have that option.” Jester shared a final thought: “I think one thing that would make things a whole lot better is getting parental buy-in if we ever have to do this again.”

In summary, during the pandemic, Jester adapted lesson plans for remote learning by working with peers to make learning packets for parents to pick up and then culling over source materials to select appropriate online learning content. Jester emphasized meeting students' academic needs and addressing challenges like lack of internet access. One downside reality Jester discovered was that fixing online content is more time-consuming. Jester highlighted technology’s role as an education tool, and there should be more emphasis on learning technology in education degree programs. The big lesson learned from the experience was newly developed skills for interacting with parents to get them involved in successful remote learning.

Maverick

Call sign Maverick is a Master Educator with 28 years of experience and 21 years teaching in San Juan County. Maverick transitioned from general education topics to a focus on special education and currently teaches fourth, fifth, and sixth-grade at-risk special education students. Maverick shared, “One of the things I like is that frequently throughout my career, I’ve had the same group of kids for successive years.”

Maverick delivered a combination of 27 examples of lesson plans created before, during, and after the transition to remote learning. The lesson plans were structured as an outline with a

schedule of detailed sequenced lessons aligned with the New Mexico State Board of Education pacing guide. I triangulated the data collected from Maverick's pacing guide and lesson plans with Maverick's journal prompt to see if there is evidence of pedagogical adjustment/adaption for remote learning. Maverick indicated that remote learning was independent of how the daily lesson plan was written. I did not see any other evidence that Maverick altered or changed how lessons were structured. However, when I asked what the biggest impact was, Maverick said, "The percentage of special education services was reduced by half, and some things would be removed, such as physical education, music, and so on."

Maverick said of those adjustments: "In the early days of remote learning, everything was a stopgap activity, from how to build instructional content to finding innovative ways to keep students busy and engaged." Maverick said, "The district waived the requirement to follow their pacing guide and allowed teachers to find workarounds to adapt their instruction to meet students' learning and academic abilities and not their grade level." Maverick recalled two major issues in adapting to remote learning: first, overcoming a steep technology learning curve, and second, struggling with how time-consuming it was to create virtual content.

Maverick's strategy for developing a curriculum for the remote environment was to mirror what was done in the in-person classroom but modify the delivery approach, saying, "I would prop up my computer camera on furniture so students could see me standing up in front of a whiteboard at my home; kind of like I was in a normal classroom." Maverick said, "I would front-load pictures and course materials so I could illustrate what I was teaching, but I was not following what other teachers were doing." Maverick's rationale for this approach to online learning was influenced by years of experience; therefore, Maverick is a true Maverick.

Maverick identified a behavioral challenge was students being unable to read as the

biggest problem, arguing that “we do not even stop to think how much we read every day.” It is something that “other kids do to themselves,” which I interpret as a self-inflicted wound that is exacerbated when other kids tease them about their poor reading levels. Maverick recognizes that students have a fatalistic view of their learning abilities: “They don’t want to be there” and “They know they are below other kids.” Students begin to feel “lost” and do not have the maturity to develop coping skills to overcome the feelings of anxiety, leading to hopelessness.

Maverick innovated an approach of how to make learning fun, saying, “I tried to make the class fun, so one of the things I did is pick a novel to read that has a movie with it.” Maverick’s rationale was to make it possible for students to be able to connect with other students, saying, “If I pick a book their peers are reading, they would be able to talk with their friends about it and not feel left out.” Maverick used stories and storytelling to engage students’ imaginations. Reading to students created a sense of connection with other students because “when they hear other kids talking about books they have read, they can join in.”

However, Maverick felt there was a constraint on how far to go in adapting to learning because “A big challenge” was adapting and dealing with student perceptions that they could not learn. Although Maverick said having a majority of the same students year-over-year, these students had many social and behavioral issues; the transition to remote learning only intensified those psychological and emotional problems. Maverick innovated to get around the psychology of learning by scaffolding and adjusting the level and rate at which instruction is administered and delivered. Maverick actively looked for resources that were conducive to the student’s learning ability and emotional age.

Maverick was asked about the types of support that was available for teachers and students. Maverick reported, “The school district had not anticipated the impacts of COVID-19,”

and “We were not ready to use technology, so we all had a crash course on using Google Classroom.” Maverick said, “It was a technology that took everyone time to learn and figure out, and there was a definite learning curve everyone had to deal with.” Maverick reported that “It took a few weeks to get a routine, and we did a lot of repetition every day.” Another interpersonal innovation Maverick tried was to spend quality time “chatting” with students before going into the lessons for the day.

Maverick was careful to avoid asking why a student was not in the virtual class; instead, Maverick opted to pipe in music or show quick little school-appropriate videos until all the kids could show up for class. Maverick claimed simple things like piping in music was a level of innovation that aided the lesson. Additionally, Maverick would give students extra time for lunch because, unlike when they were in school, they had to go to their kitchens at home to make their lunch and clean up. However, to make things fun, Maverick found a video on YouTube of an “animated little bomb on the screen that would count down the minutes for their breaks and would explode with a big boom sound so they could hear it and get back to class.”

Another innovation that the district supported, and each school actively worked to implement and provide support, was compiling a learning packet of coursework and materials that could be handed out to the parents to give to the students. The act of creating learning packets is not a new innovation since it has its genesis in the old correspondent's education model. However, if parents could not pick up those materials, teachers would personally deliver them. Maverick said, “We did this on our own without being asked.” This action is an example of individual teachers and school staff going above and beyond the call of duty.

Maverick was asked about other innovations and what could have worked better. Maverick said the beginning of remote learning was chaotic, “we were not prepared,” and

“Nobody saw COVID coming; we didn’t know how big the impact was going to be. The whole COVID experience was disruptive, and we are still dealing with the fallout.” Maverick spoke of the learning curve they overcame, saying, “We know how to use Google Classroom, Google Meets, and Google Whiteboard, so we don’t have to learn these technologies.” Based on other responses from Maverick, the school district was finding and implementing other technologies and software systems to help. Maverick generally feels that, as a community, “I think we will be better able to handle any other pandemic.” Maverick was complimentary of both peer and leadership interaction in the school and the district, and the district’s information technology department has implemented a new suite of technology solutions to handle remote learning. Maverick reported that one of the innovations was to offer online learning as a permanent option for those students who were amenable and adaptable to using it.

In summary, Maverick adapted quickly to remote learning using innovative teaching methods and focusing on students' emotional well-being. Maverick faced technology and student engagement challenges but found ways to make learning fun and interactive. The district provided support for teachers and students, and Maverick believes that with the experience gained during the pandemic, they are better prepared to handle future challenges in education.

Merlin

Call sign Merlin is a Journeyman Educator with 15 years of experience and 12 years teaching in San Juan County. Merlin’s pedagogical focus is special education and math, although Merlin served as an assistant principal for one year before returning to be a full-time classroom teacher. Merlin teaches fourth, fifth, and sixth-grade math and special education. Merlin provided a copy of the district-approved pacing guide and three examples of lesson plans. Merlin’s lesson plans were well-defined and organized, with a structured sequence of instruction

that included accommodations and testing measurement criteria for “evidence of learning.” I did not see evidence that Merlin altered the lesson plan approach, and the lesson plan seemed ubiquitously generic, meaning the lesson plan would be applicable no matter the learning delivery methodology.

I conducted an analysis triangulating Merlin’s journal questions to see if there were any innovation differences between lesson plans delivered before, during, and after COVID-19. Merlin stated, “I taught three sections of remedial math to students with significant disabilities, and the Woodcock-Johnson assessment tool measured the math achievement. Merlin said, “The students I have also have significant reading and comprehension disabilities.” Because of these disabilities, the level of written instruction for each lesson needed close review to make sure any materials given to students were very clear.

Merlin enjoys teaching online but was disappointed by the logistics and behavioral issues introduced by the transition to online learning, saying, “I was dismayed by the model the high school mandated and by the lack of participation of most of my students.” Merlin stated, “Nearly 60% of students did not participate or even show up.” Merlin said, “By far, the hardest thing was the lack of participation by my students.” One mitigation strategy Merlin used was making recordings and slide shows of instructions and explaining the materials with as much detail as possible, and then posting those materials in Google Classroom.

The remote environment had other distractions; Merlin told of an incident where “I had a dad walk behind one of my students in boxer shorts, and another student came to class in briefs and no shirt.” Another distraction Merlin reported was a student who had a political poster on the wall; Merlin said, “Politics have no business in my class; the kid would not take it down, so we let him put a sticky note over his computer camera,” so the poster would not be a distraction for

other kids.

Merlin shared a positive philosophy to the approach to remote learning, saying, “I’m a very glass-half-full person, so I saw opportunities to get better at my job,” and Merlin stated, “I pride myself in being professional under every circumstance, so I was always asking myself how I present myself; how am I going to be perceived.” Several direct statements in Merlin’s journal and personal interview illustrate a commitment to self-awareness and education excellence.

Merlin was asked about collaborating with peers and what types of innovation were discussed or explored during those collaboration efforts. Merlin reported that most special education staff had left teaching in San Juan County after the COVID-19 event. Still, Merlin did share how their collaboration efforts also included the school librarians, saying, “The librarians and I did the most training on how to be effective online teachers.” During the collaboration sessions, Merlin identified three key hot topic issues. First, behavior and teaching methodologies; second, how to deal with parents; and third, how to hold each other accountable. The conversation concludes with Merlin referencing educational psychology theories, such as those proposed by Robert Gagné (1985), highlighting the importance of personalized learning and individual pace in the educational process. Lessons learned included shorter bursts of one-on-one time with students and leveraging scaffolding for learning.

In summary, Merlin faced challenges with student participation and distractions in the online environment. Despite these challenges, Merlin remained positive and focused on professional growth. Merlin collaborated with peers on effective online teaching strategies, emphasizing behavior management, parent communication, and accountability. Merlin also highlighted the importance of personalized learning and individual pacing in education, leveraging techniques like scaffolding for learning. Overall, Merlin believes that educators in

San Juan County are now better prepared for future transitions due to their experiences during the pandemic.

Rooster

Call sign Rooster is a Master Educator with 32 years of experience and 24 years teaching in San Juan County. Rooster has taught in the K-12 system, but while teaching in San Juan County, Rooster taught in the elementary and middle-school grade levels and is currently teaching sixth-grade Math. Rooster shared a copy of the pacing guide and three lesson plans for developing instruction. The lesson plan's structure was an outlined general routine and schedule for what would be taught explicitly as a set of sequenced instructions. During COVID, "We did similar activities, and students would interact with me in the classroom chat." Rooster would provide ad hoc changes and materials as needed, and the lesson plans had numerous external hyperlink references to support the learning content.

I triangulated Rooster's lesson plans and journal questions to see what changes, modifications, or alterations occurred in Rooster's lesson plan development. There was evidence that lesson plans created for remote learning "definitely whittled the teaching and learning down to the bare minimums." Rooster said, "It took a lot of creativity and patience, and there was a keen awareness and resignation to the fact that we were playing a different role for the kids."

Rooster reported that before COVID hit, "we used First Lego League as our main source for social studies and science lesson planning." However, once COVID hit, using that system was no longer an option. Rooster said, "I couldn't collect any physical work from kids, so we relied on links to educational websites that we used to track kids to prove their participation." Rooster said, "The most difficult thing was knowing the kids were going to be all over the place with the lessons, and I could count on a handful of kids who actually tried to learn the material."

Rooster said, “It took all of us some time to figure out how to use Google Classroom, and at first, it was miserable.”

Rooster shared thoughts about participation behavior during COVID-19, saying, “Just getting students to log on and be part of the class was a big issue,” and “the first nine weeks to the end of that first year, there was really no control.” Rooster felt like the only thing teachers could do was “Just open up our classrooms for a short period each day and just check in with the kids.” Rooster shared that things did not improve during the second year, but a pattern emerged where some kids would log on and fully participate, some would log on and “fall asleep,” and some “just wouldn’t show up.” During remote learning, Rooster said, “Sometimes there were screaming babies in the background, or during mid-session learning, somebody had to get up and let the dog out.”

Rooster shared some unfortunate situations when a student was acting up. “I scolded the kids one day because they were not trying, and some parents called me at lunch and reamed me out.” Although some parents were hypersensitive, most parents were supportive and did all they could to help. Rooster reorganized the way the remote learning session started by having a “homeroom session to just do fun things like changing profile pictures and change the background on their computers.” I asked Rooster, “If you had a magic wand, what would you wish for?” Rooster shared an experience interacting with teachers nationwide: “One of my friends told me about a website called magicschool.ai.” Rooster said, “I wish I would have known about this site earlier.”

Rooster collaborated with a team of four teachers on a daily basis, but the teaching team would formally meet once a week, “We would all sign in the same room, and we just talked about what assignments we were doing.” Rooster said, “We planned those big events, but I did

not collaborate all the time.” Rooster explained that coordinating collaboration efforts were divided into separate subjects before the transition and that the teaching team tried different methods to engage remote and in-person planning “I would say that the math game, prodigy, was probably the most fun and most innovative thing we tried.”

Rooster was asked what types of innovation, or some new approach might help mitigate the impact on the kids; Rooster thought about all the behavioral problems and narrowed all those issues down to lack of engagement because asking the kids to text each other to get them to go to class was not working. Rooster tried brainstorming with the kids to see what else could be tried to improve attendance; Rooster came up with a crazy idea, “I colored my hair purple during that time, simply for engagement purposes, and the kids liked it.” However, Rooster tried something completely novel, “I took a little doll head I had and stuck it on a pen, and I pulled it in front of the camera, and I’d make her talk to the kids.” Rooster reflected, “It was goofy, but the goofing around made the class fun, and we all needed that.” Rooster noted several observations about the kids at home: “They were in their environment, and they knew they could get up and leave.” Rooster theorized that “if I take a more relaxed approach, the kids didn’t feel as stressed, and that was a positive outcome.”

Reflecting on the experience, Rooster held a positive mental attitude and a can-do approach to solving issues and problems that came up. Rooster had some ideas on how to use AI and ChatGPT. Rooster said, “I have a lot of kids that are going online and teaching themselves how to do things, and they do a lot of learning there.” I asked Rooster about the work of George Siemens and Stephen Downes Connectivist Pedagogy; Rooster did not know of them, but after I shared that reference, Rooster said, “I think I will look them up and learn more.” I told Rooster, you have implemented many characteristics of Connectivism, and based on my reading of your

answers, I can see it produced a positive result.

In summary, Rooster faced challenges such as low student engagement and behavioral issues but found creative ways to keep students involved, goofy stuff like changing hair color and using doll head props during online classes. Rooster emphasized the importance of engagement and relaxation in facilitating learning. Despite the difficulties, Rooster maintained a positive attitude and sought out innovative approaches, including incorporating AI tools. Their efforts resulted in positive outcomes for the students.

Stinger

Call sign Stinger is a Master educator with 31 total years of teaching experience, and 21 years of experience in San Juan County. Stinger taught for 22 years at the high school level before transferring to teach at the elementary grade level and eventually becoming a school principal. Stinger provided a copy of a pacing guide and statistical data on how teachers adapted their lesson plans for remote learning. I triangulated the data captured from Stinger's journal prompt questions and lesson plans and found evidence in three areas where teachers adapted their pedagogical approach to remote learning. First, adapting lesson plans for remote learning involved reducing lesson times; second, using simpler questions for understanding; third, prioritizing student engagement over deep understanding.

The outcome was teaching essential skills and adapting reading lessons from 90 to 45 minutes and math lessons from 60 to 30 minutes. Stinger said the rationale for a reduced instruction window was to manage the students' limited attention spans and accommodate and anticipate possible connectivity issues and challenges of an unknown online learning experience. Unfortunately, as Stinger recalled, adapting pacing guides and lesson plans meant too much "fell to the wayside" because a robust and stable support capability was slow to materialize.

The main support for adapting lesson plans came from colleagues, as central office teams had limited experience with remote learning. Researching and using tech tools like Google Classroom was crucial, along with incorporating engaging methods into professional development. Stinger identified three key takeaways about support: first, “We had to figure out the technology we were going to use;” second, “We all had a steep learning curve on how to use the technology;” third, “Just getting the kids used to logging in was a challenge.” Additionally, even though the central office was there to help, we felt like “the only support we had was each other.” However, Stinger said that over time, more support services came online, and we were all able to adjust our teaching approach to the virtual world.

Stinger recognized early into the remote transition that any strategy would need to emphasize communication, “changing the mindset” to engagement, attendance, and essential instruction. Stinger said, “The role of the teacher’s expertise made the difference in lesson design.” Stinger shared practical thoughts and experiences about the transition to remote learning, saying, “The hard part was the lack of interaction, and we never saw all the kids at the same time.”

Stinger reflected on the differences between face-to-face and remote learning, saying, “It was hard to maintain human interaction in a completely disconnected learning environment.” One practical/abstract innovative approach implemented by teachers was to have designated subject days and community member involvement in storytelling. Other mechanical/concrete initiatives were undertaken to enhance technology integration, address connectivity disparities between regions, and foster student engagement amidst remote learning barriers. Because Stinger’s school has a large Native American population living in the Navajo Nation, the lack of technology accessibility in certain areas resulted in behavioral issues and attendance challenges,

so the school district began assessing the impact of technology availability on educational outcomes.

Google Classroom technologies were available before the transition to remote learning. In the beginning, the platform was used to post materials. Still, as teachers and students became more familiar with the remote classroom features, everyone started to rely on Google Classroom for everything. One innovation that the school district implemented as a good enough solution that pushed through as a new paradigm was to equip school buses with Internet hot spots that could be driven to remote areas where students could connect online.

Stinger elaborated on the many collaboration efforts among teachers and administrators, and Stinger described these collaborations as informal. Most of the collaboration had a focus on meeting district expectations and supporting student learning. However, a unified practice approach began to emerge as teachers increased their collaboration efforts. The lessons learned from those collaborative sessions have become standardized and formal. New best practice methods include an emphasis on parental involvement, efficient structuring of the school day, and implementing hybrid learning models.

Stinger concluded that while technology can assist, in-person interaction is critical for younger children. Adapting to new learning models can be successful with proper training and motivation from students and families. Remote learning may work well for middle and high school students. Still, it is challenging for early childhood education due to the need for human-on-human interaction, and a higher focus should be on creating a supportive and distraction-free environment for students to thrive in remote settings.

In Summary, Stinger adapted teaching methods for remote learning by shortening lesson times, simplifying questions, and prioritizing student engagement. Stinger contributed leadership

guidance to colleagues and coordinated with other teachers to provide instructional and technical support. The use of technology tools like Google Classroom was crucial to the success of the online environment. Challenges included limited central office support, school provided computers, and reliable Internet connectivity in remote areas on the Navajo Nation. Teachers collaborated informally, but collaborations led to new standardized practices. The technology could support remote learning and interaction, but in-person interaction remains critical for younger children's learning growth. Stinger acknowledges that a successful adaptation to new learning models will require a new paradigm shift so teachers and kids can get the proper training to be better motivated in the future.

Viper

Call sign Viper is an Apprentice Educator with eight years of teaching experience, and all of those years were teaching in San Juan County. Viper currently teaches general education courses in the sixth grade and is about to start teaching seventh and eighth grades in the next school year. Viper's history is local to San Juan County, having attended public schools there and earning a bachelor's degree and teaching certificate from San Juan College in Farmington, New Mexico.

Viper provided an example of a current pacing guide and lesson plans. The lesson plans contained a matrixed table of instructions and several hyperlinks to learning materials on developing and writing a story. I triangulated Viper's lesson plan with the Journal answers, and I found evidence of two changes between Viper's in-person and remote classroom. First, Viper developed more "open-ended activities that were simple enough for all students to try." Second, Viper thoughtfully adjusted a teaching approach that was more ad hoc and flexible, "Not all students had access to the same materials, such as art supplies or the Internet." Viper was keen to

make sure lesson delivery between in-person to remote had an interpersonal consideration, “so that every student could be successful regardless of their grade level.”

I asked Viper about the routines and thought processes of adapting lesson plans. Viper said, “I did not have an extensive teaching background before COVID started; I struggled, so I tried to find activities every student could be successful with regardless of grade level.” Viper had learned about scaffolding in college, “so I tried to come up with scaffolded activities, but it was hard because students were not always in class for instructions to make sense.” Viper struggled to make instructions as clear as possible during remote learning. Viper had worked with peers to develop a learning checklist to share with parents, but there was no consistency, “so we did the best we could with what we had.” Viper shared, “I was very prescriptive, and I think that is partially because I was a new teacher, so I resorted to what I knew.” Viper recognized a lack of mastery in several areas of translating in-person learning to a remote classroom.

The classroom had other problems, such as poor or non-existent attendance, “Attendance issues were made worse because students just did not want to interact.” I asked Viper if anything in the lesson plan or remote classroom design would have made a difference. Viper thought about it and said, “I know I grew up online, so I tried to bridge the gap as much as I could.” Viper was aware of connectivist learning theory, so Viper found many learning resources to share with students and took on a bigger effort to interact socially with the kids: “I did a couple of different things; one of the activities my kids really liked was playing a group game online.” Viper reasoned that if the environment was fun, then attendance might improve.

I asked Viper about collaborating and sharing innovation ideas with peers, “we collaborated informally daily but had a twice-a-week collaboration effort.” Both of Viper’s parents are educators, “so I was always online with my parents sharing and exchanging ideas,

and we also had class office hours at the same time, so we were always talking with each other.” Viper relied on senior teachers, “I am one of the younger teachers, so the experienced teachers helped me a lot.” Viper would also collaborate with students and often ask them to find interesting things to talk about, “Instead of you watching a YouTube video I give you, why don’t you go out and find a good YouTube video to share.”

Among the pedagogical changes, Viper figured out better ways to create and find resources. Viper shared, “I liked creating slideshows, and I learned how to simplify instructions for the kids. I found more examples and used pictures and graphics to support students working alone.” The one big lesson learned, Viper said, “I figured out how to be more prescriptive and how to prioritize activities and come up with a good routine that everyone can do.” Viper said, “We learned a lot about remote learning, and now the district has remote learning days, so we are used to doing it.”

In summary, Viper teaches general education courses in sixth grade and has adapted lesson plans for in-person and remote teaching during the pandemic. Viper adapted and is now focused on open-ended activities and equitable access to materials. Despite initial challenges, Viper embraced scaffolded activities and engagement strategies like online group games to improve attendance and learning outcomes. Collaborating with peers, parents, and students, Viper found innovative ways to enhance their teaching methods and resources. Ultimately, Viper learned valuable lessons in remote teaching and now prioritizes more prescriptive adaptation to remote learning.

Wolfman

Call sign Wolfman is a Journeyman Educator with 20 years of teaching experience and has taught all those twenty years in San Juan County. Wolfman has taught third, fourth, fifth, and

sixth grades, and during the transition to remote learning, Wolfman taught third graders.

Wolfman delivered a current copy of the district's pacing guide and three lesson plans. After an analysis of the lesson plans, I saw a well-organized and thought-out lesson structure with clearly stated instructional objectives and outcomes with supporting sequenced lesson plans by topic and external resource links.

I triangulated Wolfman's journal answers to see what types of adjustments to lesson plans were evident. I did not immediately see changes in the lesson plans, but Wolfman said, "The biggest change was making the lessons more compact because most of the kids do not have personal computers, and some of them do not have internet at home." Wolfman said that for kids without computers or internet, "we created take-home packages they could pick up." Wolfman said, "most of my students live out on the Navajo Nation, and me and my teaching team were more concerned about their health and safety." Wolfman said, "the priority was to take into account any accommodation or learning modifications for my IEP students." Wolfman used scaffolding, "I was aware of who was struggling at grade level."

Wolfman was asked what innovations were tried or created during the transition to remote learning. Wolfman said, "I wouldn't even have thought of having a Chromebook of my own. The district didn't provide Chromebooks for teachers, so I was blessed to have one." Wolfman had enrolled in a master's degree program in Education Leadership and purchased a Chromebook through that program, saying, "A personal Chromebook was a helpful innovation." Wolfman said that when COVID hit, "The district eventually got Chromebooks and Wi-Fi hotspots, but the hotspots weren't the best." Eventually, the school district got funding to equip two busses with better hotspots and drove them to remote areas where kids could connect." Wolfman reiterated that having a Chromebook and the districts providing busses with hotspots

were very helpful innovations.

The school district provided guidance to develop and distribute physical packets of work to ensure learning continued for those unable to access online resources, but this was not always successful, “We developed packets with a lot of content, it was a lot of work, and parents would pick them up.” Wolfman's team collaboration played a significant role in developing packets: “I think brainstorming a lot with peers made the experience easier to deal with.” Although Wolfman said the collaboration efforts were not consistent since there was a lot of administrative turnovers and administrators were very dictatory and authoritative, “They didn’t want to hear anything other than what they were asking us to do, I can’t recall any time when everything ran really smoothly.”

Wolfman said of the transition, “I think I was better suited to adapt because I was used to online learning from my master program; I had used Canvas, so I had an idea what to do.” However, “During the transition to remote learning due to the COVID-19 pandemic, the focus was on safety precautions and the well-being of students on the Navajo Reservation.” Wolfman reported feeling isolated, saying, “I felt that I had no support in adapting my lesson plans for remote learning; I don’t believe anyone at the time knew what kind of support to provide.”

Wolfman faced personal challenges during the transition due to a lack of technology for students, “I was fortunate to have Wi-Fi, but a lot of students lived out in remote areas in canyons or arroyos and did not have internet access at all.” Wolfman referred to the limited access as “The digital divide” that made it a serious challenge for students, especially students with special needs because they could not attend online classes, “I was not able to meet with them because they weren’t able to log on.”

Wolfman said, “On average, I had maybe four to five kids to start off with that would be

able to get in online, and most of those students lived in town.” Attendance seriously threatened student learning progress; however, Wolfman shared how grandparents stepped up to help, saying, “A lot of grandparents were home with these children, but I got a lot of feedback from grandparents that the curriculum was hard.” Wolfman revisited the learning packets and started looking for other technologies and platforms that would help, “one of the items I brought back was the document camera because I could share a document and visually show it while I am talking with students.” Wolfman realized that all these new technologies and platforms were a type of “toy.” Although the “toy” is fun to play with, “now we got to include it in our lives.”

I asked Wolfman about the remote classroom design and how you organized your home environment to make it feel like a remote classroom. Wolfman said, “I had a little table at home where I set up my technology. My tools for teaching math use a lot of manipulatives, so the document camera really helped.” The big takeaway at the time was having Zoom sessions where students could have breakout sessions to try the math problems. I could jump from room to room and see how they are doing.” However, the big problem with the remote classroom was dealing with discipline. Some of the stronger students would dominate the session and started playing with the technology, and that was a distraction for everyone in the class.

Wolfman attributed learning about social-emotional learning to help deal with interpersonal interaction, “Understanding that sitting at the computer was not the greatest and the best thing for students, knowing that they are crammed at home.” Wolfman recalls, “In remote learning, many of my students began to be verbal with me, and a handful, mostly girls, were able to ask questions and answer with responses more than just yes or no.” Wolfman summarized student engagement by saying, “Students getting support from their families, especially grandparents, tended to be more engaged.”

Wolfman was asked about lessons learned. Wolfman said, “I know more about supporting special needs students online, and I can leverage scaffolded lessons so students have more independent work.” Wolfman said that developing learning packets for homeschooling had improved, and “I learned a lot about what helped and did not help.” “I think I learned more about my profession, and in my personal life, I don’t focus on the things you can’t control.” Wolfman shared that post-COVID, the school district had invested in big Promethean boards, saying, “We can use Promethean boards a lot better than if we were just working from home; we could be in our classrooms as needed using applications.” “I think we have better adaptability and flexibility.”

In summary, Wolfman adjusted lesson plans for remote learning due to a lack of student technology access and created solutions such as take-home packages. Collaboration within teaching teams helped create physical packets of work despite administrative challenges. Wolfman used prior experience from an online master's program that helped with feelings of isolation and a lack of support during the transition. The digital divide posed challenges, and student attendance was impacted. Technologies like document cameras and learning packets were explored to aid teaching. Organizing a home environment for remote teaching was crucial. Social-emotional learning played a significant role in student engagement, and the interaction of grandparents in their grandchildren's learning contributed to student success. Other lessons learned included better support for special needs students and optimizing resources for effective teaching. Post-COVID investments in technology, such as Promethean boards, have enhanced adaptability and flexibility in education.

Results

This single case study aimed to categorize and describe any positive deviance or

disruptive innovation based on the boundary of the case being public school teachers from San Juan County, New Mexico (Crabtree & Miller, 2023; van Manen, 2023; van Manen & van Manen, 2021). Both van Manen (2023) and Creswell and Poth (2024) have described approaches for reporting case study results. van Manen (2023) references theme development as part of a phenomenological analysis of lived experiences. Creswell and Poth (2024) describe composing a compelling story to develop themes. Therefore, as the researcher, I made some observations about the data that have resulted in behaviors and experiences one can argue are phenomenological lived experiences. Still, the nature of the probing questions was intended to find hidden meanings to expose mitigation strategies teachers used to leverage their reactions to the transition to remote learning and what they learned to make any future transition more manageable and meet the learning needs of students.

After iterating through all data sets seven times, 2,197 unique pre-coding elements were produced using Atlas.ti qualitative analysis software. Then, using inductive and deductive analysis, I determined that there were 584 meaningful codes. My definition of “meaningful” was a focused, pragmatic effort where I replayed each participant's recorded personal interview and weighed their diction, emotion, empathy, and implied reasoning of what they meant to say. I followed Saldaña's (2021) recommendation to look for patterns that tell a complex story. From that activity, I determined that codes with frequencies equal to and greater than five occurrences held significant meaning, while codes below that threshold held supporting meaning. My analysis produced 152 codes with frequencies equal to and greater than five and 432 with frequencies equal to and less than four (Creswell & Creswell, 2023; Crabtree & Miller, 2023; Saldaña, 2021).

Theme Development

Saldaña (2021) discusses the process of generating themes as an activity that “extends phrases or sentences that identify what a unit of data is about and/or what it means” (p. 257). van Manen (2023) explains a theme as an intransitive anecdote of what it means and argues that a theme is needed to understand the significance of meaning within the data. Crabtree and Miller (2023) argue that a theme is a piece of data that catches the researcher’s attention.

Given this guidance, I systematically analyzed the significant and supporting codes, iterated through, and synthesized three major themes. Table 8 contains three columns. The code column reports the synthesized meaningful codes with frequencies equal to or greater than five occurrences. The unique codes and count are the data's total number of codes and occurrences by theme name. I used Atlas.ti software feature to determine how each of these codes supports theme generation. Figure 6 is a top-level mind map of the organization of codes so the reader can see the parent-child relationship.

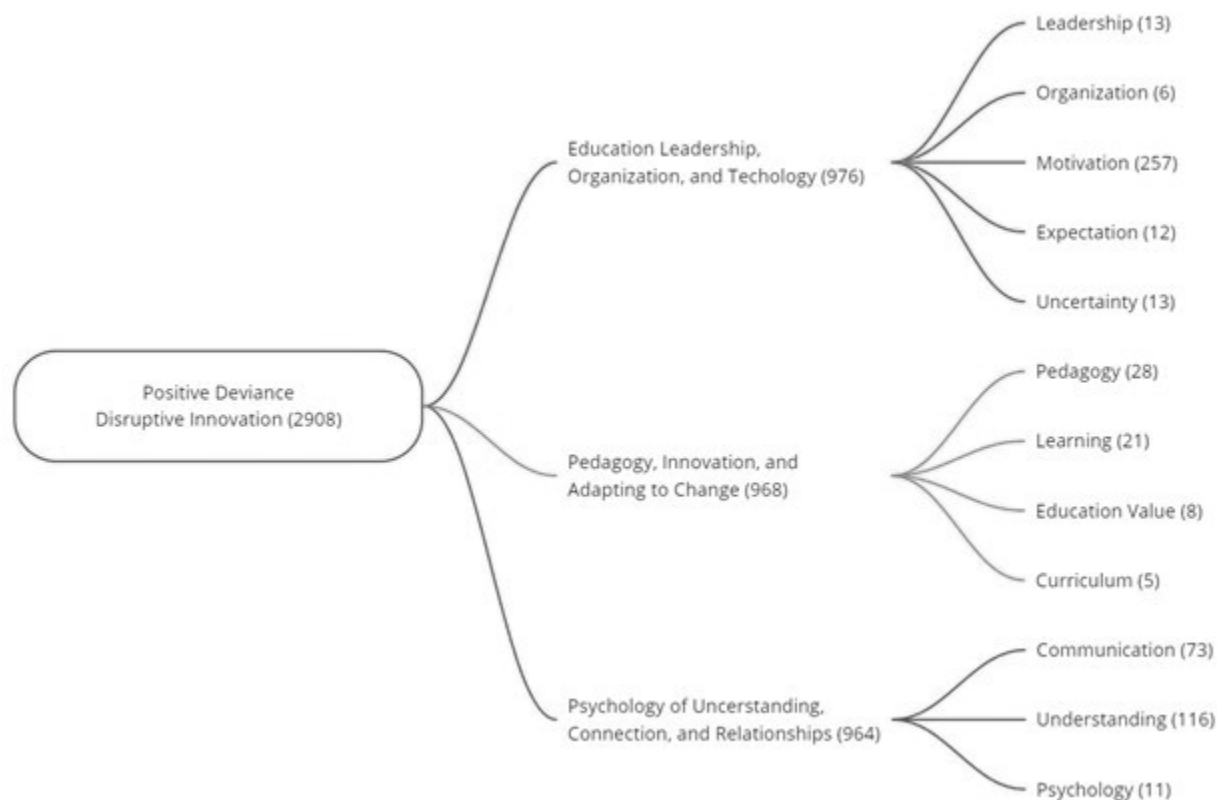
Table 8*Code Analysis, Unique Counts, and Major Themes*

Code	Unique Codes & Count	Resulting Themes
Accessibility, Accountability, Adapting, Attendance, Behavior, Challenges, Classroom Design, Commitment, Connectivity, Consistency, Control, Difficulty, Discipline, Efficiency, Encourage, Engagement, Expectation, Family Support, Google Classroom, Imagination, Lack Of Interest, Lack of Support, Leadership, Leadership Support, Limitation, Motivation, Observation, Organization, Parent Support, Peer Support, Resources, Responsibility, Schedule, Standards, Student Engagement, Student Support, Teacher Support, Technology, Training, Uncertainty.	40 / 976	Education leadership, Organization, and Technology
Accommodation, Communication, Confusion, Connection, Demotivated, Difficulty Level, Disability, Disruption, Distraction, Emotional Distress, Experience, Feedback, Flexibility, Frequency, Frustration, Grandparents, Isolation, Learning Deficiency, Make Class Fun, Mindset, Overwhelmed, Peer Pressure (Negative), Peer Pressure (Positive), Personal Challenge, Psychological, Reflecting, Relationships, Routine, Safety, Self-Awareness, Self-Esteem, Self-Reflection, Struggle, Survival Mode, Time Management, Understanding.	36 / 964	Psychology of Understanding, Connection, and Relationships
Adaptability, Adapting Learning, Assessment, Change, Collaboration, Connectivism, Core Learning, Creativity, Curriculum, Education Value, Experience Learning, Grade Level, Hybrid Learning, Innovation, Inspiration, Interactive Learning, Interactive Practice, Learning Curve, Lesson Planning, Online Learning, Opportunity, Pacing Guide, Packets, Participation, Pedagogy, Peer Cohesion, Planning, Priority, Problem-Solving, Reinforcing Learning, Remote Learning, Scaffolding, Skills, Teaching Methods, Teamwork.	35 / 968	Pedagogy, Innovation, and Adapting to Change

Note. The Code Analysis table was generated by analyzing coded variables using Atlas.ti and is

grouped to reflect a canonical cardinality of associated terms that best fit the themes that

emerged from the data.

Figure 6*Positive Deviance and Disruptive Innovation Mind Map*

Note. The organization of the variable codes emerged through an analysis using Atlas.ti and are grouped to reflect a canonical cardinality of associated terms best. The general parent-child relationships mind map is organized to align with the data to answer the central research question.

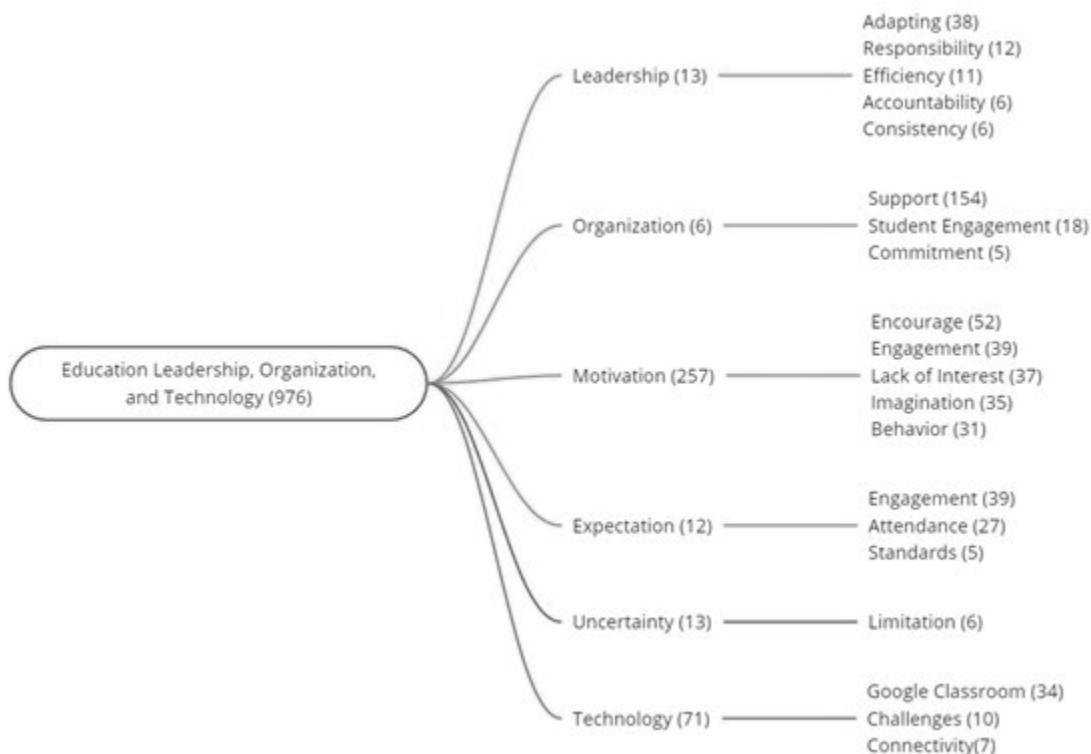
Theme 1: Education Leadership, Organization, and Technology

This theme represents inputs from all study participants synthesized by analyzing the data collected in the journal prompt and personal interview answers. This theme has forty unique codes that appear 976 times in the data. These codes were grouped by looking at dependent codes to determine how each map forms a parent-child relationship: six first level (parent) and thirty-four subordinate-level (child) codes are documented. Figure 7 is a granular mind map

illustrating the parent-child code relationships supporting this theme.

Figure 7

Education Leadership, Organization, and Technology Mind Map



Note. The organization of the variable codes emerged through an analysis using Atlas.ti and are grouped to reflect a canonical cardinality of associated terms best. The general parent-child relationships mind map is organized to align with the data to answer the central research question.

Six participants (Fanboy, Iceman, Jester, Merlin, Stinger, Wolfman) shared their experiences about leadership from two perspectives. From school leadership influencing governance and accountability, and from the perspective of teacher leadership, assuming responsibilities, adapting, and taking on leadership roles to implement mitigation strategies to improve efficiencies and promote consistency. All participants shared thoughts and practices

they worked through during collaboration efforts to adapt to the challenging circumstances. They discussed strategies to support students, reflecting on teaching methods, and navigating social change. Although leadership appears thirteen times in the code, its uniqueness is reflected in eight subordinate codes directly related to leadership.

Fanboy shared observations about how students were encouraged to help: "If you help your classmates, then that makes you a leader." Iceman shared concerns about the transition: "None of us had ever been through this before; I am thankful for our district's leadership and guidance." Jester was part of the leadership team, "I led many discussions with teachers, and we had weekly discussions about what worked well and what did not work at all." Merlin shared, "I was the department chair for special education, so it was my responsibility to set the tone for how we would work things out." Stinger shared experiences as a leader, saying, "We had to make many judgment calls if we were going to hold a kid back." Stinger felt it was a conundrum because the rule never let peers fall more than two years back. Wolfman shared more thoughts about leadership, "I kept morale up and tried to make it a norm for the kids and assure them that everything was going to be OK."

Four participants (Hangman, Jester, Maverick, Merlin) discussed their efforts to organize and maintain consistency. All participants recognized consistency as essential for maintaining a positive and productive learning experience. Teachers created a sense of consistency by building an online persona to mirror as much of the physical classroom into the virtual classroom. Participants set up their classrooms with educational resources, books, charts, shelves, and visual aids like alphabet letters and shapes. These attributes helped the teachers work with online lessons because they could reach out and "grab and show visual aids." Additionally, the school's use of Google Classroom helped teachers create a learning management system to organize and

distribute lessons, assign homework, accept student work, and post assessments.

Hangman organized a framework that could be adapted for both building online learning content and paper-based learning packets, saying, “When we would organize and put together our learning packets, we had a framework in mind, so we had an idea of where things would go.” Jester expressed how to maintain a master schedule for the online classroom, saying, “I would post the schedule when we would be learning whatever I would teach.” Jester’s strategy for organizing lessons was to make them shorter, saying, “My lessons were designed for twenty to thirty minutes.” Because Merlin was a department chair, “I organized my time, half-time teaching, half-time administration.”

Engagement during the transition to remote learning was challenging and burdened by emotional, behavioral, and psychological uncertainty. Given the intrinsic value motivation plays in success when external rewards are lacking. External rewards are those human-to-human exchanges of value that keep actors engaged in social interaction (Clark et al., 2020; Kersten et al., 2020). Social interactions are crucial for a successful transaction; therefore, during the non-voluntary transition to remote learning, teachers were burdened with figuring out how to add value (Clark et al., 2020; Kersten et al., 2020). So, teachers innovated using technology and pedagogical methods to motivate students and their parents.

All participants shared their experiences in education and their patterns of motivating themselves and their students to aim for high achievements. Motivation was the most numerous in the data, with 256 occurrences, and was a significant independent variable. I mapped twelve dependent code elements that are attributes of motivation, and all participants reported a variety of tactics and techniques to motivate themselves, their students, and their student’s parents.

Fanboy, Maverick, Merlin, Rooster, and Wolfman provided interesting, diversified

responses to how they dealt with motivation. Fanboy innovated and took a trial-and-error approach to new ideas, saying, “I can’t control the setting of my class, and I can’t control the Internet, and I can’t control their home life, but I can build a relationship with them.” Maverick also shared how having a relationship with students helped mitigate some behavioral issues, “I like the frequency through my career of having the same group of kids for successive years, so you really get to know them, so there were not that many behavioral surprises when COVID hit.”

Merlin taught at-risk, special education students who already had behavioral issues that only got worse during the transition to remote learning, so Merlin innovated by replicating as much of the physical classroom into the remote classroom, “I set up my physical classroom and would join the remote session, and students would see me sitting at my desk.” Rooster shared, “One thing I liked to do was start a daily little homeroom session; I would just open up the classroom for a short period each day and check in with the kids.” Wolfman shared insight on how grandparents were raising these kids during COVID, and they were trying to help them with their lessons, “It was often an elder helping their grandchild to do homework, so I tried to accommodate them to keep their children motivated.”

School administrators and leaders knew how chaotic the transition would be. Expectations appeared in the data twelve times and were applied in three ways: school leadership's expectations for teachers and the transition. Second, teachers set expectations for their students. Third, there is an expectation that teachers would collaborate and share in the effort to create remote lessons. Maverick, Stinger, and Wolfman said, "Everyone was patient as we adapted," but there was an unspoken expectation that everyone would try their best. A common shared expression about the transition was how disruptive COVID-19 was to the social norm. Teachers felt unprepared for the abrupt transition to remote learning. Wolfman, Stinger,

Jester, and Maverick said, “There was a steep learning curve, and we were motivated to shorten the learning curve as quickly as possible.” These participants were well aware of their responsibility and obligation to meet their school's external expectations, but teachers felt an internal drive to meet their personal and professional expectations.

Teachers set expectations for their students and their parents. Rooster, “I wouldn’t see all my students showing up on time, but they knew at a certain point I would mark them absent.” Jester, “I expect you’re going to have your camera on, and I expect you to listen while I deliver instruction.” Stinger, “We were expected to collaborate and share ideas.” As a school leader, Stinger was expected to communicate with parents, “I would reach out to the parents with the message that we owe it to your kids and try to make a connection.” Rooster shared a negative perception, saying, “I would check in regularly, but the normal expectation and evaluation were gone.” Fanboy, “I set high expectations and without exception hold students accountable.”

All participants shared a common expression: “The worst part was the uncertainty.” Uncertainty touched on several areas in this theme, and participants reacted to uncertainty through the lens of how it impacted social norms, pedagogical methods, interpersonal relationships, behavior, and socio-emotional reactions. Dealing with the unknown was a disruption, but fortunately, all participants said that the guidance and governance they received from school administrators supported an open-minded trial-and-error approach to mitigate and innovate.

Iceman spoke of the dysfunction caused by the existing uncertainty, “Thankfully, my school district was very proactive in helping us transition.” Stinger felt that once teachers started talking with each other and collaborating, the fear of uncertainty began to wane, “I think when teachers became more willing to collaborate, we changed our mindset.” Wolfman shared a

concern about how COVID changed everything: the priority was not education, and we were uncertain how events would materialize, saying, “Keeping families safe was the top priority, especially on the Navajo Reservation.”

Technology played a significant role in the transition to remote learning in San Juan County. Since San Juan County has a dispersed population, with about 44% of residents living in the unincorporated areas (United States Census Bureau, 2022), the disparity of internet access was a barrier to remote learning. Fanboy and Wolfman talked about the challenges of the Internet for students living “out on the reservation,” which is a reference to the Navajo Nation. In those remote areas, the only option for Internet connection was satellite or directed microwave wireless connections. These technologies are subject to slower bandwidths, and connectivity is impacted by atmospheric events, e.g., cloudy days, heavy rain or snowstorms, or high winds. Hollywood, “We don’t have cable that goes to our house because we are remote, so if it is a cloudy day, the Internet falls off and is very slow.” Fanboy shared thoughts about the experience of trying to connect: “I had slow Internet, and I was not the only one.” Rooster shared, “Technology was an issue for the ones that lived out far enough remotely just didn’t have it.”

Rooster, Wolfman, and Hangman shared that one of the mitigation strategies that their schools incorporated was equipping a few school buses with hotspot Wi-Fi parked in strategic locations so students and parents could drive to and connect to the Internet. Hangman, “The school had to adapt, so they got busses with hot spots placed out in certain areas so students could access their classes or class materials.” Rooster, “It was a technology issue because the ones that live out far enough just didn’t have access.” Wolfman, “We were equipped with Wi-Fi hotspots so students located down in the farm area, especially where there were many canyons or arroyos, could get online.”

Another problem schools had to solve was getting Chromebooks for students who did not have a computer at home. Iceman shared, “Not every student had a Chromebook, so we created paper learning packets for those students until we could get them a laptop.” The main focus was schools working to get internet access and computers for the kids to use. However, a new problem emerged: students and parents misused school-provided equipment. Viper reported, “The isolation and no ability to monitor students was a problem because kids abused the technology.”

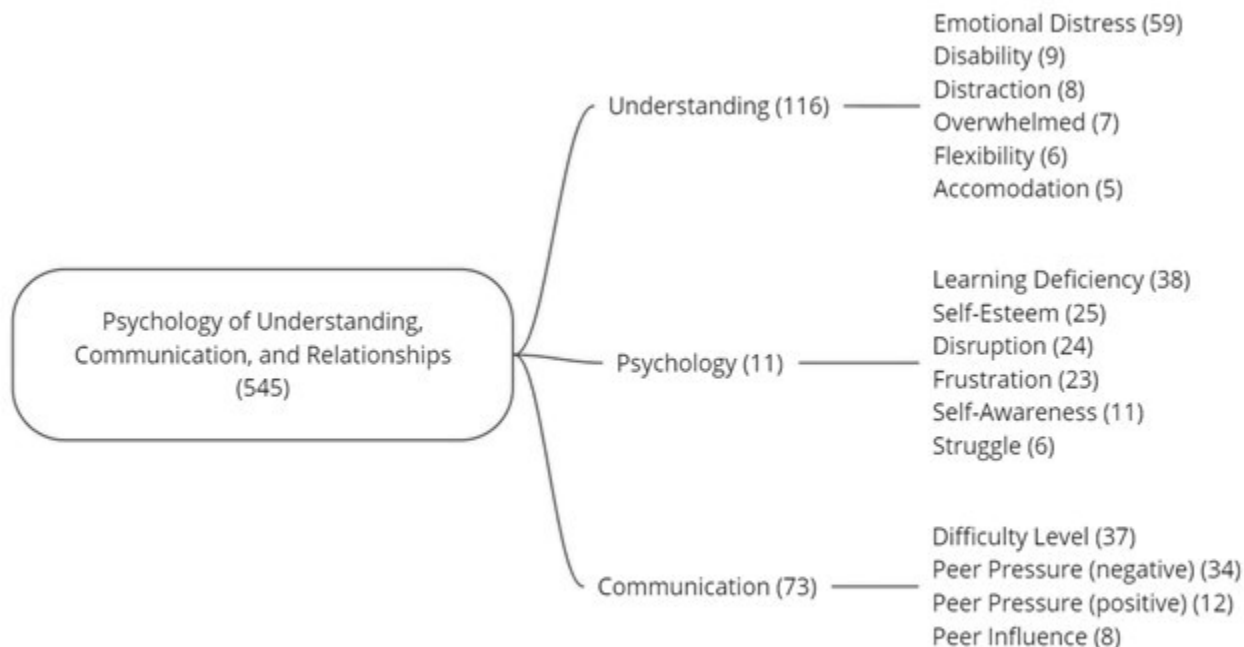
All participants shared how technology enabled them to innovate and try new ideas. Analyzing the data, I found patterns of teachers and students acculturating and adapting to remote technology. Rooster shared, “I started using Prodigy and other math games that made learning fun; it was the most innovative thing I did.” Jester spoke about how parents would come and say their child was struggling and ask for ideas for trying something different, “We had a great technology resource who found some excellent online resources.” Rooster used the online classroom and altered lesson plans to include an open online chat group to “get started with a little homeroom fun time.” Stinger innovated and let students do homework online, “I gave them an hour to work together on their homework.”

In summary, the theme of education leadership, organization, and technology highlights six attributes in the data supporting education leadership, organization, and technology. Six participants shared their experiences with leadership governance, which allows teachers to adapt to challenges and implement strategies to support student needs. Participants also shared how important it was to consistently organize their remote learning to maintain a positive learning experience. Participants shared their strategies, such as creating an online persona and leveraging the capabilities of Google Classroom to help motivate students.

Motivation was at the forefront of teachers' approach to improving a difficult situation. Participants shared thoughts about how they developed relationships with their students and their parents. Interpersonal relationship connections helped mitigate behavioral issues caused by isolation and the inability to monitor students online. Participants shared how setting expectations and communicating with their students, the students' parents and school leadership helped defuse the uncertainty of transitioning to remote learning. Remote learning would not be possible without the Internet and computing technology. All students faced challenges, but students living in very remote San Juan County areas faced a technology disparity. In some cases, the disparity was a barrier to learning, so school districts mitigated and configured buses with hotspot Wi-Fi and geolocated these buses so students could connect online and get learning materials.

Theme 2: Psychology of Understanding, Connection, and Relationships

This theme was developed by synthesizing the data and identifying a pattern in the psychology of human-to-human interaction (Burdelski et al., 2020; Hauser et al., 2019; Papeo & Abassi, 2019). The theme of Psychology of Understanding, Connection, and Relationships has nineteen unique codes that appear in the data 545 times, with three parent and sixteen child codes. All study participants shared experiences across all parent and child-coded variables. Participants applied an unspoken sympathetic awareness and demonstrated tolerance of their students' social, emotional-behavior, and psychological adjustments to a new norm. Figure 8 is a mind map illustrating the code relationships in the theme.

Figure 8*Psychology of Understanding, Connection, and Relationships Mind Map*

Note. The organization of the variable codes emerged through an analysis using Atlas.ti and are grouped to reflect a canonical cardinality of associated terms best. The general parent-child relationships mind map is organized to align with the data to answer the central research question.

Participants understood the impact and implications of COVID-19 as a social disruptor, and that was evident throughout the data. A dominant theme among all participants was an interpersonal understanding and concern for the well-being of their students and empathy with the emotional and psychological realities of a world turned upside-down. The upside-down world was described as negative behavior, emotional impact, and emotional distress. Wolfman commented, “I almost want to negatively say it just was chaos for a while; I felt like this whole

thing was just an experimenting process.” Wolfman elaborated, “There was a socio-emotional learning curve because sitting at the computer was not the greatest and best thing for students; it was like an implied understanding that teachers needed to figure out a way to keep students engaged.”

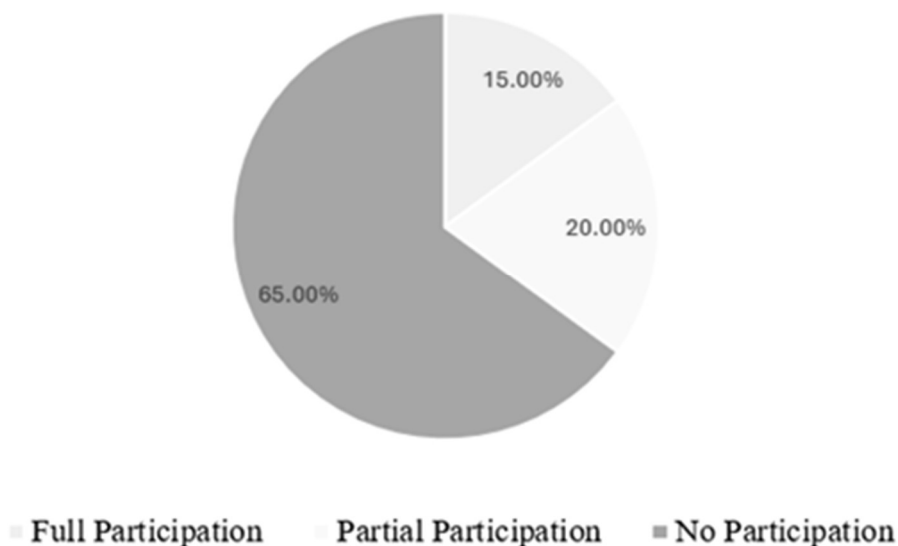
Hangman shared, “I think student behavior was the challenge adapting to the whole learning at home environment.” Merlin elaborated on the emotional maturity deficit younger students experience, “Kids did not mature socially during COVID-19, and some of them completely crashed psychologically; it was kind of like they just switched off.” Merlin was “a glass-half-full person and saw opportunities, and as long as the kids are motivated, there was success.” Merlin had to acknowledge some of the downside behavioral issues, “Kids at home have no control over their home environment, most kids had no control over their technology, and there were many home environment distractions.” Iceman said of the transition, “I was kicking and screaming, but I couldn’t do anything about it, and neither could my kids, so we all had to learn what to do.”

Stinger was concerned about the behavioral impact a prolonged transition to remote learning would have on students: “Kids need to see your face, and I know I struggled not having human interaction.” Hangman felt there was not enough time to attend to all students' needs: “I didn’t feel like I had time to really meet all of the kids' needs, and I know a lot of the kids had emotional and psychological issues with the whole COVID thing.” I asked a probing question about behavioral issues and whether students had self-awareness about their home environments.

Six participants (Fanboy, Hangman, Iceman, Rooster, Viper, Wolfman) shared experiences of their self-awareness and sometimes the lack of self-awareness by their students and their surroundings. Participants reported disruptions caused when parents or siblings were in

the same room they were trying to complete instruction. Rooster reported, “A couple of times, you would see parents walk behind their kid without a shirt on or in boxer shorts.” Wolfman reported, “I felt like there was a disconnect between the parents and the kids about getting schoolwork packets back on time.” Hangman reported, “There was a low awareness of making things consistent.” Viper reported, “The biggest self-awareness issue was the lack of feedback because of low attendance.” Iceman reported, “I was self-aware of the trauma these kids were going through; I could see it in their faces.” Fanboy reported, “I came into remote learning with an awareness to keep kids grouped by the same level of learning modifications they had.”

All participants shared thoughts about behavioral challenges, especially for special education students. The most reported behavioral problem was attendance, attributed to difficulties adapting to virtual learning. Maverick explained how, for the worst absentee students, “the district would have them bused in and taught in class using social distancing keeping everyone six feet apart.” Jester reported attendance issues adapting to a new norm, “I had to pivot on a dime from having students in your classroom where you can monitor them all the time, and then transition to remote learning where you can only get a snapshot.” Rooster shared experiences of difficulties, such as “trying to count on everybody logging in; we were not prepared, and there was low participation, and kids started taking advantage of being remote and stopped showing up.” Evidence showed that approximately ten to fifteen percent of students regularly participated, about fifteen to twenty percent sporadically attended, and about sixty-five percent did not participate. Figure 9 is a visual representation of the attendance issues.

Figure 9*Attendance Pie Chart*

Note: These estimates were derived from antidotal statements captured by participants during the personal interview. They are not backed by actual attendance records collected from the schools or school districts.

Iceman, Fanboy, Viper, and Wolfman shared that attendance was better in families with a strong community connection and in families where teachers had an interpersonal relationship. Participants mitigated many barriers by developing a social interaction connection and building relationships with students and their parents. Iceman, Fanboy, and Wolfman shared a common reference about establishing trust and respect in the classroom as the key to building relationships with students and their families. Iceman reported, “I had a good relationship with this one kid who was watching YouTube videos, and I talked with his mom.” Iceman’s interaction with this student’s mother helped de-escalate other performance issues. Fanboy reported, “Students have to build a relationship with themselves and then build a relationship with their education.” Fanboy added, “I was not in a relationship with the kids but with their families because most of their families were joining them online because they wanted to see

what they were doing because it was new.” Wolfman shared how some families in some of the more remote areas would have higher levels of support for their children, “Students that have support with their families would come on and say, I tried to do this, but can you show my mom or grandma how to do this.”

Iceman, Fanboy, and Wolfman shared a special thought about how grandparents played a significant role in their grandchildren's education. Wolfman, “Since parents had to work, the grandparents stepped up and made the difference.” Fanboy, “A lot of the Navajo kids have grandparents helping them.” Iceman shared, “I had some connections with those kids with good grandparents; I remember my grandma and granddad being there for me in tough times.”

Fanboy shared a philosophy of building relationships: “I have five rules: faith, respect, trust, love, forgiveness, and that mantra is about building relationships.” Fanboy shared how being forgiving and tolerant created a mutually respectful relationship with students, saying, “You get an understanding of what you learned, and your students feel safe and can figure out a routine.” Iceman shared a positive experience of how one student developed more emotional growth during remote learning and her relationship with Iceman, saying, “I promise I am reading because I am interested, and it is fun to do.” Viper shared thoughts about how schools are social institutions, saying, “The isolation hurt, so we did what we could to make sure there was a relationship connection with the kids and their families.”

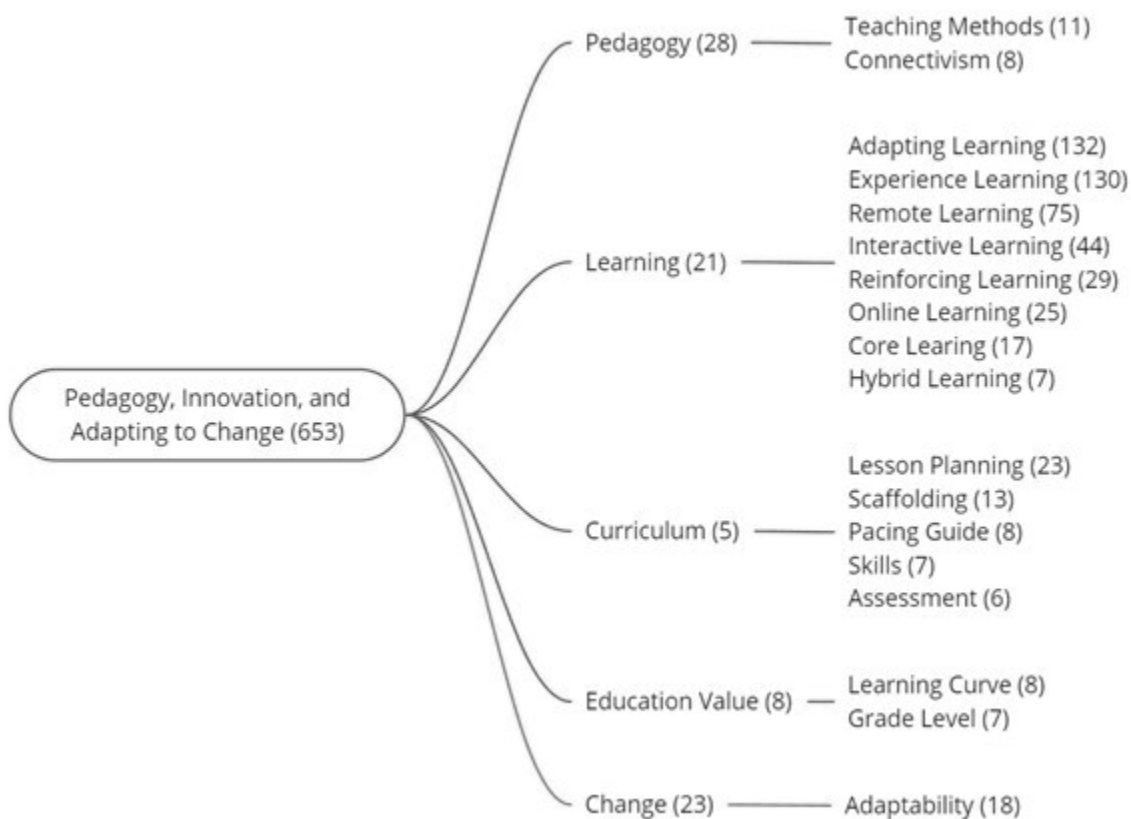
In summary, this theme highlights three parent and sixteen child attributes in the data supporting the psychology of understanding, connection, and relationships. Participants emphasize teaching and human interaction in education, discuss using online components in teaching, and reflect on how the pandemic impacted teaching methods and student learning. They also mention the value of training in understanding student behavior and de-escalation

techniques. The participants shared thoughts about the transition to remote teaching, the importance of focusing on essential content, and the shift toward data-driven instruction.

All participants shared a variety of thoughts and inputs about the psychology of human-to-human interaction (Burdelski et al., 2020; Hauser et al., 2019; Papeo & Abassi, 2019), interpersonal understanding (Mândruț, 2022), connection (Li et al., 2023), and relationships during the extraordinary circumstances of COVID-19 school closures. Participants showed concern for students' well-being and empathy towards their emotional and psychological struggles. Challenges with student behavior, particularly attendance during the transition to virtual learning, were a major concern for teachers and school leadership. An emphasis on the importance of trust and respect in building relationships with students and families was key in helping address performance issues and other student support needs.

Theme 3: Pedagogy, Innovation, and Adapting to Change

This theme emerged through a systematic deductive and inductive analysis of the data. It supports the two previous themes because it explains the practicum of what participants did to mitigate the challenges of the non-voluntary transition to remote learning. This theme included how participants used lessons learned to leverage their new knowledge to adapt to change (Levesque-Bristol, 2021; O'Reilly & Binns, 2019; Schmid & Kwon, 2020). This theme appeared in the data 653 times and has five parent and eighteen child attributes. All study participants shared experiences throughout each of the parent and child-coded attributes. They described how participants changed their pedagogy to accommodate social aspects in education, innovated using technology, and focused on what students needed to learn during this disruptive event. Figure 10 is a mind map illustrating the code relationships in the theme.

Figure 10*Pedagogy, Innovation, and Adapting to Change Mind Map*

Note. The organization of the variable codes emerged through an analysis using Atlas.ti and are grouped to reflect a canonical cardinality of associated terms best. The general parent-child relationships mind map is organized to align with the data to answer the central research question.

All participants shared experiences about maintaining rigor and emphasized using student IEPs to benchmark how to create new learning modules at different academic levels while maintaining a consistent structure. Participants implemented connectivist pedagogical methods to enhance learning. They taught connectivist skills so students could navigate the World Wide Web to find MOOCs, YouTube, and other learning opportunities and content independently (AIDahdouh, 2020; Alston et al., 2022; Oddone et al., 2019). In addition, participants leveraged

Google Classroom, Class Dojo, MagicSchool AI, and CAMI EduSuite educational software as pedagogical delivery tools.

Rooster reported, “I shared certain websites that kids could go to and work on their worksheets that mirrored what they did in the classroom because we know this works, and we were trying to keep things familiar.” Merlin reported, “I incorporated CAMI and Google Classroom. I had a tab for each student, and I could flip through every kid’s paper and see what they were doing online.” Jester reported, “I like to start with concrete learning, and I move to more abstract learning once they have the foundations.” Jester added, “If I needed to adjust the kids learning, I would lower the instruction so they can get it.” Wolfman said, “For my IEP students, I modified their learning materials to their developmental level, so their material was not at grade level.” Fanboy reported the same strategy: “I taught the fundamentals, so I would plan activities and design my class based on small group interaction, pairing weaker learning students with stronger students.”

Participants followed their pacing guides and departmental recommendations but made accommodations as needed. Maverick said, “I was not required to follow the district pacing guide, and since most of my students were below grade level, they received academics at their ability level, not grade level.” Viper said, “I tried to find activities that every student could be successful in, so I gave more open-ended activities that were simple enough for students to try.” Hangman shared a unique point of view about teaching kindergarten-age kids, saying, “I had to figure out a way to get students ready to interact with the computer, so I developed my lesson plans around 30-minute chunks of time and was dependent on the kid's parents to bridge the gap.”

Eight participants (Fanboy, Hangman, Iceman, Maverick, Merlin, Stinger, Viper,

Wolfman) shared their thoughts on developing scaffolded lesson plans to modify and adapt learning based on academic ability, not grade level. This theme is a common variable within the other two themes listed above. Merlin reported, “I adapted lesson plans and scaffolded customized IEPs until the student was ready for more complex and difficult lessons.” Wolfman reported, “I had to adjust and lower several of my kid's lesson difficulties until they could get the fundamentals.” Stinger reported, “I made adjustments; I would communicate with parents and let them know we owe it to your kids; we owe it to you to help them make the connection.” Hangman reported, “We all did a sort of sequencing activity, and if we needed to lower the complexity, we would collaborate with other teachers to see if we could use their lessons.” Maverick reported, “I had below grade level special education kids, so we altered our school day and dropped the instruction level during COVID and changed our approach because kids just disappeared.” Viper reported, “The most challenging part of adapting the pacing guides was coming up with scaffolded activities.” Iceman said, “Teaching elementary kids is very difficult online, and I knew kids need activities with concrete examples.” Fanboy reported, “I got an idea of which kids were cheating, I got to know their routines, and I would make adjustments when I needed to.”

Education value is an economic transaction between teachers, students, and parents. According to social exchange theory, two participants in a transaction will remain there if there is a perceived benefit; however, if inequality in the exchange exists, then one or both participants will abandon the transaction (Enayat et al., 2022; Kemp et al., 2021). Not all students fully appreciated the educational value added by each participant, but enough students remained in the transaction to keep it alive. Three participants shared thoughts about the value of education. Merlin reported having one student with many home distractions beyond the child's control, “I

knew they had no control over their parents or siblings interrupting the remote classroom.” Maverick reported, “I would personally make learning packets I could give to the kids’, and parents could come to a locker we had set up at the school with other school supplies.” Viper shared, “I had parents tell me you’re a better teacher than you know, and I’ve been teaching long enough it comes naturally without thinking about it.”

Adapting to change is difficult for most people, and there is a natural resistance when something is introduced into the social norms that disrupts routines (Levesque-Bristol, 2021; Smith, 2019). All participants shared experiences about adapting and continuing to learn and evolve in their practice, and there was positive evidence that these participants approached the challenges and changes with an open-minded attitude. Five participants (Fanboy, Rooster, Stinger, Viper, Wolfman) shared experiences about resistance by school administrators that impacted the remote classroom. Wolfman shared, “If I saw something that I reused and thought it was engaging and works for my students, but then the curriculum team lead would disapprove it, telling me I can’t use it.” Viper shared, “There are those teachers who have been teaching for a long time and are in a routine that is hard to break.” Fanboy shared a positive viewpoint about change, saying, “I was more patient, and it took me a while to adapt, but I figured out the technology. I just took being open to change, even changing my lessons.” Rooster shared, “I completely changed many of my routines after COVID.” Stinger spoke about the disruption, saying, “We all just had to bite the bullet. We were going to start where we are with the kids, and we’re going to adjust and redo the whole thing and not worry about any gaps.”

In summary, this theme discussed how participants dealt with the challenges of the transition to remote learning and how they used their new knowledge to adapt to changes in pedagogical practices. Participants focused on accommodating social aspects using technology

and innovating using software tools. Participants maintained academic rigor and made appropriate modifications based on student-individualized education plans as a benchmark. Participants leveraged connectivist pedagogical methods and taught students' skills to find online learning materials. Scaffolding and flipped learning were implemented with varying levels for the mutual benefit of all students. The value of education is an economic exchange between teachers, students, and parents. Social exchange theory suggests that participants will stay in a transaction if they perceive a mutual benefit. Although not all students remained in the transaction, enough students continued in the education transaction to keep the exchange viable for the participants.

Outlier Data and Findings

In qualitative research, outliers refer to data points or observations that significantly deviate from the majority of the data. Unlike quantitative research, where outliers are often considered statistical anomalies, in qualitative studies, outliers can provide valuable insights and enhance the interpretive process (Creswell & Creswell, 2023; Yin, 2018)

Grandparents

An outlier theme that unexpectedly emerged from five participants, Rooster, Wolfman, Hangman, Iceman, and Fanboy, was the influence of grandparents either in their lives or the lives of their students. Rooster shared how grandparents had a calming influence on kids at home, saying, "Grandma would show up," which would help kids focus so they could go do something with their "grandma." Wolfman reported hearing from several grandparents, "especially that the curriculum was hard, and they were asking for help." Wolfman was connected with the community and used those relationships with families to help the kids. Hangman talked about how many parents were at work during the day, and "grandparents were raising kids." Fanboy

and Iceman shared stories of how their grandparents influenced their worldview and taught them the importance of being centered and balanced. Fanboy said, “My grandpa taught me in a Navajo way to build relationships with all living things.” Iceman shared experiences and lessons learned from “Grandma and Granddad helped settle me when things were chaotic at home; I always had my grandma.”

Safety

Another outlier finding was Iceman’s discussion about trauma, “I learned whenever kids go through trauma, then need a stable force somewhere in their life.” Wolfman and Viper echoed this assertion about how kids were in survivor mode; Wolfman said, “They just wanted to survive, so school was not a top priority at the time.” Viper spoke of the devastation brought on by a sense of isolation, saying, “The highest level of disengagement was during COVID, and kids were in a survivors mode mentality.” Hangman added, “We were all coping and surviving.” These factors weighed heavy in the minds of Hangman, Viper, Wolfman, and Fanboy, and Safety was mentioned eleven times. Wolfman, “We had to be careful not to contaminate learning packets so that we would wear protective clothing and gloves.” Stinger, “People did not want to be around each other.” Maverick, “The school took extra precautions when we did return to have the classrooms as clean as possible.”

In summary, an unexpected theme that emerged from the perspectives of participants Rooster, Wolfman, Hangman, Iceman, and Fanboy was the significant role that grandparents played in their lives or the lives of their students. They highlighted how grandparents provided stability, guidance, and support, particularly in times of trauma or chaos. Additionally, the impact of trauma on children and the necessity of a stable influence in their lives was discussed, especially in the context of challenges faced during the COVID-19 pandemic. The participants

also emphasized the importance of safety measures and precautions in educational settings.

Research Question Responses

My methodology for finding evidence to support the three research questions was engineered into the study journal prompts and personal interview questions. I triangulated data collected from participant' document examples with their journal and personal interview questions and coded responses. I found direct supporting evidence that positive deviance, disruptive innovation, and examples of participants' acts of supererogation do exist. Although all study participants contributed evidence to answer the research questions, I will show the reader examples from participants highlighting the most impactful and meaningful responses in this section.

Table 9

Research Questions, Themes and Supporting Evidence

RQs	Themes
<u>Central Research Question:</u> What acts of positive deviance and/or disruptive innovations did classroom teachers report adapting their pedagogical approaches when transitioning to remote learning during the pandemic?	Adapting, Adapting Learning, Accommodation, Classroom Design, Commitment, Connectivity, Core Learning, Difficulty Level, Education value, Hybrid Learning, Interactive Learning, Make Class Fun, Scaffolding, Standards, Student Engagement, Support, Expectation, Imagination, Innovation, Learning, Pedagogy, Technology
<u>Sub Research Question One:</u> What was the impact/influence of peer and/or organizational collaboration on the development of positive deviance and disruptive innovations?	Collaboration, Creativity, Leadership, Leadership Support, Learning Curve, Self-Esteem, Self-Awareness, Struggle, Peer Pressure, Peer Influence, Frustration, Influences, Organization, Teamwork, Training, Family support, Resources, Responsibility
<u>Sub Research Question Two:</u> What are the general perceptions and ad hoc adjustments teachers reported about their experience with remote learning during the pandemic?	Teaching Methods, Behavior, Challenges, Change, Connectivism, Discipline, Disruption, Lack of Interest, Limitation, Motivation, Reinforcing Learning, Planning, Priority, Reflecting, Safety, Survival Mode, Time Management, Understanding,

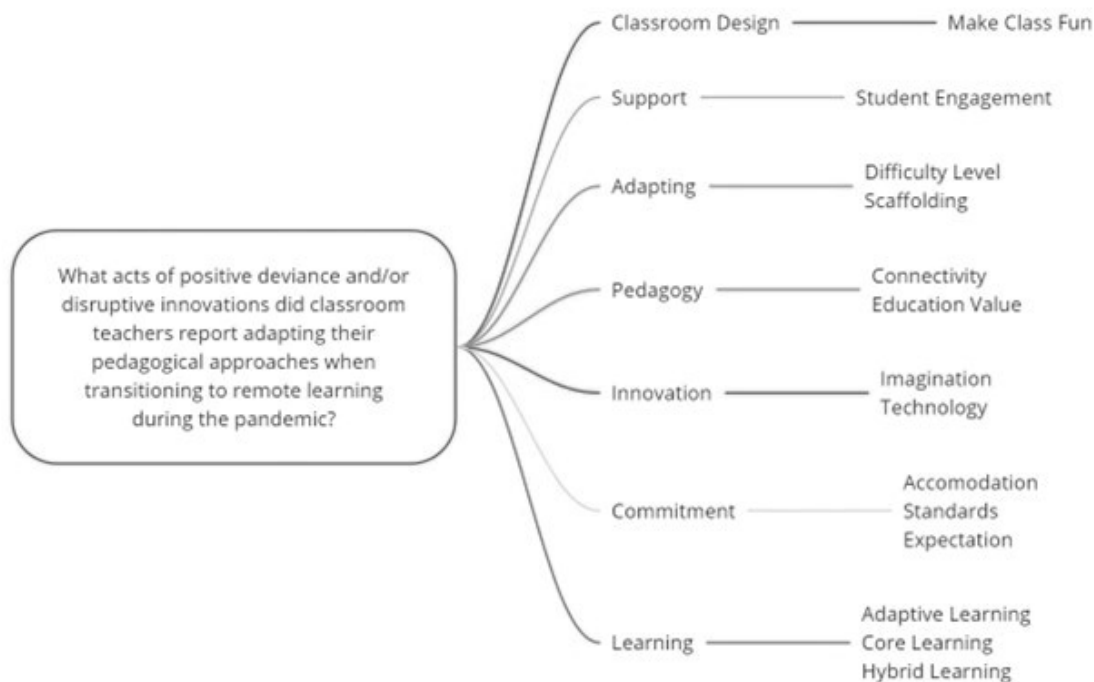
Note. This table groups coded themes from the data and aligns with each research question.

Central Research Question

The central research question was: “What acts of positive deviance and/or disruptive innovations did classroom teachers report adapting their pedagogical approaches when transitioning to remote learning during the pandemic?” Participants shared their struggles adapting lesson plans to accommodate and innovative ideas to bridge the learning gaps. Innovation changes occurred in three areas: adapting lesson plans to focus on core skills, scaffolding lessons based on student abilities and not grade level, and redesigning lessons to fit into a thirty-minute chunk instruction block. Figure 11 illustrates a mind map of variables from the data that aligns with the central research question.

Figure 11

Central Research Question Mind Map



Note. The organization of the variable codes emerged through an analysis using Atlas.ti and are grouped to reflect a canonical cardinality of associated terms best. The general parent-child

relationships mind map is organized to align with the data to answer the central research question.

Hangman reported, “We modified our pacing guides to accommodate 30-minute chunks of instruction.” Stinger reported, “We cut instruction time from ninety minutes to 45-minutes or less.” Fanboy reported, “I designed my class lesson based on small group interaction and paired weaker skilled students with stronger skilled students.” Merlin reported, “I scaffolded until they could do it independently, one kid at a time. I think an advantage of doing it is that it motivated the kid to solve problems or learn new ideas.” Maverick reported, “I lowered the reading level of science and social studies books, and I would make it easier to read the language by dropping the reading level.” Wolfman reported, “I used scaffolding for my students who were not on an IEP, but who I was aware were struggling at grade level.” Viper reported, “The most challenging part of adapting pacing guides was coming up with scaffolded activities.” Iceman reported, “I knew before going into remote learning that kids need activity, physical and concrete examples.”

Five participants (Iceman, Hangman, Maverick, Rooster, Viper) shared thoughts about how they innovated to make remote learning fun. Examples of participants making class fun were found in all subjects. Iceman reported, “I don’t know how novel or unique it was, but one of the activities I would do with my kids to help them practice multiplication was to play online multiplication Bingo.” Viper reported, “I found music-like websites there were making music for kids. One site I liked to use was Scratch, and we still use it today.” Maverick reported, “I have access to the Houston Zoo webcams, and we would spend a lot of time going on virtual tours.” Rooster reported, “We played a lot of games and had a lot more conversations that kept everyone engaged.” Hangman reported, “I would show my kids a circle, and I had kids find a shape at their home that was a circle.”

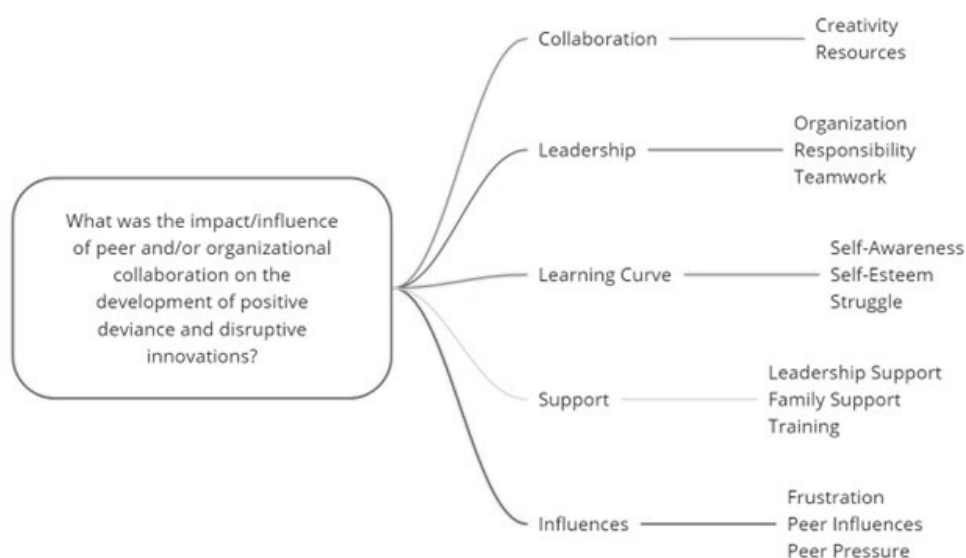
Finally, two participants (Hangman, and Jester) contributed innovative ideas on how they structured their remote classroom to mirror their physical classroom and incorporated movement breaks. Jester reported, “We do thirty minutes, then do a brain break, stand up, stretch. These guys cannot sit quietly for hours at home.” Hangman reported, “I had set up my remote classroom to make it look like you’re at school. I had a classroom scene behind me with alphabet letters, numbers, and shapes.”

Sub Question One

What are the general perceptions and ad hoc adjustments teachers reported about their experience with remote learning during the pandemic? All study participants reported a sense of confusion, frustration, and unpreparedness. Opinions about the pandemic ranged from positive to negative. However, all participants consistently believed that the transition to remote learning trended negatively in their students' educational progress. Figure 12 illustrates a mind map of variables from the data that align with sub-research question one.

Figure 12

Sub Research Question One Mind Map



Note. The general parent-child relationships mind map is organized to align with the data to

answer sub-research question one.

The evidence that the beginning days of the transition were disruptive as teachers and school staff “tried to figure it out.” Iceman reported, “I went into it kicking and screaming. We had to figure out what works,” Wolfman reported, “At the beginning, the only concern was safety.” Maverick reported, “Some kids really suffered, lost two kids, and when we returned to in-person class, they were way behind.” Stinger reported, “We had many behavioral issues; we had no influence over the home learning environment.” Viper reported, “The isolation was the worst part.” Rooster reported, “We tried to find ways to make it happen for the kids; we tried different things, but there was a sense of just survival mode.”

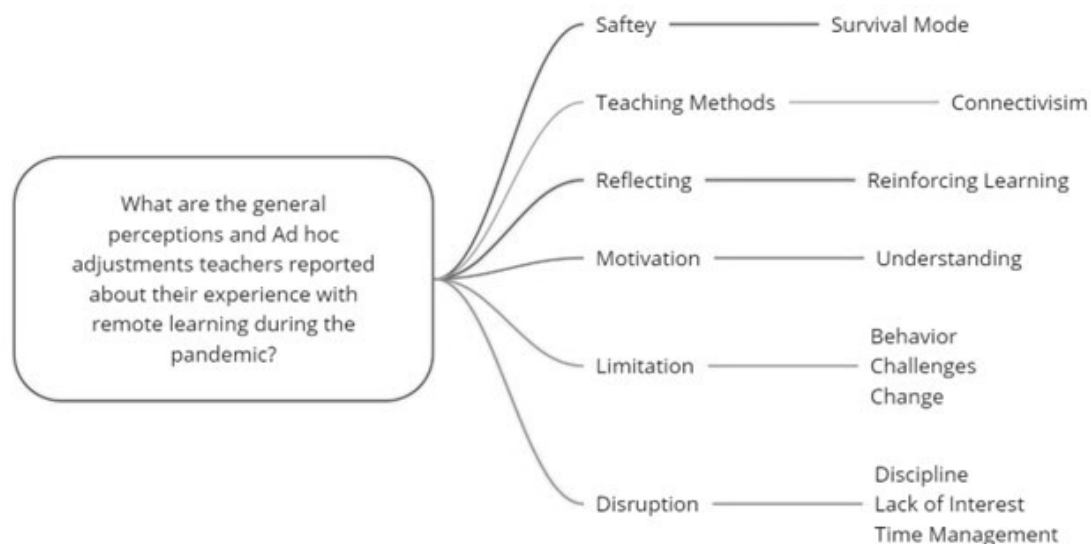
Given the negative feelings, all participants embraced the new “reality” and worked to make the best of it, both individually and collectively. Rooster reported, “Things got better once I figured out how to use Google Classroom.” Rooster added, “I got creative on finding helpful websites for kids to go and do their worksheets.” Merlin reported, “I created paper workbooks and then digitalized them so I could post them on Google Classroom, and I did it in such a way that every kid got their copy.” Merlin added, “The one innovation I did was using CAMI’s website.” Merlin shifted and started focusing on one kid at a time in short bursts, so everyone was cared for. Jester adapted by creating personal learning communities (PLC) for teachers to collaborate, “We would log in once a week as a team, discuss challenges, and brainstorm ideas and ways to get the work done.” Hangman reported, “For younger students, everything you are doing is about dealing with the parents, so adapting meant we had to make sure parents had school materials at home.” The data evidence showed that most adaptation to remote learning was about individualized learning plans to modify and scaffold instruction.

Sub Question Two

What was the impact/influence of peer and/or organizational collaboration on developing positive deviance and disruptive innovation innovations? Participants found that working remotely allowed for more autonomy and flexibility in lesson planning. Figure 13 illustrates a mind map of variables from the data that align with sub-research question two.

Figure 13

Sub Research Question Two Mind Map



Note. The general parent-child relationships mind map is organized to align with the data to answer sub-research question two.

Planning activities included sharing innovative ideas and ways to enhance student learning, adapting pedagogy to meet the challenges of remote learning, as well as a peer community for teachers to “just hang out.” Collaboration was widely popular and an activity most participants enjoyed; however, one participant disliked most collaboration sessions because “everybody just wanted to complain.” Key takeaways from collaboration efforts were sharing innovation, enhancing learning, communication, and teamwork.

Viper reported, “We were all learning from each other; we tried to make things social when everything felt anti-social during COVID.” Rooster reported, “I found Prodigy math game

and MagicSchool AI and shared it with my group.” Wolfman reported, “Collaboration was an opportunity to talk about our concerns and how we can keep our students at their grade level.” Jester reported, “We worked as a team to create lesson plans we could share with others; we would get together and brainstorm some solutions.” Stinger said, “My teams are really good at improving things.” Hangman reported, “What worked well for us was that we had a very tight team, and I don’t know that I would have been able to do it without them.” Viper reported, “We collaborated all the time, and we always shared different websites.” Iceman reported, “I met with my team, and we discussed the pacing guides and adapting lesson plans.”

Summary

In summary, the eleven participants combined have 229 years of teaching experience, with 182 years of teaching in San Juan County, New Mexico. Participants reflected and shared their thoughts and experiences regarding the difficulties encountered during the shift to remote learning. Challenges included limited access to technology and internet connectivity among students, leading to low attendance and engagement rates. Participants innovated and devised new methods for creating lesson plans to support online and paper-based learning packets. The school districts innovated and set up mobile Wi-Fi hotspots to facilitate learning. The study sheds light on the varied responses and coping mechanisms adopted by educators and communities during the transition to remote learning.

Three primary themes emerged from the data. The theme of Education Leadership, Organization, and Technology highlights adaptive leadership, consistent organization, and motivation in creating a positive learning environment. The theme of the Psychology of Understanding, Connection, and Relationships highlights the psychological aspects of teaching and learning during the pandemic, including the importance of human interaction, understanding,

and relationships. Pedagogy, Innovation, and Adapting to Change theme highlights how participants navigated challenges in transitioning to remote learning, adapting pedagogical practices, innovating with software tools, using connectivist pedagogy, implementing scaffolding, and flipped learning.

Two unexpected outliers that emerged from the participant's data were the significant influence of grandparents on their lives and the impact of trauma on children. Grandparents played a crucial role in calming children, providing support, and instilling important values. The participants also discussed how trauma affects children, emphasizing the need for stability and support in their lives. The importance of safety and precautions during the pandemic exacerbated these challenges, leading to disengagement and a focus on survival.

The data collected from study participants answered three research questions. Participants' answers to the central question discussed adapting lesson plans to address learning gaps, focusing on core skills, scaffolding based on student abilities, and redesigning lessons for shorter instruction blocks. Participants answered sub-question one and discussed feeling confused and unprepared during the transition to remote learning due to the pandemic. They believed the shift hurt students' educational progress. Despite initial challenges, they adapted to using online tools like Google Classroom and creating personalized learning platforms. Participants answered sub-question two and discussed a sense of autonomy and flexibility of remote work for lesson planning, engaging in collaboration to share ideas and enhance student learning. Key takeaways from collaboration efforts included innovation, learning enhancement, communication, and teamwork. Finally, I will discuss my understanding of the findings, the implications of how this study will add to the empirical data about the non-voluntary transition to remote learning, and recommendations for future research.

CHAPTER FIVE: CONCLUSION

Overview

This single case study aimed to identify and qualify what public school teachers from San Juan County, New Mexico, did to mitigate the impacts of COVID-19 mandatory school closures and what positive deviance and disruptive innovations pushed through as a new norm. This chapter discusses the findings and evidence collected from 11 study participants. This chapter is organized in five parts. Part one discusses my interpretation of the findings and summarizes the thematic findings from chapter four. Part two discusses the implications and recommendations for policy and best practices. Part three is a discussion and examination of theoretical and empirical implications and how those theoretical and empirical implications contribute to the literature. Part four is a discussion of limitations and delimitations, where I discuss the limiting shortcomings of the study due to practical constraints outside my ability to control. I will also discuss delimiting specifics over those variables and elements I have control over while conducting this study. Part five is a discussion of three areas of recommended future research based on this study's contribution.

Discussion

This discussion will include an expanded literature review based on the evidence discovered during participant data collection. This method is often called the delayed research method, used in grounded theory and phenomenological studies (Urcia, 2021). However, a delayed research method is helpful in explaining the alignment with emerging literature supporting this single case study. The single case study was selected because it is best used when more data is needed to understand a larger context of individual-specific actions of a baseline phenomenon (Crabtree & Miller, 2023; Margherita & Braccini, 2021). This single case study

aimed to discover and describe the types of positive deviance and disruptive innovation by public school teachers from San Juan County, New Mexico, during the non-voluntary transition to remote learning. San Juan County was selected because of its unique cultural blend of Anglo, Hispanic, and Native American populations, as well as its remote rural isolation from a large metropolitan city. The largest city in San Juan County is Farmington, 182 miles northwest of Albuquerque, New Mexico.

Related Work

Based on the findings of this study's data, I conducted a second literature review to see what research had been conducted within the last five years related to what public education systems have done since the COVID-19 event. I reviewed and found 18 studies that aligned with my study, I then coded the summary of those studies using Atlas.ti to see which of those codes overlapped my findings. The overlapping themes are as follows: Education leadership, organization, and technology (Alston et al., 2022; Collantes et al., 2022; Dreamson, 2020; Levesque-Bristol, 2021; Lund-Tønnesen & Christensen, 2023; Milner et al., 2021; Mukhtar et al., 2020; Nistor et al., 2019; Papeo & Abassi, 2019; Ulum, 2022; Zhou, 2022); psychology of understanding, connection, and relationship (Booth et al., 2021; Daniel, 2020; Dreamson, 2020; Larsen, 2022a; Lund-Tønnesen & Christensen, 2023; Montero, 2021; Mukhtar et al., 2020; Papeo & Abassi, 2019; Sridharan et al., 2021); pedagogy, innovation, and adapting to change (Alston et al., 2022; Booth et al., 2021; Collantes et al., 2022; Daniel, 2020; Levesque-Bristol, 2021; Montero, 2021; Mukhtar et al., 2020; Nistor et al., 2019; Pérez-Marín et al., 2022; Sridharan et al., 2021; Young, 2021; Zhou, 2022)

Summarizing related literature, Alston et al. (2022) focus on resources for online teaching, emphasizing detail, quality assurance, and learner support. Booth et al. (2021)

investigated the impact of COVID-19 closures on children's learning, noting disparities between private and state schools. Collantes et al. (2022) focus on Filipino Science teachers' experiences during the pandemic, emphasizing the need for innovative Science education approaches. They discuss coping strategies, challenges, and opportunities that arose, showcasing adaptability and resilience. Daniel (2020) provides guidance for educators on preparing for remote learning, supporting students' diverse needs, and ensuring education continuity. Dreamson (2020) discusses learner engagement in online learning, emphasizing community building and recognizing diverse knowledge. Larsen et al. (2022a) highlight the emotional impact of school closures on children. Levesque-Bristol (2021) examines teaching outcomes at Purdue University. Lund-Tønnesen and Christensen (2023) study Norwegian governance during the pandemic. Milner et al. (2021) discuss education governance changes during COVID-19 in Denmark, England, and Italy. Montero (2021) talks about adapting art education to virtual settings during the pandemic. Mukhtar et al. (2020) explored online learning challenges for medical and dental students. Nistor et al. (2019) investigated the attitudes towards learning platforms. Papeo and Abassi (2019) study social interactions in human vision. Pérez-Marín et al. (2022) examine a multimodal teaching model based on learning styles. Sridharan et al. (2021) introduce an adaptive learning system for Management Studies. Ulum (2022) discusses online education effectiveness and future trends. Young (2021) explores the evolution of Massive Open Online Courses (MOOCs) and their role in democratizing education through online platforms in the digital age. Zhou (2022) proposes a deep learning-driven communication system for online education platforms.

Interpretation of Findings

Reflecting on the data and interacting with the study's participants reinforced some

previous assumptions and exposed new pathways for understanding how people engage in challenging, externally imposed constraints that impact our perceptions of social norms (Levesque-Bristol, 2021; Smith, 2019). Henriques (2020) suggests that the outcomes of disruptive social events are influenced by the degree of compliance actors are willing to engage and accept; otherwise, any disruption will break the social contract within the social organization. Logically, the people within the organization will naturally gravitate toward finding mitigation strategies to overcome the unknown. Any mitigation will have consequences, and the outcomes are measurable as a positive or negative conforming product (te Velde & Louis, 2022).

The data provides sufficient evidence to support a positive deviance outcome since all participants described a new descriptive prosocial norm to solve the disruptive transition to remote learning (te Velde & Louis, 2022). Tolbert and Darabi (2019) argue that within the community tasked with solving an organizational challenge lies all the expertise, resources, and skills to solve any problem. In the case of San Juan County, school leaders, administrators, teachers, parents, and students engaged in a mitigated production of just-good-enough processes were pushed through as a new disruptive innovation outcome (Collantes et al., 2022; Daniel, 2020).

Positive deviance, as described in Heckert et al. (2021), and disruptive innovation, as described by Christensen (1997), can only exist in a scenario where participants are free to explore alternatives that are novel, non-normative, unique, and unexpected outcomes not pre-defined or governed by organizational leadership expectations (Lund-Tønnesen & Christensen, 2023). A pre-defined expectation negates the original intent of a disruptive innovation since the initial prototype product must start as a just good enough solution that solves an immediate

problem, and over time, the innovation pushes through as a new, unique process (Levesque-Bristol, 2021). A key characteristic of positive deviance is the deliberate and intentional actions of individuals tasked to solve a problematic scenario (Tolbert & Darabi, 2019).

All participants contributed valuable information and insight into how they adapted to and worked individually and collectively to mitigate the non-voluntary transition to remote learning. Patterns began to develop after six participants had completed the data collection process, and a compelling mitigation story began to unfold. My findings are consistent with those of Collantes et al.'s (2022) study of coping strategies and the need for innovation, Larsen et al.'s (2022a) study of children's reactions to school closures, and Montero's (2021) study of shared experiences of students and teachers adapting to online learning during COVID-19.

Collaboration was the prime activity peers used most to innovate and mitigate challenges adapting lessons for the online environment. Collaboration with school leaders and administrators was also leveraged to mitigate social behavior issues, such as excessive absences during remote learning (. The interactive nature of the online environment held both a positive and negative outcome possibility. The best way to illustrate an example of answers from study participants is to use Figure 1 (from Chapter 2) as guidance to populate Table 1. Table 1 uses the positive deviance quadrant chart to score selected participant answers to questions to categorize positive and negative occurrences.

Figure 14*Positive Deviance Magic Quadrant*

		Outsider Reaction	
		Positive	Negative
Insider Behavior	Positive	Over-Conformity, positively assessed (Positive Deviance)	Over-Conformity negatively assessed (Rate-Busting)
	Negative	Non-Conformity, positively assessed (Deviance Admiration)	Non-Conformity negatively assessed (Negative Deviance)

Note. The positive deviance quadrant was derived from inputs from Nicole Shoenberger, Alex Hecker, and Druann Heckert's 2015 article Labeling, Social Learning, and Positive Deviance: A Look at High Achieving Students. The taxonomy is derived and extrapolated using the Johari Window (Spennemann, 2023)

Table 10

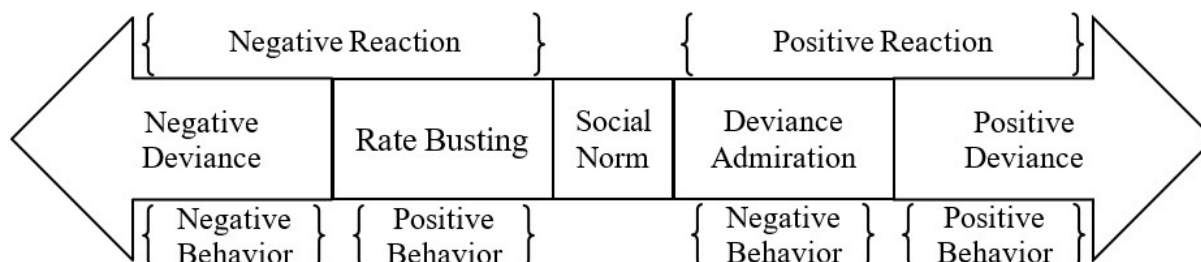
Positive Deviance Magic Quadrant, Participants Supporting Evidence

		Teacher Reaction	
		Positive	Negative
Student Behavior	Positive	I learned to be more patient, open, and understanding. I have experience teaching remotely in China and sharing ideas with my colleagues. Fortunately, I had already established a good relationship with my kids. I collaborated with peers to triage the content essential for packet vs. online learning.	I tend to group students with the same modifications without making a big deal of it. We adapted lessons into 30-minute chunks. I used AI to create scaffolded learning I could give students, but I do not trust it. I looked for interactive learning games kids could access online. The district waived the requirement to follow our pacing guides and let us find workarounds to adapt.
	Negative	You cannot make excuses; you must endure adversity. We had to figure out how to prepare students to interact with the computer. I know we will be better at dealing with future disruptions. We muddled our way through it. In the early days of remote learning, everything was a stopgap activity.	I did not particularly appreciate relying on the Internet; I had a slow connection, and I did not like the process. The lack of initial support made the process harder. I was kicking and screaming; I knew my kids would not be successful, and over half of them just disappeared.

Note. Table 10 aligns direct quotes from study participants using a triage model to group statements into one of the four magic quadrants: positive deviance, rate-busting, deviance admiration, and negative deviance. Figure 15, Deviance Spectrum, was helpful as a triage tool to filter which participants' answers fit into each quadrant above.

Figure 15

The Deviance Spectrum



Note. The deviance spectrum was derived from inputs from Nicole Shoenberger, Alex Hecker, and Druann Heckert's 2015 article Labeling, Social Learning, and Positive Deviance: A Look at High Achieving Students. The deviance spectrum is an interpretation using the positive deviance magic quadrant.

The "Rate-Busting" responses were of particular interest because there is a tendency to apply a statement in this quadrant subjectively; however, when I objectively considered participant answers, I found supporting evidence that the actions, although positive, were done either reluctantly or other factors were compelling a positive outcome. I then applied the same standard for each quadrant, e.g., positive deviance, deviance admiration, and negative deviance, to other participant answers and objectively assigned them to their perspective quadrant. The rationale for conducting this activity was to control participants who expressed negative feelings about the non-voluntary transition to remote learning.

There is evidence that supererogation occurred. Supererogation is Latin for an act that is payment beyond an expected action viewed as going above and beyond the call of duty (Archer & Ware, 2020). Supererogation has a rich literature history, and sociologists and scholars have explored the phenomenon, developing a somewhat complex philosophical truth table on how to define and measure it objectively (Archer, 2020; Archer & Ware, 2020; Bales & Benn, 2021; Muñoz & Pummer, 2021). However, for simplicity purposes, I will define an act of supererogation as what the individual participant did in their action without compulsion or compensation.

Supererogation occurred four times in the data as acts of participants personally driving to the homes of their students to check on their well-being and deliver and retrieve "work packets." Another example was three participants making purchases for learning aids and online

subscriptions to help facilitate their student's learning. Finally, one example of a participant: “I colored my hair purple simply for engagement purposes, and the kids liked it.” Although these examples may seem small, it was evident in my interpretation that these acts were profound in the minds and hearts of the teachers and added a positive deviant contribution to their students.

In summary, positive deviance and disruptive innovation thrive when participants can explore unique, unexpected solutions not governed by pre-defined expectations. Positive deviance involves intentional actions to solve problems, while disruptive innovation starts as a primary solution that evolves. The study used a spectrum tool to filter responses and objectively assess each participant's actions. This allowed for a balanced evaluation of their innovative approaches amidst the challenges of remote learning. Supererogation, meaning acts that go beyond what is expected and considered above and beyond the call of duty, was observed when teachers personally visited students at home, made purchases to aid learning, and engaged in activities like coloring hair purple for student engagement. Though seemingly small, these actions had a meaningful impact on teachers and students, positively contributing to the learning environment.

Summary of Thematic Findings

A summary of thematic findings is drawn from three dominant themes interpreted from the study's data anchored in answering the central and two sub-research questions. The themes were organized from concrete to abstract representations that triangulate the data to tell a big-picture story of how positive deviance outcomes were experienced and how the schools in San Juan County created a new disruptive innovation that influenced pedagogical practices.

Theme 1: Education Leadership, Organization, and Technology

The theme of education leadership, organization, and technology generalizes the support

function needed during the transition to remote learning. Participants highlighted the significance of adaptive leadership, consistent organization, and motivation in creating a positive learning environment. This theme highlights the importance of ad hoc adjustments teachers make to mitigate the challenges and create a positive deviant outcome for their students. Specifically, adaptive leadership strategies for creating a consistent positive learning environment and leveraging online platforms while overcoming technology disparities and mitigating social isolation during the transition to remote learning. My data findings are consistent with Collantes et al. (2022), how school leadership, teachers, parents, and students adapted to an untested and unfamiliar learning model, e.g., virtual learning. In addition, my findings are consistent with Daniel's (2020) findings about the impact COVID-19 had on education systems and how leadership helped to mitigate the different levels of student needs.

Each school district in San Juan County tried variations of innovations independently; a general extrapolation theme was deduced by how each participant shared thoughts about their district's leadership approach that overlapped. The overlapping theme illustrates how district leadership collaborated and shared ideas and results to produce better guidance county-wide. Evidence indicates that education leadership implemented a two-part strategy to navigate the challenges of the COVID-19 mandatory transition to remote learning. This strategy approach for innovating modifications of existing processes is consistent in the literature; unsurprisingly, district leadership in San Juan County would follow examples from other organizations (Lund-Tønnesen & Christensen, 2023; Ulum, 2022).

First, district leaders opted to set and establish a vision goal and then let the professionalism and capabilities of the local school principals and teachers figure out a way to make things work. This was evidenced by participants' shared statements on how they were

given guidance to alter their pacing guides and lesson plans to innovate in the best interest of the student's academic level instead of focusing on grade level. Study participants appreciated adaptive leadership from their district's administration because it helped stabilize a consistent organizational approach toward a positive outcome during the uncertainty everyone experienced. These findings are consistent with a study conducted by Movahedazarhouli and Jones (2024), which found that attributes such as flexibility, thinking outside the box innovation, and thoughtful resiliency were key to the success of early childhood education.

Second, district leadership did their part to procure the funding and resources to ramp up their technology infrastructure and technical human capital to equalize inequalities of support and technical needs for all stakeholders and shareholders from the communities they served. This theme is consistent in the literature about technology use and innovation during the worldwide COVID-19 transition to remote learning (Sridharan et al., 2021; Ulum, 2022; Young, 2021). Many of the communities in San Juan County are remote and do not have the infrastructure to support high-speed internet, and many families in these areas do not have computers in their homes. District leaders made available Chromebooks and then equipped school buses with high-speed Wi-Fi Internet and geolocating them so students could log in and participate in remote learning.

In summary, district leaders in San Juan County collaborated and shared ideas to navigate the challenges of transitioning to remote learning, and they laid the foundational framework needed during the events of COVID-19. They focused on allowing local principals and teachers to innovate to benefit students academically rather than focusing solely on grade levels. The leaders also worked on procuring funding and resources to improve technology infrastructure and support for all stakeholders. These efforts addressed the inequalities in access to technology

and internet connectivity, particularly in remote areas.

Theme 2: Psychology of Understanding, Connection, and Relationships

The psychology of understanding, connection, and relationship's theme explores the psychological aspects of teaching and learning during the pandemic, including the importance of human interaction, understanding, and relationships. Participants discussed the impact of online teaching, the need for training in student behavior, and the shift toward data-driven instruction. They emphasized empathy toward students' struggles and highlighted challenges with virtual learning, student behavior, and building relationships. Trust and respect were identified as crucial in supporting students' needs effectively. The data is consistent with studies conducted to understand interpersonal relationships and human-technology interactions (Kang et al., 2023; Montero, 2021; Nistor et al., 2019; Papeo & Abassi, 2019; Pérez-Marín et al., 2022; Zhou, 2022).

All participants expressed a desire to build an interpersonal relationship with their students, and the teachers reported a sense of loss when a large percentage of their students just disappeared. Additionally, all participants shared their thoughts that just because online learning has become widespread and socially accepted, it is not a solution for all learners. In their studies, Ithriah et al. (2020) and Muljana and Luo (2019) reported that the success rates of online programs target adult student populations or students highly motivated to seek a specific educational or technical skill goal. Furthermore, Trout (2020) and Wang et al. (2020) make the point that a key variable contributing to any individual success in completing an online course is self-discipline (Trout, 2020; Wang et al., 2020). Therefore, my study's results add a supporting claim that just because online learning has, according to Christensen's (1997) definition of disruptive innovation, online learning is not a viable option for every student population (Ithriah

et al., 2020; Muljana & Luo, 2019).

The cultural characteristics of the San Juan County community are unique, given the demographics and blue-collar industrial nature of the county. I found evidence that all participants intuitively understood the culture within the county and adapted their interpersonal relationships to make connections. There is evidence that participants Fanboy, Hangman, Iceman, and Maverick had interpersonal relationships with the parents of their students, which gave them a motivational advantage. Another contributing success factor was their home's availability and access to computers and high-speed Internet. Although there was a concerted effort by school leadership to bridge the gap and equalize the technology deficiencies, even with those equalization efforts, student success depended on their internal drive or external parents or grandparents' encouragement.

In summary, the psychology of understanding, connection, and relationships in teaching during the pandemic highlights the importance of human interaction, empathy, and trust. Online learning is unsuitable for every student population, especially those lacking self-discipline. Those teachers who build relationships with their students' parents are more able to overcome obstacles like student disengagement. In the unique cultural context of San Juan County, successful teaching involves adapting to the community's characteristics and leveraging relationships with parents.

Theme 3: Pedagogy, Innovation, and Adapting to Change

The themes of pedagogy, innovation, and adapting to change dealt with the challenges of transitioning to remote learning and how teachers, students, and parents reacted to and accommodated the experience. Adapting pedagogical practices that integrated new technologies and software platforms was initially challenging, but in time, all actors acculturated to the new

psychological-sociological paradigm. The chaotic psychological-sociological impact was mitigated through the participant's trial-and-error experimentation to “figure out” what would work best for their situations. For example, participants used their new knowledge to adapt to changes in teaching practices, focusing on accommodating social aspects, using technology innovatively, and prioritizing student learning needs. The theme frequently appeared in the data with multiple attributes and was supported by previous research (Alston et al., 2022; Dreamson, 2020; Grandstrand & Holgersson, 2020; Levesque-Bristol, 2021; Sridharan et al., 2021).

Participants focused on maintaining academic rigor by using student IEP as a benchmark for creating new learning modules at various academic levels while maintaining a consistent structure. They employed connectivist pedagogical methods to enhance learning and taught students how to independently navigate online resources like MOOCs, YouTube, and other learning opportunities. Participants utilized tools like Google Classroom, Class Dojo, MagicSchool AI, and CAMI EduSuite educational software for instructional delivery. Strategies included providing familiar worksheets for online work, monitoring student progress through online platforms, adjusting instruction levels as needed, and tailoring learning materials to individual student needs. Collaborative group activities were designed to pair students with varying learning capabilities for mutual benefit. The experiences these participants endured are similar to what other educators managed during their school's transition to remote learning (Booth et al., 2021; Larsen et al., 2022a; Mukhtar et al., 2020; Pérez-Marín et al., 2022; Shin & Hickey, 2021).

The COVID-19 event was a profound social disruption to all communities in San Juan County, and adapting to change was evident in the direct statements captured from participants. Safety was a serious concern, especially on the Navajo Nation, and school leaders and teachers

had to figure out ways to balance keeping everyone healthy and safe while navigating the unknown and untested waters of a non-voluntary transition to remote learning. Daniel (2020) documented a similar phenomenon in Canadian schools using asynchronous learning to mitigate their remote learning transition during COVID-19 restrictions. Daniel concluded that a best practices recommendation is challenging to define until we know more about the trade-off between formal education activity and public health benefits. Daniel's study is consistent with the evidence shared by study participants.

In summary, this theme illustrated and reported how pedagogy, innovation, and adaptation to change influenced the transition to remote learning for teachers, students, and parents. Participants worked through trial-and-error experimentation, navigating the challenges, and gradually acclimated to the new psychological-sociological paradigm. Participants adapted pedagogical practices, integrated technology thoughtfully, and prioritized student learning needs. Participants maintained academic rigor to the best of their ability, utilized individualized education plans, and employed connectivist pedagogy to enhance learning. Tools like Google Classroom, Class Dojo, and CAMI EduSuite educational software were instrumental in instructional delivery. Collaborative group activities paired students with different learning capabilities for mutual benefit. These participants' experiences reflect broader challenges educators face during the shift to remote learning due to COVID-19. The study highlights the profound social disruption caused by the pandemic and the importance of balancing safety with educational continuity in times of uncertainty.

Implications for Policy or Practice

The outcomes of this study have generalized organizational policy implications for education leadership, more granular policy and practice implications for mid-level school

administrators, and practice implications for classroom teachers. The implications and recommendations for policy and practice approaches are discussed below.

Implications for Policy

Lead, follow, or get out of the way is often attributed to Thomas Paine (Haddad, 2021) and is an entirely appropriate rally call in the context of this study. Leadership at the school district level was the break or make factor in the non-voluntary transition to remote learning. Granted, the district leadership is one element in the chain of command at the state and federal level, but it was vital at the command level within district boundaries in San Juan County. The communities in San Juan County, e.g., district school boards, district superintendents, school principals, academic department chairs, classroom teachers, parents, and even students held all the knowledge, expertise, resources, capabilities, and willingness to produce a positive deviant outcome that benefited everyone.

There is pragmatic evidence that policy implications are the dominant role of elected school boards and district superintendents; however, school administrators share in implementing district-level policy and adding customized leadership vision to meet their schools' unique needs. This study focused on the unique needs at the classroom teacher level as a direct outcome while considering the influences of district-level policy and implementation governance. Two key policy recommendations are offered here, supported by the evidence in the data. First, there is a need for formalized online training that improves teacher and student skills and awareness of connectivist techniques and virtual learning. Second, formal training and teacher workshops about how to mitigate the impacts on student social and behavior challenges in the event of an extreme social disruption.

In summary, school district-level leadership was crucial in successfully transitioning to

remote learning. Various stakeholders in San Juan County worked together, utilizing their knowledge, expertise, and resources to achieve positive outcomes. While elected school boards and district superintendents are primarily responsible for policy implications, school administrators have a role in implementing policies and providing customized leadership to address specific school needs. The study recommends formalized online training for teachers and students on connectivist techniques and virtual learning and training on managing student behavior and fostering online relationships.

Implications for Practice

All study participants shared a common feeling that the lessons they learned strengthened their belief that if another disruptive event were to occur, they would be better prepared to transition to full-time remote learning. Although study participants felt the event was disruptive, and the long-term implications are still being felt, there is consistent evidence that teachers in San Juan County are more capable of following three practice recommendations: (a) provide focused implementation utilizing flipped and blended learning that leverages student-peer collaboration to build a cohort accountability model (Bergdahl et al., 2020; Lohmann et al., 2021; Thai et al., 2020); (b) scaffold learning content leveraging existing learning objects, e.g., MOOCs, Wisc-Online OER Library, Udemy, etc. (Alabdulaziz, 2021; Korhonen et al., 2019; Mamun et al., 2020; Tahir et al., 2022); and (c) develop paper-based learning packets to reinforce remote learning, or as stand-alone instructional material (Alston et al., 2022; Bakki et al., 2020).

Theoretical and Empirical Implications

The data collected in this study have rich theoretical and empirical implications that add value to the pool of knowledge about how school leaders and classroom teachers can innovate

and produce positive deviance and disruptive innovation in a non-voluntary transition to remote learning and everyday practice. This section will explore those implications as a best practice recommendation for applying theory and empirical evidence.

Theoretical Implications

Social exchange theory was selected because it helps explain the behavioral science of how two or more actors engage and remain in a social transaction interaction as long as both parties perceive value (O. B. Jensen, 2021; Kumar et al., 2021; Nasu, 2021). The evidence points to a conundrum between how teachers and students valued the exchange since student attendance was very low during the transition period. Given the low attendance record of nearly sixty-five percent of students countywide, it is reasonable to conclude that those students did not find the exchange worth continuing for a number of reasons. However, a closer examination of why study participants continued in the exchange needs to be analyzed more abstractly to better explain and understand the root cause for remaining in the transaction.

Although Homans (1958) presented original research on social exchange theory, the exchange depends on the actor's voluntary engagement in transactions. It was the voluntary engagement that Emerson (1976) argued as an equilibrium of dyadic relationships factors into the psychological motivation to remain in a transaction. A logical explanation would conclude that social exchange can be a multi-exchange transaction where the value of a lower exchange transaction contributes to a higher value exchange transaction (Ahmad et al., 2023; Enayat et al., 2022; Kemp et al., 2021). Ahmad et al. (2023) argued that an exchange could have a multiple transaction relationship cardinality represented as a one-to-one, one-to-many, and many-to-many constraint. In my study's data, I found evidence of secondary and tertiary compelling transactions to explain why the "teacher" actors continued in a transaction when, in all accounts,

the transaction should have been abandoned.

To better explain this phenomenon, I use an example of a social constraint precedence, which is the daily routine in which students and teachers live as participants in a social norm (Levorsen et al., 2021; Payette et al., 2020). This scenario is a behavioral expectation reinforced through learned patterns (Levorsen et al., 2021; Payette et al., 2020). Something as simple as an alarm clock sounding off on a regular routine begins the psychological start of the day. The individual daily routine has acculturated and matured to a point where actors behave and perform activities as part of an expected pre-defined learned process. The COVID-19 mandatory transition to remote learning broke the social norm when students learned they no longer had to get out of bed to catch the school bus. The old, learned process was extinguished, and a new process filled its place (Bandura, 2006).

Emile Durkheim (1933, 1973) described the disruption of social norms as a period of anomie, defined as a state of normlessness, disorder, or confusion when societal standards are weak or unclear. When social norms are in flux, society often attempts to apply boundaries until a new social norm is established (Bernburg, 2019). In my study's data, I found examples of indicators where school district leaders encouraged the development of mitigation strategies to overcome the anomie impact. Leadership established a relaxed policy and recommendations, allowing teachers flexibility to create their lesson plans. This flexibility can explain why social exchange theory worked to explain the results and behavior of teachers since they were psychologically focused on the dyadic relationship between themselves and their actively participating students.

In summary, social exchange theory explains how actors engage in social transactions if they perceive value. Low attendance during remote learning can be understood through this

theory as students who did not value education did not engage. For teachers, the value exchange with their actively participating students inspired continued engagement in the education transaction. Social constraints, like daily routines, compel actors to behave in expected ways. Disruption of social norms leads to a state of anomie, and school leaders responded by establishing flexible policies to mitigate these challenges.

Empirical Implications

A premise I formulated from the literature is that there is a qualitative, practical, and pragmatic way to objectively measure acts of positive deviance and disruptive innovation (Baxter & Lawton, 2022; Christensen, 1997; Heckert et al., 2022; O'Reilly & Binns, 2019; Ruggeri & Folke, 2022). Reflecting on the evidence discovered from this research, there is an empirical contribution that supports a positive deviance position through community and peer collaboration. In organizational innovation, positive deviance and disruptive innovation thrive when participants are free to pursue unique and unexpected approaches without strict leadership constraints (Heckert et al., 2022; Ruggeri & Folke, 2022).

Leadership constraints allow for the emergence of novel solutions that challenge norms and drive significant change. Positive deviance involves intentional actions by individuals to address challenges, while disruptive innovation often starts as a simple, effective solution that evolves into a groundbreaking process over time (Christensen, 1997; O'Reilly & Binns, 2019; Sidorkin, 2021). Both concepts highlight the importance of tapping into a community's collective expertise and resources to foster innovative solutions (Tolbert & Darabi, 2019).

This study contributes new empirical evidence of how local school leadership collaborated within San Juan County to create a just-good enough solution that later pushed through as a disruptive innovation. The innovation was a new practice for configuring school

buses with Internet hot-spot Wi-Fi and then geolocating them to remote communities. These communities in San Juan County are very remote, and these students spend as much as two-to-three hours a day busing into school, so having mobile Wi-Fi helped bridge the technology gap and made it possible for students to access learning. The new disruptive innovation that pushed through as a policy change was transitioning from the traditional “snow day” to learning online during inclement weather (Fontenelle-Tereshchuk, 2021; Khlaif et al., 2021a; Movahedazarhouligh & Jones, 2024; Mukhtar et al., 2020; Quezada et al., 2020; Shin & Hickey, 2021).

In summary, this study's evidence suggests that positive deviance and disruptive innovation can be measured objectively. Collaboration and freedom in organizational innovation lead to novel solutions that challenge norms and drive significant change. Positive deviance involves intentional actions to address challenges, while disruptive innovation starts as simple solutions that evolve over time. Both concepts emphasize leveraging a community's expertise and resources for innovative solutions. This study highlights how local school leadership in San Juan County innovated using school buses with Wi-Fi for remote communities, bridging the technology gap. This disruptive policy change allowed online learning during inclement weather instead of traditional "snow days."

Limitations and Delimitations

This section discusses this study's limitations and delimitations. Empirical research reporting emphasizes the expectation of transparent and traceable research processes that make a valuable impact (Svensson, 2021). Researchers must clearly align and distinguish their philosophical underpinnings to justify their selection based on the study's context, expose their known biases, and state their positionality and assumptions (Martinsuo & Huemann, 2021;

Svensson, 2021). Limitations are the study's shortcomings and weaknesses, and delimitations are the context and boundaries that define the scope of the study (Crabtree & Miller, 2023; Creswell & Creswell, 2023; Yin, 2018).

Limitations

Reflecting on the study's outcomes, the following limitations are reported here so the reader can understand those factors and make a value judgment of this study's findings. These factors include unexpected or unanticipated variables that emerged during the data collection and analysis. The first limitation emerged in the data pointing to school district-level governance and policy documentation. Although study participants shed light on what those district-level policies and governance models tended to be, not identifying a district-level document review as part of the study was a missed opportunity to have a snapshot view of governance before, during, and after the events of COVID-19, and would have added another anchoring triangulation point.

The second limitation was discovering a restriction on collecting data from teachers working in the many schools located in the Navajo Nation. I learned from a potential study participant that I would have to present my research proposal to the Central Consolidated School District, and it was during that presentation that I was made aware of the Navajo Nation Institutional Review Board. The Central Consolidated School district informed me that I could interview and collect research data from schools not in the Navajo Nation. They were very helpful in assisting this study. However, in the interest of completing this study, I did not have the time to work through the Navajo Nation IRB process.

The third limitation that proved difficult to overcome was finding the required number of study participants. Upon reflection, two factors that emerged from the data can explain this difficulty. San Juan County is a rural area in northwest New Mexico, and working remotely in

this blue-collar industrial area is still an acculturating phenomenon. Second, while recruiting study participants, there was a hesitancy to commit to the three to five hours originally estimated to complete the three data collection activities. The ultimate success of completing the data collection was through tenacious follow-up and streamlining the time requirements. It is worth noting that the remote nature of collecting study data almost proved to be a devastating limitation.

The fourth limitation was biases associated with qualitative research, which are distortions of truth that impact the validity and reliability of research (Johnson et al., 2020; Svensson, 2021). It is impossible to eliminate bias from research, so the best that can be done is to announce potential biases in the researcher's positionality (Creswell & Creswell, 2023). I approached this study from a pragmatist worldview. Given my background and experiences living in San Juan County, I have a reflexivity bias limitation.

Finally, anticipating a reflexivity bias as a limitation, I sought to weigh my interpretation of the study's findings as a delimitation by focusing on what mitigation strategies participants created during the COVID-19 events. In acknowledging my bias, I followed the guidance from Creswell and Creswell (2023), Merriam and Grenier (2019), and Saldaña (2021) to express my findings and interpretations of the data to ensure my study met a level of validity, credibility, and reliability.

Delimitations

Qualitative methods use a defining approach where meaning is determined beforehand, delimiting the approach used to explore data units (Svensson, 2021). Data units clearly distinguish between the case and its context, justify their selections, and provide sufficient background information for readers to understand and assess the research results (Martinsuo &

Huemann, 2021). The following general delimitations were defined early in this study to set the context boundaries for analyzing the evidence collected:

I specifically selected a single case study method to describe and categorize those mitigation strategies from public school teachers working in one of the four school districts in San Juan County, New Mexico. I deliberately avoided focusing on the participants' lived experiences except where those experiences captured mitigation tactics, techniques, and procedures to develop a positive deviance or disruptive innovation outcome toward transitioning their in-person classroom to the remote learning environment. I deliberately avoided capturing gender or ethnicity demographics; my rationale was that I wanted to focus on mitigation strategies that were independent of ethnicity and gender.

I selected San Juan County, New Mexico, specifically because of its unique geographical and sociocultural characteristics. San Juan County has a nearly equal population, and its cultural traditions include Native American, Hispanic, and Anglo traditions that are not found elsewhere in the United States of America. San Juan County is also uniquely isolated from a large cosmopolitan city; the closest metropolitan city is Albuquerque, New Mexico, approximately 180 miles to the southeast (U.S. Census Bureau, 2021).

I leveraged snowball sampling techniques to solicit and recruit study participants. Using snowball sampling allowed me to find study participants I may not have been able to recruit since my access to teachers' peer networks was initially limited (Dosek, 2021). Finally, I structured each of my data collection methods to support a model of building a concrete baseline set to an abstract analytical approach for triangulating data to add reliability and validity to the data interpretation (Creswell & Creswell, 2023; Martinsuo & Huemann, 2021; Merriam & Grenier, 2019; Morgan, 2022; Saldaña, 2021; Svensson, 2021).

Recommendations for Future Research

Given the unique quality and quantity of this study's data and after interviewing key school leaders I was encouraged to download an Excel spreadsheet from the Navajo Nation Human Research Review Board to see what research projects have been conducted with any theme relationship to my study. Specifically, I looked to see if there were any studies involving public school teachers, studies about personal agency, or studies using social exchange theory. This area of research is wide open, and research in these areas would provide value and guidance to the Navajo Nation on how to improve mitigation strategies, as well as explain social connections within a cross-cultural pragmatic point of view. The following three research recommendations for future research are suggested. In this section, I will share those recommendations with proposed study methodologies and target audiences.

Future Research 1: Positive Deviance and Disruptive Innovation: An Exploratory Case Study of Navajo Nation Public School Teachers

A major recommendation for a research study would be an exploratory case study that extends this research's constructs to Navajo Nation communities. The Navajo Nation, Dinétah, is the largest Native American reservation in the United States and spans a large portion of Arizona, New Mexico, and Utah. Most of the Navajo Nation comprises small rural communities with populations below 1000 residents (U. S. Census Bureau, 2021). Interconnected family clan elders and leaders heavily influence the social culture of these communities. An outlier pattern in this study was grandparents' impact and influence on their grandchildren's success. A review of the available literature about grandparent influence is sparse. Filtering through how grandparents positively impacted their grandchildren's education success is an area of research wide open for study. The rationale for selecting an exploratory case study is that more data is needed to

understand the impact and influences of clan elders and grandparents on students' success from the Diné (Navajo) perspective.

Future Research 2: Disruptive Social Learning and The Effect of Labeling: A Humanistic Personal Agency Phenomenological Study

A Sociological recommendation for future research is a personal agency study of the social, cultural, and labeling influences on Navajo students during the non-voluntary transition to remote learning. Although many studies have investigated the success rates of online learning for voluntary student participants, no studies have examined this phenomenon from a non-voluntary population (Al-Nuaimi & Al-Emran, 2021; Ithriah et al., 2020; Lawson & Lawson, 2020). These factors may or may not be magnified in the Navajo Nation, so a case study or a humanistic methodology would be valuable answering those questions from a personal agency phenomenological point of view.

Future Research 3: Social Exchange Theory: A Case Study of Cross-Social and Cultural Influences on the Navajo Nation.

More research is needed to extend social exchange theory to account for didactic pedagogy that accounts for cross-social and cultural influences for students in remote communities in the Navajo Nation. A single or exploratory case study methodology selection would be best suited since this phenomenon is not clearly understood in a larger context from a critical, unique, and revelatory contribution (Margherita & Braccini, 2021)

Conclusion

In conclusion, this single case study explored positive deviance and disruptive innovation by public school teachers in San Juan County, New Mexico. San Juan County was chosen for its diverse cultural makeup and remote rural setting. Positive deviance and disruptive innovation

flourish when participants are free to explore unique solutions beyond traditional expectations and go above and beyond the call of duty to support their students, at times demonstrating acts of supererogation. At the school district level, leaders facilitated collaboration and innovation in transitioning to remote learning during the COVID-19 crisis, addressed the technology disparities, and implemented the needed organizational changes. Participants shared their experience understanding the psychology of teaching during the pandemic, underscoring the importance of human connection, empathy, and trust for effective education in diverse student populations.

The data, which were organized from meaningful concrete to abstract relationships, revealed three distinct themes. Education leadership, organization, and technology describe the foundation needed to support the interpersonal and pedagogical aspects of the transition to remote learning. The psychology of understanding, connection, and relationships explains the interpersonal interactive actions of teachers as they experimented and adjusted their human-to-human and human-to-technology approaches to support their students during the transition. The final theme, pedagogy, innovation, and adapting to change, describes the abstract adjustment and adaptations to try new pedagogical approaches, innovation using technology, and overcoming the challenges of adapting to change.

Social exchange theory explains the transaction exchanges between school leadership, teachers, parents, and students. Some students did not value the exchange and abandoned the transaction. At the same time, teachers continued in the teacher-student transaction, indicating a scenario of multiple exchange transactions that existed independently of other transactions. All participants believe they are better prepared and have improved and strengthened capabilities based on their experience during the transition to remote learning. Finally, three future study

recommendations are offered where the target audience is residents living in the Navajo Nation.

References

- Abedini, A., Abedin, B., & Zowghi, D. (2021). Adult learning in online communities of practice: A systematic review. *British Journal of Educational Technology*, 52(4), 1663-1694.
<https://doi.org/10.1111/bjet.13120>
- Abuhassna, H., Al-Rahmi, W. M., Yahya, N., Zakaria, M. A. Z. M., Kosnin, A. B. M., & Darwish, M. (2020). Development of a new model on utilizing online learning platforms to improve students' academic achievements and satisfaction. *International Journal of Educational Technology in Higher Education*, 17(1), 1-23. <https://doi.org/10.1186/s41239-020-00216-z>
- Acquisto, J. (2024). On listening and failure: Roger Laporte with Marcel Proust. *Partial Answers*, 22(1), 141-159. <https://doi.org/10.1353/pan.2024.a916703>
- Adair, B. (2019). *The emotionally connected classroom: wellness and the learning experience*. Corwin.
- Adamides, E., & Karacapilidis, N. (2020). Information technology for supporting the development and maintenance of open innovation capabilities. *Journal of Innovation & Knowledge*, 5(1), 29-38. [10.1016/j.jik.2018.07.001](https://doi.org/10.1016/j.jik.2018.07.001)
- Adler, R. H. (2022). Trustworthiness in qualitative research. *Journal of Human Lactation*, 38(4), 598-602. <https://doi.org/10.1177/08903344221116620>
- Agarwal, P. K. (2019). Retrieval practice & Bloom's taxonomy: Do students need fact knowledge before higher order learning? *Journal of Educational Psychology*, 111(2), 189-209. <https://doi.org/10.1037/edu0000282>
- Ahmad, R., Nawaz, M. R., Ishaq, M. I., Khan, M. M., & Ashraf, H. A. (2023). Social exchange theory: Systematic review and future directions. *Frontiers in Psychology*, 13,

<https://doi.org/10.3389/fpsyg.2022.1015921>

Alabdulaziz, M. S. (2021). COVID-19 and the use of digital technology in mathematics education. *Education and Information Technologies*, 26(6), 7609-7633.

<https://doi.org/10.1007/s10639-021-10602-3>

Al-Adwan, A. S. (2020). Investigating the drivers and barriers to MOOCs adoption: The perspective of TAM. *Education and Information Technologies*, 25(6), 5771-5795.

<https://doi.org/10.1007/s10639-020-10250-z>

Alam, A. F. P., & Suhendra, S. (2019). Paradox between students' learning needs and learning strategies of teacher mathematics in Indonesia. *Journal of Physics. Conference Series*, 1157(3), 32103. <https://doi.org/10.1088/1742-6596/1157/3/032103>

Alam, M. (2020). Organisational processes and COVID-19 pandemic: Implications for job design. *Journal of Accounting & Organizational Change*, 16(4), 599-606.

<https://doi.org/10.1108/JAOC-08-2020-0121>

Alam, M. K. (2021). A systematic qualitative case study: questions, data collection, NVivo analysis and saturation. *Qualitative Research in Organizations and Management*, 16(1), 1-31. <https://doi.org/10.1108/QROM-09-2019-1825>

Albanna, B., & Heeks, R. (2019). Positive deviance, big data, and development: A systematic literature review. *The Electronic Journal of Information Systems in Developing Countries*, 85(1), e12063-n/a. <https://doi.org/10.1002/isd2.12063>

AlDahdouh, A. A. (2020). Emotions among students engaging in connectivist learning experiences. *International Review of Research in Open and Distance Learning*, 21(2), 98-117. <https://doi.org/10.19173/irrodl.v21i2.4586>

Allen, J., McGregor, G., Pendergast, D., & Ronksley-Pavia, M. (2019). *Young adolescent*

- engagement in learning: Supporting students through structure and community*. Palgrave Macmillan. <https://doi.org/10.1007/9783030058371>
- Al-Nuaimi, M. N., & Al-Emran, M. (2021). Learning management systems and technology acceptance models: A systematic review. *Education and Information Technologies*, 26(5), 5499-5533. <https://doi.org/10.1007/s10639-021-10513-3>
- Al-Samarraie, H. (2019). A scoping review of videoconferencing systems in higher education. *International Review of Research in Open and Distance Learning*, 20(3) <https://doi.org/10.19173/irrodl.v20i4.4037>
- Alston, P., Gleave, T., Hirst, M., & MacQueen, H. (2022). Online science education at scale: Open and distance learning, MOOCs, and other learning assets for theory and practice. In: Witchel, H.J., Lee, M.W. (eds) *Technologies in biomedical and life sciences education. Methods in Physiology*. Springer, Cham. https://doi.org/10.1007/978-3-030-95633-2_13
- Amini, H., & Minca, A. (2022). Epidemic spreading and equilibrium social distancing in heterogeneous networks. *Dynamic Games and Applications*, 12(1), 258-287. <https://doi.org/10.1007/s13235-021-00411-1>
- Anderson, L. (2019). The future of the public policy school in a world of disruptive innovation. *Global Policy*, 10(1), 84-85. <https://doi.org/10.1111/1758-5899.12634>
- Andrews, M. (2015). Explaining positive deviance in public sector reforms in development. *World Development*, 74, 197-208. <https://doi.org/10.1016/j.worlddev.2015.04.017>
- Androustos, A., & Brinia, V. (2019). Developing and piloting a pedagogy for teaching innovation, collaboration, and co-creation in secondary education based on design thinking, digital transformation, and entrepreneurship. *Education Sciences*, 9(2), 113.

<https://doi.org/10.3390/educsci9020113>

Archer, A. (2020). Supererogation and consequentialism. In D. W. Portmore (Ed.), *The Oxford Handbook of Consequentialism* (pp. 269-288). Oxford University Press.

<https://doi.org/10.1093/oxfordhb/9780190905323.013.17>

Archer, A., & Ware, L. (2020). *Aesthetic supererogation*. Helsinki University Press in cooperation with the Faculty of Arts, Charles University. <https://doi.org/10.33134/eeja.158>

Aroles, J., & Küpers, W. (2022). Towards an integral pedagogy in the age of ‘digital Gestell’: Moving between embodied co-presence and telepresence in learning and teaching practices. *Management Learning*, 53(5), 757-775. <https://doi.org/10.1177/13505076211053871>

Arora, S. (2020). Research and innovation in teaching pedagogy for emerging markets. In A. K. Shrivastava, R. Sudhir, A. K. Mohapatra & M. Ram (Eds.), *Advances in management research* (pp. 279-289). CRC Press. <https://doi.org/10.1201/9780429280818-20>

Atolia, M., Loungani, P., Marquis, M., & Papageorgiou, C. (2020). Rethinking development policy: What remains of structural transformation? *World Development*, 128, 104834. <https://doi.org/10.1016/j.worlddev.2019.104834>

Babichenko, Y., & Rubinstein, A. (2022). Communication complexity of approximate Nash equilibria. *Games and Economic Behavior*, 134, 376-398.

<https://doi.org/10.1016/j.geb.2020.07.005>

Bahdanovich Hanssen, N., & Erina, I. (2021). Parents' views on inclusive education for children with special educational needs in Russia. *European Journal of Special Needs Education*, 37(5), 1-15. <https://doi.org/10.1080/08856257.2021.1949092>

Bakki, A., Oubahssi, L., George, S., & Cherkaoui, C. (2020). A model and tool to support pedagogical scenario building for connectivist MOOC. *Technology, Knowledge and*

- Learning*, 25(4), 899-927. <https://doi.org/10.1007/s10758-020-09444-8>
- Bales, A., & Benn, C. (2021). Supererogation and sequence. *Synthese (Dordrecht)*, 198(8), 7763-7780. <https://doi.org/10.1007/s11229-020-02547-w>
- Bales, R. F. (1951). *Interaction process analysis* (2ed. ed.). Addison-Wesley Press.
- Bandura, A. (1969). Social learning of moral judgments. *Journal of Personality and Social Psychology*, 11(3), 275-279. <https://doi.org/10.1037/h0026998>
- Bandura, A. (1974). Behavior theory and the models of man. *The American Psychologist*, 29(12), 859-869. <https://doi.org/10.1037/h0037514>
- Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science*, 1(2), 164-180. <https://doi.org/10.1111/j.1745-6916.2006.00011.x>
- Banihashem, S. K., Farrokhnia, M., Badali, M., & Noroozi, O. (2021). The impacts of constructivist learning design and learning analytics on students' engagement and self-regulation. *Innovations in Education and Teaching International*, 59(4), 1-11. <https://doi.org/10.1080/14703297.2021.1890634>
- Bansal, V., Bansal, A., & Rao, D. N. (2021). *Virtual and classroom learning in higher education*. Bentham Science Publishers.
- Bao, D. (2021). Improving pedagogy in response to students' reflective learning needs. In: Bao, D., Pham, T. (eds) *Transforming Pedagogies Through Engagement with Learners, Teachers and Communities* (pp. 17-36). Springer. https://doi.org/10.1007/978-981-16-0057-9_2
- Bergdahl, N., Nouri, J., & Fors, U. (2020). Disengagement, engagement and digital skills in technology-enhanced learning. *Education and Information Technologies*, 25(2), 957-983. <https://doi.org/10.1007/s10639-019-09998-w>

- Barmaki, R. (2019). On the origin of "labeling" theory in criminology: Frank Tannenbaum and the Chicago school of sociology. *Deviant Behavior, 40*(2), 256-271.
<https://doi.org/10.1080/01639625.2017.1420491>
- Barrett, P. (2020). Evidence for the impact of classroom design on learning: Implications for practice. *The Australian Educational Leader, 42*(1), 20-23.
<https://doi.org/10.3316/informit.438377933418123>
- Baxter, D., Trott, P., & Ellwood, P. (2023). Reconceptualising innovation failure. *Research Policy, 52*(7), 104811. <https://doi.org/10.1016/j.respol.2023.104811>
- Baxter, R., & Lawton, R. (2022). *The positive deviance approach*. Cambridge University Press.
<https://doi.org/10.1017/9781009237130>
- Beach, P., Henderson, G., & McConnel, J. (2020). Elementary teachers' cognitive processes and metacognitive strategies during self-directed online learning. *Teachers and Teaching, Theory and Practice, 26*(5-6), 395-413. <https://doi.org/10.1080/13540602.2020.1863206>
- Beauchamp, T. L. (2020). The origins and drafting of the Belmont report. *Perspectives in Biology and Medicine, 63*(2), 240-250. <https://doi.org/10.1353/pbm.2020.0016>
- Becker, H. S. (1963). *Outsiders; studies in the sociology of deviance*. Free Press of Glencoe.
- Beda, Z., Smith, S. M., & Orr, J. (2020). Creativity on demand – hacking into creative problem solving. *NeuroImage, 216*, 116867. <https://doi.org/10.1016/j.neuroimage.2020.116867>
- Bekalu, M. A., McCloud, R. F., Minsky, S., & Viswanath, K. (2021). Association of social participation, perception of neighborhood social cohesion, and social media use with happiness: Evidence of trade-off (JCOP-20-277). *Journal of Community Psychology, 49*(2), 432-446. <https://doi.org/10.1002/jcop.22469>
- Benito, Á., Dogan Yenisey, K., Khanna, K., Masis, M. F., Monge, R. M., Tugtan, M. A., Vega

- Araya, L. D., & Vig, R. (2021). Changes that should remain in higher education post COVID-19: A mixed-methods analysis of the experiences at three universities. *Higher Learning Research Communications*, 11, 51. <https://doi.org/10.18870/hlrc.v11i0.1195>
- Bernburg, J. (2019). *Labeling Theory*. In: Krohn, M., Hendrix, N., Penly Hall, G., Lizotte, A. (eds) *Handbook on crime and deviance. Handbooks of sociology and social research*. Springer, Cham. https://doi.org/10.1007/978-3-030-20779-3_10
- Bičanić, D., & Brust Nemet, M. (2020). Pedagogy workshops for promoting prosocial behaviour among students: case study. *Život i Škola*, 66(1), 67-75. <https://doi.org/10.32903/zs.66.1.6>
- Bisel, R. S., Kavya, P., & Tracy, S. J. (2020). Positive deviance case selection as a method for organizational communication: A rationale, how-to, and illustration. *Management Communication Quarterly*, 34(2), 279-296. <https://doi.org/10.1177/0893318919897060>
- Bizami, N. A., Tasir, Z., & Kew, S. N. (2023). Innovative pedagogical principles and technological tools capabilities for immersive blended learning: A systematic literature review. *Education and Information Technologies*, 28(2), 1373-1425. <https://doi.org/10.1007/s10639-022-11243-w>
- Björktomta, S., & Hansen, H. A. (2018). Child welfare services and social media - childhood, being and becoming in a digital society. *Croatian Medical Journal*, 59(2), 90-92. <https://doi.org/10.3325/cmj.2018.59.90>
- Blau, P. M. (1964). *Exchange and power in social life*. Routledge. <https://doi.org/10.4324/9780203792643>
- Blochowiak, C. M. (2021). *The positive deviance improvement approach in education: A case study of school and district application* (Ph.D.). Available from ProQuest Dissertations & Theses Global. (2546615590).

- Bloom, B. S. (1956). *Taxonomy of educational objectives: the classification of educational goals*. Longmans, Green.
- Boman, J. H., & Mowen, T. J. (2020). More than just a flock? The independent and interdependent nature of peer self-control on deviance. *Deviant Behavior, 41*(11), 1468-1483. <https://doi.org/10.1080/01639625.2019.1626540>
- Bonicalzi, S., & Haggard, P. (2019). From freedom from to freedom to: New perspectives on intentional action. *Frontiers in Psychology, 10*, 1193. <https://doi.org/10.3389/fpsyg.2019.01193>
- Booth, C., Villadsen, A., Goodman, A., & Fitzsimons, E. (2021). Parental perceptions of learning loss during COVID-19 school closures in 2020. *British Journal of Educational Studies, 69*(6), 657-673. <https://doi.org/10.1080/00071005.2021.1984390>
- Boyd, K. (2021). Beyond politics: Additional factors underlying skepticism of a COVID-19 vaccine. *History and Philosophy of the Life Sciences, 43*(1), 12. <https://doi.org/10.1007/s40656-021-00369-8>
- Boyle, M. P., & Schmierbach, M. (2020). Sampling. *Applied Communication Research Methods* (2nd ed.). Routledge. <https://doi.org/10.4324/9780429296444-8>
- Bragilovski, M., Makias, Y., Shamshila, M., Stern, R., & Sturm, A. (2021). Model-based knowledge searching. *Conceptual Modeling* (pp. 242-256). Springer International Publishing. https://doi.org/10.1007/978-3-030-89022-3_20
- Breslin, T. (2021). *Lessons from lockdown: the educational legacy of COVID-19*. Routledge. <https://doi.org/10.4324/9781003121343>
- Brieger, E., Arghode, V., & McLean, G. (2021). Study of six online learning theories shows theories should be chosen to match institutional situations and learners' backgrounds.

Human Resource Management International Digest, 29(6), 5-7.

<https://doi.org/10.1108/HRMID-06-2021-0144>

Brière, M., Le Roy, J., & Meier, O. (2021). Linking servant leadership to positive deviant behavior: The mediating role of self-determination theory. *Journal of Applied Social Psychology*, 51(2), 65-78. <https://doi.org/10.1111/jasp.12716>

Bringman-Rodenbarger, L., & Hortsch, M. (2020). How students choose e-learning resources: the importance of ease, familiarity, and convenience. *FASEB bioAdvances*, 2(5), 286-295. <https://doi.org/10.1096/fba.2019-00094>

Brynjolfsson, E., & Saunders, A. (2019). *Wired for innovation: How information technology is reshaping the economy*. MIT Press. <https://doi.org/10.7551/mitpress/8484.001.0001>

Burdelski, M., Tainio, L., & Routarinne, S. (2020). Human-to-human touch in institutional settings: Introduction to the special issue. *Social Interaction*, 3(1), <https://doi.org/10.7146/si.v3i1.120247>

Burns, A., Xiong, C., Franconeri, S., Cairo, A., & Mahyar, N. (2020). How to evaluate data visualizations across different levels of understanding. *2020 IEEE Workshop on Evaluation and Beyond - Methodological Approaches to Visualization (BELIV)*, 19-28. <https://doi.org/10.1109/BELIV51497.2020.00010>

Callander, S., & Matouschek, N. (2019). The risk of failure: trial and error learning and long-run performance. *American Economic Journal: Microeconomics*, 11(1), 44-78. <https://doi.org/10.1257/mic.20160359>

Camera, G., & Hohl, L. (2021). Group-identity and long-run cooperation: An experiment. *Journal of Economic Behavior & Organization*, 188, 903-915. <https://doi.org/10.1016/j.jebo.2021.06.017>

- Camero, A., & Alba, E. (2019). Smart city and information technology: A review. *Cities*, 93, 84-94. <https://doi.org/10.1016/j.cities.2019.04.014>
- Castelli, F. R., & Sarvary, M. A. (2021). Why students do not turn on their video cameras during online classes and an equitable and inclusive plan to encourage them to do so. *Ecology and Evolution*, 11(8), 3565-3576. <https://doi.org/v10.1002/ece3.7123>
- Cetinkaya, S. E. (2020). Bringing classroom and outside world together: Mobile instant messaging via WhatsApp© for extracurricular writing. *Qualitative Report*, 25(12), 4319-4351. <https://doi.org/10.46743/2160-3715/2020.4326>
- Champa, T., Waterbury, T., & McQuinn, A. (2020). Utilizing the pandemic disruption to identify distance learning challenges. *Quarterly Review of Distance Education*, 21(4), 51-74.
- Chashina, Z. V., Mochalov, E. V., Gryzhankova, M. Y., Zetkina, I. A., & Emelkina, I. V. (2021). Axiological dominant of psychological and pedagogical methods in distance education. *Annals of the Romanian Society for Cell Biology*, 25(3), 9060-9066. Retrieved from <http://annalsofrscb.ro/index.php/journal/article/view/2811>
- Chen, S., Wu, X., & Li, Y. (2021). Exploring the relationships between distractibility and website layout of virtual classroom design with visual saliency. *International Journal of Human-Computer Interaction*, 38(14), 1291-1306. <https://doi.org/10.1080/10447318.2021.1994212>
- Christensen, C. M. (1997). *The innovator's dilemma: when new technologies cause great firms to fail*. Harvard Business School Press.
- Christensen, C. M., Baumann, H., Ruggles, R., & Sadtler, T. M. (2006). *Disruptive innovation for social change*. Graduate School of Business Administration, Harvard University.
- Christensen, C. M., & Ganser, L. J. (2017). *The Innovator's Dilemma*. High Bridge.

- Clark, H., Coll-Seck, A. M., Banerjee, A., Peterson, S., Dalglish, S. L., Ameratunga, S., Balabanova, D., Bhutta, Z. A., Borrazzo, J., Claeson, M., Doherty, T., El-Jardali, F., George, A. S., Gichaga, A., Gram, L., Hipgrave, D. B., Kwamie, A., Meng, Q., Mercer, R., ... , WHO–UNICEF– Lancet Commissioners. (2020). After COVID-19, a future for the world's children? *The Lancet (British Edition)*, 396(10247), 298-300.
[https://doi.org/10.1016/S0140-6736\(20\)31481-1](https://doi.org/10.1016/S0140-6736(20)31481-1)
- Clark, R. C., & Mayer, R. E. (2023). *E-Learning and the Science of Instruction* (5th ed.). John Wiley & Sons, Incorporated.
- Coleman, K., & Derry, B. (2023). Virtual reality in the EAP classroom: Creating immersive, interactive, and accessible experiences for international students. *Language Teaching*, 56(1), 157-160. <https://doi.org/10.1017/S0261444822000210>
- Collantes, L. M., Torres, J. M., Astrero, E. T., Gaboy, R. G., Castillo, M. E. G. C., & Mukminin, A. (2022). Perspectives, challenges, and opportunities: the pandemic teaching experiences in science courses. *Journal of Higher Education Theory and Practice*, 22(4), 75-90.
<https://doi.org/10.33423/jhetp.v22i4.5131>
- Collazos, C. A., Gutiérrez, F. L., Gallardo, J., Ortega, M., Fardoun, H. M., & Molina, A. I. (2019). Descriptive theory of awareness for groupware development. *Journal of Ambient Intelligence and Humanized Computing*, 10(12), 4789-4818.
<https://doi.org/10.1007/s12652-018-1165-9>
- Cook, S. C., & McDuffie-Landrum, K. (2020). Integrating effective practices into co-teaching: increasing outcomes for students with disabilities. *Intervention in School and Clinic*, 55(4), 221-229. <https://doi.org/10.1177/1053451219855739>
- Counselman Carpenter, E., & Redcay, A. (2019). Understanding the role of the brick-and-mortar

- classroom in course design and implementation of the “flipped” classroom: An exploratory case study. *Journal of Teaching and Learning with Technology*, 8(1), 42-59. <https://doi-org.ezproxy.liberty.edu/10.14434/jotlt.v8i1.26806>
- Cowie, C. (2020). Do constitutive norms on belief explain Moore’s Paradox? *Philosophical Studies*, 177(6), 1685-1702. <https://doi.org/10.1007/s11098-019-01280-6>
- Crabtree, B. F., & Miller, W. L. (2023). *Doing qualitative research* (3rd ed.). SAGE Publications, Inc.
- Cranston, J. (2019). *Beyond the classroom walls: Teaching in challenging social contexts*. Lexington Books.
- Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications, Inc.
- Creswell, J. W., & Poth, C. (2024). *Qualitative inquiry and research design: choosing among five approaches* (4th ed.). SAGE Publications.
- Cuba, M. J. (2020). Frontloading academic vocabulary for English learners with disabilities in an integrated classroom setting. *Intervention in School and Clinic*, 55(4), 230-237. <https://doi.org/10.1177/1053451219855736>
- Cueva, K., Cueva, M., Revels, L., Lanier, A. P., Dignan, M., Viswanath, K., Fung, T. T., & Geller, A. C. (2019). A framework for culturally relevant online learning: Lessons from Alaska’s tribal health workers. *Journal of Cancer Education*, 34(4), 647-653. <https://doi.org/10.1007/s13187-018-1350-8>
- Dadich, A. (2023). Brilliant positive deviance: Innovation beyond disconnected and disciplined domains. In R. Agarwal, E. Patterson, S. Pugalia & R. Green (Eds.), *Innovation* (pp. 99-120). Routledge. <https://doi.org/10.4324/9780429346033-9>

- Dalton, B., Glennie, E., Studley, R., Warkentien, S., & Lauff, E. (2021). Do high school industry certifications reflect local labor market demand? An examination of Florida. *Career and Technical Education Research*, 46(2), 3-22. <https://doi.org/10.5328/cter46.2.3>
- Daniel, S. J. (2020). Education and the COVID-19 pandemic. *Prospects*, 49(1-2), 91-96. <https://doi.org/10.1007/s11125-020-09464-3>
- Darling-Aduana, J., Good, A., & Geraghty, E. (2022). The culture of power online: Cultural responsiveness and relevance in vendor-developed online courses. *Urban Education*, 57(4), 714-742. <https://doi.org/10.1177/0042085920972169>
- de Montlibert, C., Thibaut, J. W., & Kelley, H. H. (1960). The social psychology of groups. *Revue Française De Sociologie*, 1(3), 374. <https://doi.org/10.2307/3319917>
- de Vries, M. J., Hallström, J., & Dakers, J. R. (2019a). *Reflections on technology for educational practitioners: Philosophers of technology inspiring technology education*. Brill Sense.
- de Vries, H., Tummers, L., & Bekkers, V. (2019b). The benefits of teleworking in the public sector: Reality or rhetoric? *Review of Public Personnel Administration*, 39(4), 570-593. <https://doi.org/10.1177/0734371X18760124>
- Dekel, I. (2023). Follow the crowd. *SSRN Electronic Journal*, <https://doi.org/10.2139/ssrn.4320237>
- Dewey, J. (1904). *The relation of theory to practice in the education of teachers*. In C.A. McMurry (Ed.), *The relation of theory to practice in the education of teachers*. Bloomington, IL: Public School Publishing.
- Dewey, J. (1905). The realism of pragmatism. *The Journal of Philosophy, Psychology and Scientific Methods*, 2(12), 324-327. <https://doi.org/10.2307/2010861>
- Di Gesú, M. G., & González, M. F. (2020). *Cultural views on online learning in higher*

education: A seemingly borderless class. Springer International Publishing.

<https://doi.org/10.1007/978-3-030-63157-4>

Dosek, T. (2021). Snowball sampling and Facebook: How social media can help access hard-to-reach populations. *PS, Political Science & Politics*, 54(4), 651-655.

<https://doi.org/10.1017/S104909652100041X>

Downes, S. (2020). Recent work in connectivism. *European Journal of Open, Distance and E-Learning*, 22(2), 113-132. <https://doi.org/10.2478/eurodl-2019-0014>

Dreamson, N. (2020). *Critical understandings of digital technology in education: Meta-connective pedagogy*. Routledge. <https://doi.org/10.4324/9780429277528>

Durkheim, E. (1933). *The division of labor in society*. Free Press.

Durkheim, E. (1973). *On morality and society: Selected writings*. University of Chicago Press.

Durkheim, E., & Lukes, S. (2014). *The rules of sociological method: And selected texts on sociology and its method*. Free Press.

Eames, C., & Aguayo, C. (2020). Education outside the classroom: Reinforcing learning from the visit using mixed reality. *Set: Research Information for Teachers*, (2), 31-37.

<https://doi.org/10.18296/set.0173>

Emerson, R. M. (1976). Social exchange theory. *Annual Review of Sociology*, 2(1), 335-362.

<https://doi.org/10.1146/annurev.so.02.080176.002003>

Enayat, T., Mehrani Ardebili, M., Reyhani Kivi, R., Amjadi, B., & Jamali, Y. (2022). A computational approach to Homans social exchange theory. *Physica A: Statistical Mechanics and its Applications*, 597, 127263. <https://doi.org/10.1016/j.physa.2022.127263>

Ens, B., Lanir, J., Tang, A., Bateman, S., Lee, G., Piumsomboon, T., & Billingham, M. (2019). Revisiting collaboration through mixed reality: The evolution of groupware. *International*

Journal of Human-Computer Studies, 131, 81-98.

<https://doi.org/10.1016/j.ijhcs.2019.05.011>

Escueta, M., Nickow, A. J., Oreopoulos, P., & Quan, V. (2020). Upgrading education with technology. *Journal of Economic Literature*, 58(4), 897-996.

<https://doi.org/10.1257/JEL.20191507>

Evans, R., & Cleghorn, A. (2022). Do student teachers see what learners see? – Avoiding instructional dissonance when designing worksheets. *South African Journal of Childhood Education*, 12(1), 1-10. <https://doi.org/10.4102/sajce.v12i1.1015>

Evans, T., Thomas, M. O. J., & Klymchuk, S. (2021). Non-routine problem solving through the lens of self-efficacy. *Higher Education Research and Development*, 40(7), 1403-1420.

<https://doi.org/10.1080/07294360.2020.1818061>

Favale, T., Soro, F., Trevisan, M., Drago, I., & Mellia, M. (2020). Campus traffic and e-Learning during COVID-19 pandemic. *Computer Networks*, 176, 107290.

<https://doi.org/10.1016/j.comnet.2020.107290>

Federmeier, K. D. (2022). *The psychology of learning and motivation*. Academic press.

[https://doi.org/10.1016/S0079-7421\(22\)00012-3](https://doi.org/10.1016/S0079-7421(22)00012-3)

Fisher, J. A. (2021). *Augmented and mixed reality for communities*. CRC Press.

<https://doi.org/10.1201/9781003052838>

Fitria, T. N. (2020). Teaching English through online learning system during COVID-19 pandemic. *Pedagogy: Journal of English Language Teaching*, 8(2), 138.

<https://doi.org/10.32332/pedagogy.v8i2.2266>

Fitzpatrick, B. R., Berends, M., Ferrare, J. J., & Waddington, R. J. (2020). Virtual illusion:

Comparing student achievement and teacher and classroom characteristics in online and

- brick-and-mortar charter schools. *Educational Researcher*, 49(3), 161-175.
<https://doi.org/10.3102/0013189X20909814>
- Flanigan, A. E., & Babchuk, W. A. (2022). Digital distraction in the classroom: Exploring instructor perceptions and reactions. *Teaching in Higher Education*, 27(3), 352-370.
<https://doi.org/10.1080/13562517.2020.1724937>
- Flavin, M. (2020). *Re-imagining technology enhanced learning: Critical perspectives on disruptive innovation*. Palgrave Macmillan. <https://doi.org/10.1007/978-3-030-55785-0>
- Flavin, M. (2021). A disruptive innovation perspective on students' opinions of online assessment. *Research in Learning Technology*, 29, 1-10.
<https://doi.org/10.25304/rlt.v29.2611>
- Foley, J. A., & Deocampo, M. F. (2021). Posting your thoughts: A pedagogical perspective of blogging. In *Transforming Pedagogies through Engagement with Learners, Teachers and Communities* / (Vol.57, pp. 203-215) Springer. https://doi.org/10.1007/978-981-16-0057-9_13
- Fontenelle-Tereshchuk, D. (2021). 'Homeschooling' and the COVID-19 crisis: The insights of parents on curriculum and remote learning. *Interchange*, 52(2), 167-191.
<https://doi.org/10.1007/s10780-021-09420-w>
- Forkosh Baruch, A., & Gadot, R. (2021). Social curation experience: Towards authentic learning in preservice teacher training. *Technology, Knowledge and Learning*, 26(1), 105-122.
<https://doi.org/10.1007/s10758-020-09449-3>
- Francescucci, A., & Rohani, L. (2019). Exclusively synchronous online (VIRI) learning: The impact on student performance and engagement outcomes. *Journal of Marketing Education*, 41(1), 60-69. <https://doi.org/10.1177/0273475318818864>

- Fredricks, J. A., Parr, A. K., Amemiya, J. L., Wang, M., & Brauer, S. (2019). What matters for urban adolescents' engagement and disengagement in school: A mixed-methods study. *Journal of Adolescent Research, 34*(5), 491-527.
<https://doi.org/10.1177/0743558419830638>
- Frelin, A., & Grannäs, J. (2021). Designing and building robust innovative learning environments. *Buildings (Basel), 11*(8), 345. <https://doi.org/10.3390/buildings11080345>
- Freire, P. (2021). *Pedagogy of hope: Reliving pedagogy of the oppressed*. Bloomsbury Publishing Plc.
- Fried, J. (2018). Pedagogy: What is that? In J. Fried, & R. Harper (Eds.), (pp. 85-92). Routledge.
<https://doi.org/10.4324/9781315205809-8>
- Fuller, K., Gray, M., Bradley-Ridout, G., & Nekolaichuk, E. (2021). Flipping it online: Re-imagining teaching searching for knowledge syntheses. *The Journal of the Canadian Health Libraries Association, 42*(2). <https://doi.org/10.29173/jchla29492>
- Gagné, R. M. (1974). Educational technology and the learning process. *Educational Researcher, 3*(1), 3-8. <https://doi.org/10.2307/1175241>
- Gagné, R. M. (1985). *The conditions of learning and theory of instruction: 4. ed., rev.* Holt, Rinehart and Winston.
- Gamson, D. A., Eckert, S. A., & Anderson, J. (2019). Standards, instructional objectives, and curriculum design: A complex relationship. *Phi Delta Kappan, 100*(6), 8-12.
<https://doi.org/10.1177/0031721719834022>
- Gan, Y., & Bilige, S. (2019). Parental involvement in home-based education and children's academic achievement in China. *Social Behavior and Personality, 47*(12), 1-15.
<https://doi.org/10.2224/sbp.8491>

- Gares, S. L., Kariuki, J. K., & Rempel, B. P. (2020). Community matters: Student–instructor relationships foster student motivation and engagement in an emergency remote teaching environment. *Journal of Chemical Education*, 97(9), 3332-3335.
<https://doi.org/10.1021/acs.jchemed.0c00635>
- Girardier, M. R. (2023). *A descriptive study of the internal motives of organizational positive deviant leaders* Available from ProQuest Dissertations & Theses Global. (2836166026).
- Gonda, D., Pavlovičová, G., Tirpáková, A., & Ďuriš, V. (2021). Setting up a flipped classroom design to reduce student academic procrastination. *Sustainability (Basel, Switzerland)*, 13(15), 8668. <https://doi.org/10.3390/su13158668>
- Granic, A. (2022). Educational technology adoption: A systematic review. *Education and Information Technologies*, 27(7), 9725-9744. <https://doi.org/10.1007/s10639-022-10951-7>
- Granstrand, O., & Holgersson, M. (2020). Innovation ecosystems: A conceptual review and a new definition. *Technovation*, 90-91, <https://doi.org/102098>.
10.1016/j.technovation.2019.102098
- Graves, L., Horrey, K., Hubinette, M., Oandasan, I., & Freeman, R. (2021). Creating dialogue on culture and bias in the learner-teacher relationship. *Canadian Family Physician*, 67(7), 544-546. <https://doi.org/10.46747/cfp.6707544>
- Greenhow, C., Graham, C. R., & Koehler, M. J. (2022). Foundations of online learning: Challenges and opportunities. *Educational Psychologist*, 57(3), 131-147.
<https://doi.org/10.1080/00461520.2022.2090364>
- Haddad, D. (2021). Lead, follow or get out of the way. *NonProfit Pro (Online)*,
https://liberty.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwfV3dS8MwED9ch-CbouKcjrBnq6XpV56knWv3oG4WtXUvY83H46qjQ_zvzW0ZisJecpCDJOTC75JfLjkA614

79h9MUIqHIROuLL4IqpBFQehIxYSImIw23E4cxLk_yrwkNcGF-
 DTGmHuLkmvoFjVH1vwG33BSTPBib98_bMwjhfetJqlGC9ramTHPgnacvBTZP6hd-
 4_0EDraJwhJfpFkJN7Y7Aj25OIY-pjr8oqk2iz1J6mXJMNga8aUiui92ikmH-
 dQD8dPg9G9raLmSH8Zz9jpKdg6QO9PAPCFcEHucV176BK14xhwdqHgm9YgWntAPd
 HQ2d79R24cDFqAskINkFWM1yJS9h33zV24NWWLz1zJygvJtOX7VMho-
 TXGsfNBRLd6zrJk-DskSZ35flNy6ZgbM

Hardy, B., & Stiles, P. (2019). How do we know anything? Philosophical issues in the collection and interpretation of operational research data. *Behavioral Operational Research* (pp. 341-360). Springer International Publishing. 10.1007/978-3-030-25405-6_18

Hark Söylemez, N. (2023). Virtual classrooms in distance education: An examination of virtual classroom experiences. *Acta Didactica Napocensia*, 16(1), 123-139.

<https://doi.org/10.24193/adn.16.1.9>

Harrison, L. M., Morgenstern, E. C., & Angelo, M. (2022). Eliminating the front row: How teaching in the chat fosters student engagement. *College Teaching*, 72(1), 42-49.

<https://doi.org/10.1080/87567555.2022.2081122>

Hartikainen, J., Poikkeus, A., Haapala, E. A., Sääkslahti, A., & Finni, T. (2021). Associations of classroom design and classroom-based physical activity with behavioral and emotional engagement among primary school students. *Sustainability*, 13(14), 8116.

<https://doi.org/10.3390/su13148116>

Hauser, S. C., McIntyre, S., Israr, A., Olausson, H., & Gerling, G. J. (2019). Uncovering human-to-human physical interactions that underlie emotional and affective touch communication.

2019 IEEE World Haptics Conference, 2019, 407-412. 10.1109/whc.2019.8816169

He, J., Alavifard, F., Ivanov, D., & Jahani, H. (2019). A real-option approach to mitigate

- disruption risk in the supply chain. *Omega*, 88, 133-149.
<https://doi.org/10.1016/j.omega.2018.08.008>
- Heckert, D. M. (1985). *Toward a theory of positive deviance* (Order No. 8521496) Available from ProQuest Dissertations & Theses Global. (30392465).
- Heckert, D., Heckert, A., & Morooka, H. (2022). Achieved versus ascribed master status in a positive deviance profession. *Deviant Behavior*, 43(6), 691-708.
<https://doi.org/10.1080/01639625.2021.1910007>
- Heckert, D., Morooka, H., & Heckert, A. (2021). Perched on a pedestal in a positive deviance profession. *Deviant Behavior*, 42(1), 96-111.
<https://doi.org/10.1080/01639625.2019.1653430>
- Hemmatian, F., & Sohrabi, M. K. (2019). A survey on classification techniques for opinion mining and sentiment analysis. *Artificial Intelligence Review*, 52(3), 1495-1545.
<https://doi.org/10.1007/s10462-017-9599-6>
- Henriques, G. (2020). Groupthink and the evolution of reason giving. In: Allen, D. M., Howell, J. W. (eds) *Groupthink in Science* (pp. 15-25). Springer, Cham. https://doi.org/10.1007/978-3-030-36822-7_2
- Herskovic, V., Ochoa, S., & Pino, J. (2019). Identifying groupware requirements in people-driven mobile collaborative processes. *Journal of Universal Computer Science*, 25(8), 988-1017. <https://doi.org/10.3217/jucs-025-08-0988>
- Hocenski, M., Sedlan-König, L., & Turjak, S. (2019). Entrepreneurial education - exploring teachers' creativity in 11 countries. *Ekonomski Vjesnik*, 32(1), 23-35. Retrieved from <https://hrcak.srce.hr/ojs/index.php/ekonomski-vjesnik/article/view/7555>
- Hoeben, E. M., & Thomas, K. J. (2019). Peers and offender decision-making. *Criminology &*

- Public Policy*, 18(4), 759-784. <https://doi.org/10.1111/1745-9133.12462>
- Holland, A. A. (2019). Effective principles of informal online learning design: A theory-building metasynthesis of qualitative research. *Computers and Education*, 128, 214-226. <https://doi.org/10.1016/j.compedu.2018.09.026>
- Homans, G. C. (1958). Social behavior as exchange. *The American Journal of Sociology*, 63(6), 597-606. <https://doi.org/10.1086/222355>
- Honebein, P. C. (2021). How should theory guide a 'shift to digital' in mobile game-based learning? *Educational Technology Research and Development*, 69(1), 181-184. <https://doi.org/10.1007/s11423-020-09929-4>
- Hong, C., & Ma, W. W. K. (2022). Correction to: Creativity under COVID-19: How technology has enhanced and promoted student engagement online. In *Applied Degree Education and the Future of Learning* (pp. C1-C1). Singapore: Springer Nature Singapore. https://doi.org/10.1007/978-981-16-9812-5_31
- Honigsbaum, M. (2019). *The pandemic century: One hundred years of panic, hysteria, and hubris*. W. W. Norton & Company.
- Horn, M. B. (2020). Children can be their own teachers: Disruptive innovation in education. *Childhood Education*, 96(1), 24-33. <https://doi.org/10.1080/00094056.2020.1707533>
- Huang, L. V., & Zhang, K. (2019). Engagement, formality, and visibility: Managing paradoxes of using mobile instant messaging for work. *International Journal of Communication*, 13, 1919-1938. Retrieved from <https://ijoc.org/index.php/ijoc/article/view/7782/2633>
- Hunjet, A., Kozina, G., & Vuković, D. (2019). Consumer of the digital age. *Ekonomska Misao i Praksa*, 28(2), 639-654. Retrieved from <https://hrcak.srce.hr/230544>
- Hyassat, M., Al-Bakar, A., Al-Makahleh, A., & al-Zyoud, N. (2024). Special education teachers'

- perceptions of parental involvement in inclusive education. *Education Sciences*, 14(3), 294.
<https://doi.org/10.3390/educsci14030294>
- Irfiana, K., & Romadhon, R. (2023). Book review: Educating young children with diverse languages and cultures by Karen N. Nemeth. *Contemporary Issues in Early Childhood*, 24(2), 232-234. <https://doi.org/10.1177/14639491231161876>
- Ithriah, S. A., Ridwandono, D., & Suryanto, T. L. M. (2020). Online learning self-efficacy: The role in e-learning success. *Journal of Physics. Conference Series*, 1569(2), 22053.
<https://doi.org/10.1088/1742-6596/1569/2/022053>
- Jabar, M. A. (2021). Qualitative inquiry on parental involvement in children's education: Perspectives of parents, children, and teachers in select elementary schools in the Philippines. *Asia Pacific Journal of Education*, 41(3), 488-502.
<https://doi.org/10.1080/02188791.2020.1806035>
- Javora, O., Hannemann, T., Stárková, T., Volná, K., & Brom, C. (2019). Children like it more but don't learn more: Effects of esthetic visual design in educational games. *British Journal of Educational Technology*, 50(4), 1942-1960. <https://doi.org/10.1111/bjet.12701>
- Jensen, L. J. (2019). Integrating social media into online education. *Library Technology Reports*, 55(4), 27. Retrieved from <https://journals.ala.org/index.php/ltr/article/view/7003/9492>
- Jensen, O. B. (2021). Pandemic disruption, extended bodies, and elastic situations - Reflections on COVID-19 and mobilities. *Mobilities*, 16(1), 66-80.
<https://doi.org/10.1080/17450101.2021.1867296>
- Jiang, L. (2022). Visual design elements based on digital visualization. *Soft Computing*, 26(16), 7855-7863. <https://doi.org/10.1007/s00500-022-06811-8>
- Jill Dewald, R. (2021). Socrates online: Creating a sense of community. *Nursing Education*

- Perspectives*, 42(3), 182-184. <https://doi.org/10.1097/01.NEP.0000000000000581>
- Johnson, J. L., Adkins, D., & Chauvin, S. (2020). A review of the quality Indicators of rigor in qualitative research. *American Journal of Pharmaceutical Education*, 84(1), 7120. <https://doi.org/10.5688/ajpe7120>
- Julia, K., Peter, V. R., & Marco, K. (2021). Educational scalability in MOOCs: Analysing instructional designs to find best practices. *Computers and Education*, 161, 104054. <https://doi.org/10.1016/j.compedu.2020.104054>
- Juszkiewicz, J. W., & Houck, A. (2019). Representing religion: Skills-based pedagogy for graphic narratives: A successful classroom teaching tactic that other instructors can replicate. *Teaching Theology & Religion*, 22(3), 206. <https://doi.org/10.1111/teth.12493>
- Kalligas, P., Balla, C., Baziotopoulou-Valavani, E., & Karasmanis, V. (2020). In Kalligas P. (Ed.), *Plato's Academy: its workings and its history*. Cambridge University Press. <https://doi.org/10.1017/9781108554664>
- Kamper, S. J. (2020). Types of research questions: Descriptive, predictive, or causal. *The Journal of Orthopaedic and Sports Physical Therapy*, 50(8), 468-469. <https://doi.org/10.2519/jospt.2020.0703>
- Kang, Y., Cakar, M. E., Shumaker, K., O'Donnell, M. B., & Falk, E. B. (2023). Experience similarity, mindful awareness, and accurate interpersonal understanding. *Mindfulness*, 14(10), 2443-2453. <https://doi.org/10.1007/s12671-022-01859-x>
- Katz, R., Jung, J., & Callorda, F. (2020). Can digitization mitigate the economic damage of a pandemic? Evidence from SARS. *Telecommunications Policy*, 44(10), 102044. <https://doi.org/10.1016/j.telpol.2020.102044>
- Kemp, C., van Herwerden, L., Molloy, E., Kleve, S., Brimblecombe, J., Reidlinger, D., &

- Palermo, C. (2021). How do students offer value to organizations through work-integrated learning? A qualitative study using social exchange theory. *Advances in Health Sciences Education: Theory and Practice*, 26(3), 1075-1093. <https://doi.org/10.1007/s10459-021-10038-x>
- Kersten, C. A., Chamberlain, A. T., Jones, S. E., Uzicanin, A., & Ahmed, F. (2020). Assessment of us public school district policies for pandemic preparedness and implications for COVID-19 response activities. *Disaster Medicine and Public Health Preparedness*, 16(4), 1362-1368. <https://doi.org/10.1017/dmp.2020.496>
- Khlaif, Z. N., Salha, S., Affouneh, S., Rashed, H., & ElKimishy, L. A. (2021a). The COVID-19 epidemic: Teachers' responses to school closure in developing countries. *Technology, Pedagogy and Education*, 30(1), 95-109. <https://doi.org/10.1080/1475939X.2020.1851752>
- Khlaif, Z. N., Salha, S., & Kouraichi, B. (2021b). Emergency remote learning during COVID-19 crisis: Students' engagement. *Education and Information Technologies*, 26(6), 7033-7055. <https://doi.org/10.1007/s10639-021-10566-4>
- Kim, S., Razi, A., Stringhini, G., Wisniewski, P. J., & De Choudhury, M. (2021). A human-centered systematic literature review of cyberbullying detection algorithms. *Proceedings of the ACM on Human-Computer Interaction*, 5(CSCW2), 1-34. <https://doi.org/10.1145/3476066>
- King, K. M., Crouch, L., Wils, A., & Baum, D. R. (2020). How well are we measuring access to early childhood education? Wiseman, A. W. (Ed.) *Annual Review of Comparative and International Education 2019 (International Perspectives on Education and Society, Vol 39)*. Emerald Publishing Limited, pp. 171-189. <https://doi.org/10.1108/S1479-367920200000039016>

- Kirsch, B. (2020). Virtual reality in libraries. In B. Holland (Ed.), *Emerging Trends and Impacts of the Internet of Things in Libraries* (pp. 180-193). IGI Global. <https://doi.org/10.4018/978-1-7998-4742-7.ch010>
- Kluwe-Schiavon, B., Viola, T. W., Bandinelli, L. P., Castro, S. C. C., Kristensen, C. H., Costa da Costa, J., & Grassi-Oliveira, R. (2021). A behavioral economic risk aversion experiment in the context of the COVID-19 pandemic. *PloS One*, *16*(1), e0245261. <https://doi.org/10.1371/journal.pone.0245261>
- Koch, A. K., & Nafziger, J. (2019). Correlates of narrow bracketing. *The Scandinavian Journal of Economics*, *121*(4), 1441-1472. <https://doi.org/10.1111/sjoe.12311>
- Konst, T., & Kairisto-Mertanen, L. (2020). Developing innovation pedagogy approach. *On the Horizon*, *28*(1), 45-54. <https://doi.org/10.1108/OTH-08-2019-0060>
- Koptseva, N. P. (2020). Constructivist pedagogy in context of modern philosophy of education. *Perspectives of Science and Education*, *48*(6), 40-54. <https://doi.org/10.32744/pse.2020.6.4>
- Korhonen, A., Ruhalahti, S., & Veermans, M. (2019). The online learning process and scaffolding in student teachers' personal learning environments. *Education and Information Technologies*, *24*(1), 755-779. <https://doi.org/10.1007/s10639-018-9793-4>
- Koris, R., Mato-Díaz, F. J., & Hernández-Nanclares, N. (2021). From real to virtual mobility: Erasmus students' transition to online learning amid the COVID-19 crisis. *European Educational Research Journal EERJ*, *20*(4), 463-478. <https://doi.org/10.1177/14749041211021247>
- Kshetri, N., & Voas, J. (2019). Thoughts on cyberbullying. *Computer*, *52*(4), 64-68. <https://doi.org/10.1109/MC.2019.2898720>
- Kumar, A., Priya, B., & Srivastava, S. K. (2021). Response to the COVID-19: Understanding

- implications of government lockdown policies. *Journal of Policy Modeling*, 43(1), 76-94.
<https://doi.org/10.1016/j.jpolmod.2020.09.001>
- Kumi-Yeboah, A., Dogbey, J., Yuan, G., & Smith, P. (2020). Cultural diversity in online education: An exploration of instructors' perceptions and challenges. *Teachers College Record (1970)*, 122(7), 1-46. <https://doi.org/10.1177/016146812012200708>
- Kupczyk, T., Kusterka-Jefmanska, M., & Gross-Golacka, E. (2021). COVID-19 pandemic as an agent of change in the use of job recruitment information sources by the generation born since 2000. *European Research Studies Journal*, XXIV(Special Issue 3), 785-799.
<https://doi.org/10.35808/ersj/2522>
- Kurok, V., Tkachenko, N., Burchak, S., Kurok, R., & Burchak, L., National Academy of Pedagogical Sciences of Ukraine, Kyiv, Ukraine, Oleksandr Dovzhenko Hlukhiv National Pedagogical University, Hlukhiv, Ukraine, & Oleksandr Dovzhenko Hlukhiv National Pedagogical University. (2022). Developing intending teachers' creativity in the process of their professional training in the context of educational transformations. *Revista Românească Pentru Educație Multidimensională*, 14(1), 246-262.
<https://doi.org/10.18662/rrem/14.1/517>
- Kutz, D., Cumbie, B., & Mullarkey, M. (2022). Incorporating the student perspective in designing a virtual team classroom environment: An elaborated action design science research approach. *Journal of Research in Innovative Teaching & Learning*, 16(2), 153-168.
<https://doi.org/10.1108/JRIT-02-2022-0007>
- Kyngäs, H., Kääriäinen, M., & Elo, S. (2019). The trustworthiness of content analysis. *The Application of Content Analysis in Nursing Science Research* (pp. 41-48). Springer International Publishing. https://doi.org/10.1007/978-3-030-30199-6_5

- Lambton-Howard, D., Kiaer, J., & Kharrufa, A. (2021). 'Social media is their space': Student and teacher use and perception of features of social media in language education. *Behaviour & Information Technology*, 40(16), 1700-1715.
<https://doi.org/10.1080/0144929X.2020.1774653>
- Larsen, L., Helland, M. S., & Holt, T. (2022a). The impact of school closure and social isolation on children in vulnerable families during COVID-19: A focus on children's reactions. *European Child & Adolescent Psychiatry*, 31(8), 1-11. <https://doi.org/10.1007/s00787-021-01758-x>
- Larsen, T. M., Endo, B. H., Yee, A. T., Do, T., & Lo, S. M. (2022b). Probing internal assumptions of the revised Bloom's taxonomy. *CBE - Life Sciences Education*, 21(4), ar66.
<https://doi.org/10.1187/cbe.20-08-0170>
- Lawson, H., & Lawson, M. (2020). Student engagement and disengagement as a collective action problem. *Education Sciences*, 10(8), 212. <https://doi.org/10.3390/educsci10080212>
- Lazarus, J. V., Ratzan, S., Palayew, A., Billari, F. C., Binagwaho, A., Kimball, S., Larson, H. J., Melegaro, A., Rabin, K., White, T. M., & El-Mohandes, A. (2020). COVID-SCORE: A global survey to assess public perceptions of government responses to COVID-19 (COVID-SCORE-10). *PloS One*, 15(10), e0240011. <https://doi.org/10.1371/journal.pone.0240011>
- Lee, Y. (2021). Mala Prohibita and proportionality. *Criminal Law and Philosophy*, 15(3), 425-446. <https://doi.org/10.1007/s11572-021-09576-7>
- Lemert, E. (1967). *Human deviance, social problems, and social control*. Prentice-Hall.
<https://doi.org/10.2307/2092426>
- Lemmetty, S., Collin, K., Glăveanu, V. P., & Forsman, P. (2021). *Creativity and learning: contexts, processes and support*. Palgrave Macmillan. <https://doi.org/10.1007/978-3-030->

77066-2

Levesque-Bristol, C. (2021). *Student-centered pedagogy and course transformation at scale:*

Facilitating faculty agency to impact institutional change. Stylus Publishing, LLC.

Retrieved from <https://eric.ed.gov/?id=ED612805>

Levina, E., Kamaleeva, A., & Mukhametzyanova, L. (2020). Cognitive approach: Methodology development in the era of digitalization. *ARPHA Proceedings*, 3, 1449-1464.

<https://doi.org/10.3897/ap.2.e1449>

Levorsen, M., Ito, A., Suzuki, S., & Izuma, K. (2021). Testing the reinforcement learning hypothesis of social conformity. *Human Brain Mapping*, 42(5), 1328-1342.

<https://doi.org/10.1002/hbm.25296>

Li, L., Farias Herrera, L., Liang, L., & Law, N. (2022a). An outcome-oriented pattern-based model to support teaching as a design science. *Instructional Science*, 50(1), 111-142.

<https://doi.org/10.1007/s11251-021-09563-4>

Li, X., Liu, Q., Xie, K., Chang, Y., Shi, Y., & Ma, J. (2023). Understanding interpersonal interaction characteristics in a blended synchronous classroom: A multimodal discourse analytic perspective. *Asia Pacific Journal of Education*, 1-24.

<https://doi.org/10.1080/02188791.2023.2206550>

Li, Y., Rakovic, M., Poh, B. X., Gašević, D., & Chen, G. (2022b). *Automatic classification of learning objectives based on Bloom's taxonomy.* International Educational Data Mining

Society. Retrieved from ERIC <http://eric.ed.gov/ERICWebPortal/detail?accno=ED624058>

Lind, J., Pelger, S., & Jakobsson, A. (2022). Students' knowledge of emerging technology and sustainability through a design activity in technology education. *International Journal of*

Technology and Design Education, 32(1), 243-266. <https://doi.org/10.1007/s10798-020->

09604-y

- Lindeiner-Stráský, K. v., Stickler, U., & Winchester, S. (2022). Flipping the flipped. The concept of flipped learning in an online teaching environment. *Open Learning, 37*(3), 288-304.
<https://doi.org/10.1080/02680513.2020.1769584>
- Liu, B. (2022). *Sentiment analysis and opinion mining*. Springer Nature.
- Liu, Q., Tong, S., Liu, C., Zhao, H., Chen, E., Ma, H., & Wang, S. (2019). Exploiting cognitive structure for adaptive learning. In *Proceedings of the 25th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining* (pp. 627-635).
<https://doi.org/10.1145/3292500.3330922>
- Lohmann, M. J., Randolph, K. M., & Oh, J. H. (2021). Classroom management strategies for hyflex instruction: Setting students up for success in the hybrid environment. *Early Childhood Education Journal, 49*(5), 807-814. <https://doi.org/10.1007/s10643-021-01201-5>
- López-Vizcaíno, M. F., Nóvoa, F. J., Carneiro, V., & Casheda, F. (2021). Early detection of cyberbullying on social media networks. *Future Generation Computer Systems, 118*, 219-229. <https://doi.org/10.1016/j.future.2021.01.006>
- Lowell, V. L., & Moore, R. L. (2020). Developing practical knowledge and skills of online instructional design students through authentic learning and real-world activities. *TechTrends, 64*(4), 581-590. <https://doi.org/10.1007/s11528-020-00518-z>
- Lund-Tønnesen, J., & Christensen, T. (2023). *Learning from the COVID-19 pandemic: Implications from governance capacity and legitimacy*. Kluwer Academic Publishers.
<https://doi.org/10.1007/s11115-023-00705-5>
- Lyons, P., & Bandura, R. P. (2020). Skills needs, integrative pedagogy and case-based instruction. *The Journal of Workplace Learning, 32*(7), 473-487.

<https://doi.org/10.1108/JWL-12-2019-0140>

Bulwer-Lytton, E. B. L. (2015). *Paul Clifford — Complete*. Project Gutenberg.

Mac Domhnaill, C., Mohan, G., & McCoy, S. (2021). Home broadband and student engagement during COVID-19 emergency remote teaching. *Distance Education, 42*(4), 465-493.

<https://doi.org/10.1080/01587919.2021.1986372>

MacLeod, K. R., Swart, W. W., & Paul, R. C. (2019). Continual improvement of online and blended teaching using relative proximity theory. *Decision Sciences Journal of Innovative Education, 17*(1), 53-75. <https://doi.org/10.1111/dsji.12169>

Mahto, R. V., Belousova, O., & Ahluwalia, S. (2020). Abundance – A new window on how disruptive innovation occurs. *Technological Forecasting & Social Change, 155*, 119064.

<https://doi.org/10.1016/j.techfore.2017.09.008>

Makamure, C., & Tsakeni, M. (2020). COVID-19 as an agent of change in teaching and learning STEM subjects. *Journal of Baltic Science Education, 19*(6A), 1078-1091.

<https://doi.org/10.33225/jbse/20.19.1078>

Mallette, J., & Gehrke, M. (2019). Theory to practice: Negotiating expertise for new technical communicators. *Communication Design Quarterly Review, 6*(3), 74-83.

<https://doi.org/10.1145/3309578.3309586>

Mamun, A. A., Lawrie, G., & Wright, T. (2020). Instructional design of scaffolded online learning modules for self-directed and inquiry-based learning environments. *Computers and Education, 144*, 103695. <https://doi.org/10.1016/j.compedu.2019.103695>

Mândruț, D. (2022). The possibility of interpersonal understanding. *Philobiblon, 27*(2), 407-418.

<https://doi.org/10.26424/philobib.2022.27.2.11>

Margherita, E. G., & Braccini, A. M. (2021). Managing industry 4.0 automation for fair ethical

- business development: A single case study. *Technological Forecasting & Social Change*, 172, 121048. <https://doi.org/10.1016/j.techfore.2021.121048>
- Martin, L. E., & Mulvihill, T. M. (2021). Voices in education: Considering the impact of covid-19 on teacher education--what really matters? *The Teacher Educator*, 56(3), 205-216. <https://doi.org/10.1080/08878730.2021.1938849>
- Martinsuo, M., & Huemann, M. (2021). Reporting case studies for making an impact. *International Journal of Project Management*, 39, 827-833. <https://doi.org/10.1016/j.ijproman.2021.11.005>
- McCormick, P. (2020). *Modernities: Historie, beliefs and values*. Traugott Bautz Verlag.
- McGoron, L., Wargo Aikins, J., Trentacosta, C. J., Gómez, J. M., & Beeghly, M. (2022). School support, chaos, routines, and parents' mental health during COVID-19 remote schooling. *School Psychology*, 37(2), 173-182. <https://doi.org/10.1037/spq0000467>
- Merriam, S. B., & Grenier, R. S. (2019). *Qualitative research in practice* (2nd ed.). Wiley.
- Mgutshini, T., Govender, V., & Oparinde, K. (2021). *COVID-19: interdisciplinary explorations of impacts on higher education*. African Sun Media.
- Miechie, M., Michelle Tan, Y. S., & Adler, D. J. (2019). Towards a conceptual-based, student-centered pedagogy: Teacher candidates' experiences of crafting the objects of learning. *International Journal for Lesson and Learning Studies*, 8(4), 334-347. <https://doi.org/10.1108/IJLLS-04-2019-0038>
- Milligan, I. (2022). *Transformation of historical research in the digital age*. Cambridge University Press. <https://doi.org/10.1017/9781009026055>
- Milner, A. L., Mattei, P., & Ydesen, C. (2021). Governing education in times of crisis: State interventions and school accountabilities during the COVID-19 pandemic. *European*

Educational Research Journal EERJ, 20(4), 520-539.

<https://doi.org/10.1177/14749041211022198>

Moczydłowska, J., Sadkowska, J., Żelazko, B., Ciocoiu, C. N., & Stawicka, E. (2023).

Understanding risk culture in the context of a sustainable project: A preliminary study.

Sustainability, 15(6), 5302. <https://doi.org/10.3390/su15065302>

Montero, J. B. (2021). Creating student relationships: From "best practices" to "next practices" in a virtual classroom. *Art Education*, 74(6), 13-18.

<https://doi.org/10.1080/00043125.2021.1954474>

Montuoro, P., & Lewis, R. (2018). Personal responsibility and behavioral disengagement in innocent bystanders during classroom management events: The moderating effect of teacher aggressive tendencies. *The Journal of Educational Research*, 111(4), 439-445.

<https://doi.org/10.1080/00220671.2017.1291486>

Moore, M. G., & Diehl, W. C. (2019). *Handbook of distance education* (4th ed.). Routledge.

<https://doi.org/10.4324/9780203803738>

Moore, S. L., & Piety, P. J. (2022). Online learning ecosystems: Comprehensive planning and support for distance learners. *Distance Education*, 43(2), 179-203.

<https://doi.org/10.1080/01587919.2022.2064820>

Moore, T. (2017). *Positive deviance as experienced firsthand in an organizational setting: A phenomenological study* (Order No. 10256368). Available from ProQuest Dissertations & Theses Global. (1880572394).

Morens, D. M., Daszak, P., Markel, H., & Taubenberger, J. K. (2020). Pandemic COVID-19 joins history's pandemic legion. *mBio*, 11(3), 812. <https://doi.org/10.1128/mBio.00812-20>

Morgan, H. (2022). Conducting a qualitative document analysis. *Qualitative Report*, 27(1), 64-

77. <https://doi.org/10.46743/2160-3715/2022.5044>
- Morley, D. A., & Jamil, G. (2020). *Applied pedagogies for higher education: Real world learning and innovation across the curriculum*. Palgrave Macmillan.
<https://doi.org/10.1007/978-3-030-46951-1>
- Movahedazarhouli, S., & Jones, M. (2024). Leading in times of uncertainty: Early childhood directors navigating the COVID-19 pandemic. *Journal of Childhood, Education & Society (Online)*, 5(1), 89-103. <https://doi.org/10.37291/2717638X.202451296>
- Mowrer, O. H. (1960). *Learning theory and behavior*. Wiley. <https://doi.org/10.1037/10802-000>
- Mukhtar, K., Javed, K., Arooj, M., & Sethi, A. (2020). Advantages, limitations and recommendations for online learning during COVID-19 pandemic era. *Pakistan Journal of Medical Sciences*, 36(COVID19-S4), S27-S31. <https://doi.org/10.12669/pjms.36.COVID19-S4.2785>
- Muljana, P. S., & Luo, T. (2019). Factors contributing to student retention in online learning and recommended strategies for improvement: A systematic literature review. *Journal of Information Technology Education*, 18, 19-57. <https://doi.org/10.28945/4182>
- Muñoz, D., & Pummer, T. (2021). *Supererogation and conditional obligation*. University of Minnesota Press. <https://doi.org/10.1007/s11098-021-01724-y>
- Mystakidis, S. (2023). Sustainable engagement in open and distance learning with play and games in virtual reality: Playful and gameful distance education in VR. In *Research Anthology on Virtual Environments and Building the Metaverse* (pp. 297-312). IGI Global. <https://doi.org/10.4018/978-1-6684-7597-3.ch015>
- Nasu, V. H. (2021). Remote learning under the COVID-19 social distancing: Reflections and a netnography study. *Revista De Gestão Da Tecnologia E Sistemas De Informação*, 18, 1-15.

<https://doi.org/10.4301/S1807-1775202118005>

New Mexico Public Education Department. (2022). New Mexico Public Education Department.

Retrieved from <https://webnew.ped.state.nm.us/>

Nichol, D., Anderson, A., Mulholland, K., Davies, J., & Taylor, S. (2023). Developing online

teaching and learning: The potential benefits of ‘listening’ to student voices for staff

professional development and authentic student engagement. *Advances in Online*

Education: A Peer-Reviewed Journal, 1(2), 138-151. Retrieved from

<https://hstalks.com/article/7429/>

Nickel, P. J. (2020). Disruptive innovation and moral uncertainty. *Nanoethics*, 14(3), 259-269.

<https://doi.org/10.1007/s11569-020-00375-3>

Nist, A. N., & Shahan, T. A. (2021). The extinction burst: Impact of reinforcement time and

level of analysis on measured prevalence. *Journal of the Experimental Analysis of Behavior*,

116(2), 131-148. <https://doi.org/10.1002/jeab.714>

Nistor, N., Stanciu, D., Lerche, T., & Kiel, E. (2019). “I am fine with any technology, as long as

it doesn’t make trouble, so that I can concentrate on my study”: A case study of university

students’ attitude strength related to educational technology acceptance. *British Journal of*

Educational Technology, 50(5), 2557-2571. <https://doi.org/10.1111/bjet.12832>

Nkwake, A. M. (2019). Why are assumptions important? *Working with Assumptions in*

International Development Program Evaluation (pp. 97-114). Springer International

Publishing. https://doi.org/10.1007/978-3-030-33004-0_7

Northouse, P. G. (2019). *Leadership: Theory and practice* (Eighth ed.). SAGE Publications, Inc.

Nubani, L., & Lee, E. (2022). Sense of classroom community in interior design studios: In-

person learning versus online learning approaches. *Journal of Interior Design*, 47(2), 51-70.

<https://doi.org/10.1111/joid.12217>

O'Reilly, C., & Binns, A. J. M. (2019). The three stages of disruptive innovation: Idea generation, incubation, and scaling. *California Management Review*, *61*(3), 49-71.

<https://doi.org/10.1177/0008125619841878>

Ochieng, V. O., & Gyasi, R. M. (2021). Open educational resources and social justice: Potentials and implications for research productivity in higher educational institutions. *E-Learning and Digital Media*, *18*(2), 105-124. <https://doi.org/10.1177/2042753021989467>

Oddone, K., Hughes, H., & Lupton, M. (2019). Teachers as connected professionals: A model to support professional learning through personal learning networks. *International Review of Research in Open and Distance Learning*, *20*(3), 102-120.

<https://doi.org/10.19173/irrodl.v20i4.4082>

Oducado, R. M. F., Dequilla, M. A. C. V., & Villaruz, J. F. (2022). Factors predicting videoconferencing fatigue among higher education faculty. *Education and Information Technologies*, *27*(7), 9713-9724. <https://doi.org/10.1007/s10639-022-11017-4>

Olsen, M. E. (1965). Durkheim's two concepts of anomie. *Sociological Quarterly*, *6*(1), 37-44.

<https://doi.org/10.1111/j.1533-8525.1965.tb02260.x>

Olsson Rost, K. A. S. (2020). Unintended buy always significant? A re-examination of the consequences of national education reform on local developments in the pioneering of comprehensive schooling c. 1918-1950. *British Journal of Educational Studies*, *68*(5), 629-648. <https://doi.org/10.1080/00071005.2020.1804053>

Otterborn, A., Schönborn, K., & Hultén, M. (2019). Surveying preschool teachers' use of digital tablets: General and technology education related findings. *International Journal of Technology and Design Education*, *29*(4), 717-737. <https://doi.org/10.1007/s10798-018->

9469-9

- Ouyang, G., Dey, D. K., & Zhang, P. (2020). Clique-based method for social network clustering. *Journal of Classification*, 37(1), 254-274. <https://doi.org/10.1007/s00357-019-9310-5>
- Paccagnan, D., Gentile, B., Parise, F., Kamgarpour, M., & Lygeros, J. (2019). Nash and Wardrop equilibria in aggregative games with coupling constraints. *IEEE Transactions on Automatic Control*, 64(4), 1373-1388. <https://doi.org/10.1109/TAC.2018.2849946>
- Páez, A. (2020). Moore's Paradox and the logic of belief. *Manuscrito*, 43(2), 1-15. <https://doi.org/10.1590/0100-6045.2020.v43n2.ap>
- Pak, K., Polikoff, M. S., Desimone, L. M., & Saldívar García, E. (2020). The adaptive challenges of curriculum implementation: Insights for educational leaders driving standards-based reform. *AERA Open*, 6(2), 233285842093282. <https://doi.org/10.1177/233285842093282>
- Pandita, R. (2017). Internet a change agent: An overview of internet penetration and growth across the world. *International Journal of Information Dissemination and Technology*, 7(2), 83. <https://doi.org/10.5958/2249-5576.2017.00001.2>
- Panizza, F., Vostroknutov, A., & Coricelli, G. (2021). How conformity can lead to polarised social behaviour. *PLoS Computational Biology*, 17(10), e1009530. <https://doi.org/10.1371/journal.pcbi.1009530>
- Papeo, L., & Abassi, E. (2019). Seeing social events: The visual specialization for dyadic human-human interactions. *Journal of Experimental Psychology. Human Perception and Performance*, 45(7), 877-888. <https://doi.org/10.1037/xhp0000646>
- Papert, S. (1980). *Mindstorms: children, computers, and powerful ideas*. Basic Books.
- Parameswaran, U. D., Ozawa-Kirk, J. L., & Latendresse, G. (2020). To live (code) or to not: A new method for coding in qualitative research. *Qualitative Social Work: QSW: Research*

- and Practice*, 19(4), 630-644. <https://doi.org/10.1177/1473325019840394>
- Paramore Jones, S. P. (2022). *“Powering Through”: A mixed method phenomenological study of resilience, grit, and positive deviance among single mother college graduates* (Order No. 28965667). Available from ProQuest Central; ProQuest Dissertations & Theses Global. (2631615147)
- Park, S. E., Rankin, D., Udrescu, S., Yunus, M., & Harris, P. (2021). Quasi anomalous knowledge: Searching for new physics with embedded knowledge. *The Journal of High Energy Physics*, 2021(6), 1-26. [https://doi.org/10.1007/JHEP06\(2021\)030](https://doi.org/10.1007/JHEP06(2021)030)
- Pascale, R. T., Sternin, J., & Sternin, M. (2010). *The power of positive deviance: How unlikely innovators solve the world's toughest problems*. Harvard Business Press.
- Patton, M. Q. (2023). *Qualitative research & evaluation methods: Integrating theory and practice* (Fourth ed.). SAGE Publications, Inc.
- Payette, N., Szekely, A., & Andrighetto, G. (2020). Social norms and cooperation in a collective-risk social dilemma: Comparing reinforcing learning and norm-based approaches. *2020 29th IEEE International Conference on Robot and Human Interactive Communications (RO-MAN)*, Naples, Italy pp. 1403-1406. <https://doi.org/10.1109/RO-MAN47096.2020.9223561>
- Pérez-Marín, D., Paredes-Velasco, M., & Pizarro, C. (2022). Multi-mode digital teaching and learning of human-computer interaction (HCI) using the VARK model during COVID-19. *Educational Technology & Society*, 25(1), 78-91. [https://doi.org/10.30191/ETS.202201_25\(1\).0007](https://doi.org/10.30191/ETS.202201_25(1).0007)
- Peterson, K. W. (2020). *Faculty perceptions of the impact of active classroom design on student engagement, attitudes toward learning, and preparation for class* (Order No. 27834219). Available from ProQuest Dissertations & Theses Global. (2404348348).

- Petit, E., & Ballet, J. (2021). Habit and emotion: John Dewey's contribution to the theory of change. *Cambridge Journal of Economics*, 45(4), 655-674.
<https://doi.org/10.1093/cje/beab023>
- Petrou, P., van der Linden, D., & Salcescu, O. C. (2020). When breaking the rules relates to creativity: The role of creative problem-solving demands and organizational constraints. *The Journal of Creative Behavior*, 54(1), 184-195. <https://doi.org/10.1002/jocb.354>
- Piaget, J. (1964). Cognitive development in children: Piaget development and learning. *Journal of Research in Science Teaching*, 2(3), 176-186. <https://doi.org/10.1002/tea.3660020306>
- Plessis, P. J. d., & Bell, S. W. (2020). Introduction: The dawn of Roman Law. In S. W. Bell, & P. J. du Plessis (Eds.), *Roman Law before the twelve tables: An interdisciplinary approach* (pp. 1-6). Edinburgh University Press.
- Popielarz, K. E. (2022). "Change your approach": How youth organizers, adult allies, and teacher candidates engage in the praxis of community-based pedagogy within teacher education. *International Journal of Qualitative Studies in Education*, 37(1), 190-212.
<https://doi.org/10.1080/09518398.2022.2035454>
- Porter, C. M. (2018). Long live social exchange theory. *Industrial and Organizational Psychology*, 11(3), 498-504. <https://doi.org/10.1017/iop.2018.102>
- Prelevic, D. (2019). Ontological and epistemological assumptions of theories of understanding others. *Theoria*, 62(3), 7-16. <https://doi.org/10.2298/THEO1903007P>
- Prokopenko, V. V. (2019). The origins of Platonic pedagogy: an introduction to the study of Minor Plato's dialogues. *Vestnik of Saint Petersburg University. Philosophy and Conflict Studies*, 35(3), 497-506. <https://doi.org/10.21638/spbu17.2019.309>

- Public School Review (Ed.). (2024). *Public School Review: San Juan County, New Mexico*.
Public School Review - Established 2003. <https://www.publicschoolreview.com/new-mexico/san-juan-county>
- Pyne, J. (2019). Suspended attitudes: Exclusion and emotional disengagement from school. *Sociology of Education*, 92(1), 59-82. <https://doi.org/10.1177/0038040718816684>
- Quezada, R. L., Talbot, C., & Quezada-Parker, K. B. (2020). From bricks and mortar to remote teaching: A teacher education program's response to COVID-19. *Journal of Education for Teaching: JET*, 46(4), 472-483. <https://doi.org/10.1080/02607476.2020.1801330>
- Ramirez-Montoya, M. S. (2020). Challenges for open education with educational innovation: A systematic literature review. *Sustainability*, 12(17), 7053. <https://doi.org/10.3390/su12177053>
- Reese, S. (2021). The learning organization and the open system beyond the organization's boundaries. *The Learning Organization*, 28(5), 502-504. <https://doi.org/10.1108/TLO-07-2021-271>
- Reich, J., & Ruipérez-Valiente, J. A. (2019). The MOOC pivot. *Science (American Association for the Advancement of Science)*, 363(6423), 130-131. <https://doi.org/10.1126/science.aav7958>
- Reisenwitz, T. H., & Fowler, J. G. (2021). Transitioning from face-to-face to online classes during a pandemic: Factors that may affect student satisfaction of the administration and instructors. *Marketing Education Review*, 31(3), 1-10. <https://doi.org/10.1080/10528008.2021.1943446>
- Resnik, D. B., & Smith, E. M. (2020). Bias and groupthink in science's peer-review system. *Groupthink in Science*, 99-113. https://doi.org/10.1007/978-3-030-36822-7_9

- Reyes, D. L., Luna, M., & Salas, E. (2021). Challenges for team leaders transitioning from face-to-face to virtual teams. *Organizational Dynamics*, 50(2), 100785.
<https://doi.org/10.1016/j.orgdyn.2020.100785>
- Ridder, H. (2020). *Case study research*. Rainer Hampp.
- Rizun, M., & Strzelecki, A. (2020). Students' acceptance of the COVID-19 impact on shifting higher education to distance learning in Poland. *International Journal of Environmental Research and Public Health*, 17(18), 6468. <https://doi.org/10.3390/ijerph17186468>
- Robinson, K. R. (2021). Comparing the Spanish flu and COVID-19 pandemics: Lessons to carry forward. *Nursing Forum*, 56(2), 350-357. <https://doi.org/10.1111/nuf.12534>
- Ronkowitz, K., & Ronkowitz, L. C. (2021). Choosing transformation over tradition: The changing perception of online education. *The American Journal of Economics and Sociology*, 80(1), 205-229. <https://doi.org/10.1111/ajes.12378>
- Rosar, M., & Weidlich, J. (2022). Creative students in self-paced online learning environments: An experimental exploration of the interaction of visual design and creativity. *Research and Practice in Technology Enhanced Learning*, 17(1), 1-24. <https://doi.org/10.1186/s41039-022-00183-1>
- Ruggeri, K., & Folke, T. (2021). Unstandard deviation: The untapped value of positive deviance for reducing inequalities. *Perspectives on Psychological Science*, 17(3) 711-731.
<https://doi.org/10.1177/17456916211017865>
- Saban, A. İ., & Özcan, Ş. E. (2022). An investigation of pre-school teachers' creativity perceptions through metaphors. *Pedagogies*, 17(1), 1-17.
<https://doi.org/10.1080/1554480X.2020.1781640>
- Sahin, D., & Yilmaz, R. M. (2020). The effect of augmented reality technology on middle school

- students' achievements and attitudes towards science education. *Computers and Education*, 144, 103710. <https://doi.org/10.1016/j.compedu.2019.103710>
- Saldaña, J. (2021). *The coding manual for qualitative researchers* (4th ed.). SAGE.
- Santos, F., Newman, T. J., Aytur, S., & Farias, C. (2022). Aligning physical literacy with critical positive youth development and student-centered pedagogy: Implications for today's youth. *Frontiers in Sports and Active Living*, 4, 845827. <https://doi.org/10.3389/fspor.2022.845827>
- Sargent, J., & Casey, A. (2020). Flipped learning, pedagogy and digital technology: Establishing consistent practice to optimise lesson time. *European Physical Education Review*, 26(1), 70-84. <https://doi.org/10.1177/1356336X19826603>
- Schiniotakis, N., & Divini, K. (2020). Influencer marketing: An essential strategy or just a trend? *Journal of Digital & Social Media Marketing*, 8(3), 251-260. Retrieved from <https://www.ingentaconnect.com/content/hsp/jdsmm/2020/00000008/00000003/art00007>
- Schmid, J., & Kwon, S. (2020). Collaboration in innovation: An empirical test of Varieties of Capitalism. *Technological Forecasting & Social Change*, 157, 120099. <https://doi.org/10.1016/j.techfore.2020.120099>
- Scott, W. R., & Davis, G. F. (2015). *Organizations and organizing: Rational, natural and open systems perspectives*. Taylor and Francis. <https://doi.org/10.4324/9781315663371>
- Sedov, S. A. (2019). Modern lessons' construction based on the taxonomy of pedagogical objectives and the multiple intelligences theory. *International Journal of Educational Management*, 33(2), 252-264. <https://doi.org/10.1108/IJEM-01-2018-0029>
- Seeley, K. M. L., Foster, B. A., Zuckerman, K. E., & Peterson, J. W. (2023). Positive deviance in the Oregon kindergarten assessment: Identifying schools and communities that are beating the odds. *Early Childhood Research Quarterly*, 62, 360-368.

<https://doi.org/10.1016/j.ecresq.2022.10.003>

Shakeel, S. I., Al Mamun, M. A., & Haolader, F. A. (2023). Instructional design with ADDIE and rapid prototyping for blended learning: Validation and its acceptance in the context of TVET Bangladesh. *Education and Information Technologies*, 28(6), 7601-7630.

<https://doi.org/10.1007/s10639-022-11471-0>

Shanshan, S., & Wenfei, L. (2022). Understanding the impact of quality elements on MOOCs continuance intention. *Education and Information Technologies*, 27(8), 10949-10976.

<https://doi.org/10.1007/s10639-022-11063-y>

Shao, M., He, W., Zhao, L., & Su, Y. (2022). The influence of parental involvement on parent satisfaction: the moderating effect of parental educational level and the number of children. *Frontiers in Psychology*, 12, 752802. <https://doi.org/10.3389/fpsyg.2021.752802>

Sharma, N. (2020). Fostering positive deviance: a potential strategy to an engaged workforce. *Strategic Direction*, 36(8), 1-3. <https://doi.org/10.1108/SD-10-2019-0206>

Sharma, N. (2022). Using positive deviance to enhance employee engagement: An interpretive structural modeling approach. *International Journal of Organizational Analysis*, 30(1), 84-98. <https://doi.org/10.1108/IJOA-07-2020-2341>

Sharma, N., & Chillakuri, B. K. (2023). Positive deviance at work: A systematic review and directions for future research. *Personnel Review*, 52(4), 933-954.

<https://doi.org/10.1108/PR-05-2020-0360>

Shearer, R. L., Aldemir, T., Hitchcock, J., Resig, J., Driver, J., & Kohler, M. (2020). What students want: A vision of a future online learning experience grounded in distance education theory. *The American Journal of Distance Education*, 34(1), 36-52.

<https://doi.org/10.1080/08923647.2019.1706019>

- Shemer Elkayam, T. (2022). What is pedagogical innovation? Perceptions of teacher educators in Israel. *Pedagogies*, 18(4) 728-745. <https://doi.org/10.1080/1554480X.2022.2106232>
- Shin, M., & Hickey, K. (2021). Needs a little TLC: Examining college students' emergency remote teaching and learning experiences during COVID-19. *Journal of further and Higher Education*, 45(7), 973-986. <https://doi.org/10.1080/0309877X.2020.1847261>
- Shoenberger, N., Heckert, A., & Heckert, D. (2015). Labeling, social learning, and positive deviance: A look at high achieving students. *Deviant Behavior*, 36(6), 474-491. <https://doi.org/10.1080/01639625.2014.944066>
- Shoss, M. K., Horan, K. A., DiStaso, M., LeNoble, C. A., & Naranjo, A. (2021). The conflicting impact of COVID-19's health and economic crises on helping. *Group & Organization Management*, 46(1), 3-37. <https://doi.org/10.1177/1059601120968704>
- Shuman, E., Saguy, T., van Zomeren, M., & Halperin, E. (2021). Disrupting the system constructively: Testing the effectiveness of nonnormative nonviolent collective action. *Journal of Personality and Social Psychology*, 121(4), 819-841. <https://doi.org/10.1037/pspi0000333>
- Siddiqui, W., & Sharp, R. R. (2021). Beyond the Belmont report. *American Journal of Bioethics*, 21(10), 1-4. <https://doi.org/10.1080/15265161.2021.1972649>
- Sidorkin, A. M. (2021). Disruptive innovation and the relational novelty. *Educational Theory*, 71(4), 519-533. <https://doi.org/10.1111/edth.12490>
- Siemens, G. (2019). Learning analytics and open, flexible, and distance learning. *Distance Education*, 40(3), 414-418. <https://doi.org/10.1080/01587919.2019.1656153>
- Simon, T., Biró, I., & Kárpáti, A. (2022). Developmental assessment of visual communication skills in primary education. *Journal of Intelligence*, 10(3), 45.

<https://doi.org/10.3390/jintelligence10030045>

- Simone, J., Hauptman, A., & Hasty, M. (2019). Better together on behalf of our children. *The Reading Teacher*, 73(3), 281-289. <https://doi.org/10.1002/trtr.1825>
- Simonson, P. (2019). *Richard McKeon in the pragmatist tradition*. (pp. 23-51). Springer International Publishing. https://doi.org/10.1007/978-3-030-14343-5_2
- Singhal, A., & Svenkerud, P. J. (2019). Flipping the diffusion of innovations paradigm: Embracing the positive deviance approach to social change. *Asia Pacific Media Educator*, 29(2), 151-163. <https://doi.org/10.1177/1326365X19857010>
- Skinner, B. F. (1953). *Science and human behavior*. Free Press.
- Skinner, B. F. (1965). *Science and human behavior*. Free Press.
- Slavin, R. E. (2020). How evidence-based reform will transform research and practice in education. *Educational Psychologist*, 55(1), 21-31. 10.1080/00461520.2019.1611432
- Smith, E. E. (2019). Assessment leadership and cultural change. *Journal of Assessment and Institutional Effectiveness*, 9(1-2), 79-95. <https://doi.org/10.5325/jasseinsteffe.9.1-2.0079>
- Soares, C. D. M., Joia, L. A., Altieri, D., & Lander Regasso, J. G. (2021). What's up? Mobile instant messaging apps and the truckers' uprising in Brazil. *Technology in Society*, 64, <https://doi.org/101477>. 10.1016/j.techsoc.2020.101477
- Soepriyanto, Y., Pratama, C. R., Kuswandi, D., Kurniawan, C., Oktaviani, H. I., & Nurfahrudianto, A. (2022). Development of virtual classroom for hybrid live teaching mode. *2022 8th International Conference on Education and Technology (ICET)* (pp. 165-170) IEEE. <https://doi.org/10.1109/ICET56879.2022.9990710>
- Sorokin, P. A. (1950). *Social philosophies of an age of crisis*. Beacon Press.
- Spady, W. G. (1977). Competency based education: A bandwagon in search of a definition.

- Educational Researcher*, 6(1), 9-14. <https://doi.org/10.2307/1175451>
- Spennemann, D. H. R. (2023). The usefulness of the Johari window for the cultural heritage planning process. *Heritage*, 6(1), 724-741. <https://doi.org/10.3390/heritage6010039>
- Spreitzer, G. M., & Sonenshein, S. (2004). Toward the construct definition of positive deviance. *The American Behavioral Scientist*, 47(6), 828-847.
<https://doi.org/10.1177/0002764203260212>
- Spyer, J. (2017). The social media landscape: Hiding in the light. *Social Media in Emergent Brazil* (pp. 36). UCL Press. <https://doi.org/10.14324/111.9781787351653>
- Sridharan, S., Saravanan, D., Srinivasan, A. K., & Murugan, B. (2021). Adaptive learning management expert system with evolving knowledge base and enhanced learnability. *Education and Information Technologies*, 26(5), 5895-5916.
<https://doi.org/10.1007/s10639-021-10560-w>
- Stangl, R. (2020). *Neither heroes nor saints: Ordinary virtue, extraordinary virtue, and self-cultivation*. Oxford University Press.
- Stewart, V. M. (2021). Competency-based education: Challenges and opportunities for accounting faculty. *The Journal of Competency-Based Education*, 6(4), 206-210.
<https://doi.org/10.1002/cbe2.1262>
- Sullivan, H. J., & Higgins, N. (1983). *Teaching for competence*. Teachers College Press, Columbia University.
- Sutton, J. (2021). *Positive deviance: 5 examples of the power of non-conformity*. PositivePsychology.com. Retrieved from <https://positivepsychology.com/positive-deviance>
- Svensson, L. (2021). *Contextual analysis: A research methodology and research approach*. Göteborg: Acta Universitatis Gothoburgensis. Retrieved from

<https://gupea.ub.gu.se/handle/2077/68413>

- Swift, V., & Peterson, J. B. (2019). Contextualization as a means to improve the predictive validity of personality models. *Personality and Individual Differences, 144*, 153-163.
<https://doi.org/10.1016/j.paid.2019.03.007>
- Tahir, S., Hafeez, Y., Abbas, M. A., Nawaz, A., & Hamid, B. (2022). Smart learning objects retrieval for e-learning with contextual recommendation based on collaborative filtering. *Education and Information Technologies, 27*(6), 8631-8668.
<https://doi.org/10.1007/s10639-022-10966-0>
- te Velde, V. L., & Louis, W. (2022). Conformity to descriptive norms. *Journal of Economic Behavior & Organization, 200*, 204-222. <https://doi.org/10.1016/j.jebo.2022.05.017>
- Thai, N. T. T., De Wever, B., & Valcke, M. (2020). Face-to-face, blended, flipped, or online learning environment? Impact on learning performance and student cognitions. *Journal of Computer Assisted Learning, 36*(3), 397-411. <https://doi.org/10.1111/jcal.12423>
- Thibaut, J. W. (1959). The social psychology of groups. <https://doi.org/10.4324/9781315135007>
- Thoenig, J. (1967). Peter M. Blau, exchange and power in social life, 1964. *Sociologie Du Travail (Paris), 9*(1), 101-102. baxter
- Thom, M. L., Kimble, B. A., Qua, K., & Wish-Baratz, S. (2021). Is remote near-peer anatomy teaching an effective teaching strategy? Lessons learned from the transition to online learning during the Covid-19 pandemic. *Anatomical Sciences Education, 14*(5), 552-561.
<https://doi.org/10.1002/ase.2122>
- Thomas, A., & Gupta, V. (2021). Social capital theory, social exchange theory, social cognitive theory, financial literacy, and the role of knowledge sharing as a moderator in enhancing financial well-being: From bibliometric analysis to a conceptual framework

- model. *Frontiers in Psychology*, 12, 664638. <https://doi.org/10.3389/fpsyg.2021.664638>
- Tille, Y. (2020). *Sampling and estimation from finite populations*. Wiley.
- Tittle, C. R. (2018). *Control balance: Toward a general theory of deviance*. Taylor and Francis.
- Toelle, E. (2021). Communication compliance. *Microsoft 365 Compliance* (pp. 315-340).
Apress. https://doi.org/10.1007/978-1-4842-5778-4_11
- Tolbert, P. S., & Darabi, T. (2019). Bases of conformity and institutional theory: Understanding organizational decision-making. (pp. 269-290). Emerald Publishing Limited.
<https://doi.org/10.1108/S0733-558X2019000065A027>
- Tomita, K. (2022). Visual design as a holistic experience: how students' emotional responses to the visual design of instructional materials are formed. *Educational Technology Research and Development*, 70(2), 469-502. <https://doi.org/10.1007/s11423-022-10088-x>
- Torres, E. B. (2022). Chapter Six - Connecting movement and cognition through different modes of learning. *Psychology of Learning and Motivation*, 76, 239-284.
<https://doi.org/10.1016/bs.plm.2022.03.006>
- Torrez, B., Wakslak, C., & Amit, E. (2019). Dynamic distance: Use of visual and verbal means of communication as social signals. *Journal of Experimental Social Psychology*, 85,
<https://doi.org/103849>. 10.1016/j.jesp.2019.103849
- Torres-Olave, B. (2021). Pedagogy of hope: reliving pedagogy of the oppressed: by Paulo Freire (translated by Robert Barr, 1992), London & New York, Bloomsbury Publishing.
Educational Review, 73(1), 128. <https://doi.org/10.1080/00131911.2020.1766207>
- Trout, B. S. (2020). The coronavirus-induced transition to online learning: Perceptions and intentions of first-time online students. *Quarterly Review of Distance Education*, 21(1), 1-12.

- Ulum, H. (2022). The effects of online education on academic success: A meta-analysis study. *Education and Information Technologies*, 27(1), 429-450. <https://doi.org/10.1007/s10639-021-10740-8>
- U. S. Census Bureau. (2021). *San Juan Country, New Mexico*. Retrieved from <https://data.census.gov/cedsci/profile?g=05000000US35045>
- Urcia, I. A. (2021). Comparisons of adaptations in grounded theory and phenomenology: Selecting the specific qualitative research methodology. *International Journal of Qualitative Methods*, 20, 160940692110454. <https://doi.org/10.1177/16094069211045474>
- Valenty, L. F. (2021). *The self-esteem sentence: Evidence for labeling theory*. (Order No. 28721925). Available from ProQuest Central; ProQuest Dissertations & Theses Global; Social Science Premium Collection. (2600284658).
- van Manen, M. (2023). *Phenomenology of practice: Meaning-giving methods in phenomenological research and writing (2nd ed.)*. Routledge. <https://doi.org/10.4324/9781003228073>
- van Manen, M., & van Manen, M. (2021). Doing phenomenological research and writing. *Qualitative Health Research*, 31(6), 1069-1082. <https://doi.org/1049732321100305>
- Venter, A. (2019). Social media and social capital in online learning. *South African Journal of Higher Education*, 33(3), 241-257. <https://doi.org/10.20853/33-3-3105>
- Vergara, D., Extremera, J., Rubio, M. P., & Dávila, L. P. (2019). Meaningful learning through virtual reality learning environments: A case study in materials engineering. *Applied Sciences*, 9(21), 4625. <https://doi.org/10.3390/app9214625>
- Veletsianos, G. (2020). *Learning online: the student experience*. Johns Hopkins University Press.
- Vittori, D., Natalicchio, A., Panniello, U., Messeni Petruzzelli, A., Albino, V., & Cupertino, F.

- (2024). Failure is an option: How failure can lead to disruptive innovations. *Technovation*, 129, 1-17. <https://doi.org/10.1016/j.technovation.2023.102897>
- Volpe, S., Zane, T., & Weiss, M. J. (2023). You're not skyiping your uncle buck on Saturday night: Proper behavior in online learning environments. *Journal of College and Character*, 24(3), 285-292. <https://doi.org/10.1080/2194587X.2023.2224576>
- Wang, G., Zhang, Y., Zhao, J., Zhang, J., & Jiang, F. (2020). Mitigate the effects of home confinement on children during the COVID-19 outbreak. *The Lancet*, 395(10228), 945-947. [https://doi.org/10.1016/S0140-6736\(20\)30547-X](https://doi.org/10.1016/S0140-6736(20)30547-X)
- Wargo, E., Carr Chellman, D., Budge, K., & Canfield Davis, K. (2021). On the digital frontier: Stakeholders in rural areas take on educational technology and schooling. *Journal of Research on Technology in Education*, 53(2), 140-158. <https://doi.org/10.1080/15391523.2020.1760753>
- Warrick, D. D. (2023). Revisiting resistance to change and how to manage it: What has been learned and what organizations need to do. *Business Horizons*, 66(4), 433-441. <https://doi.org/10.1016/j.bushor.2022.09.001>
- Waterfield, R. (2021). *The Library of Alexandria: A cultural crossroads of the ancient world*. polis institute press. Wiley Subscription Services, Inc. <https://doi.org/10.1111/heyj.13885>
- Wea, K. N., & Dua Kuki, A. (2021). Students' perceptions of using Microsoft Teams application in online learning during the COVID-19 pandemic. *Journal of Physics. Conference Series*, 1842(1), 12016. <https://doi.org/10.1088/1742-6596/1842/1/012016>
- White, R. T., & Gagné, R. M. (1978). Formative evaluation applied to a learning hierarchy. *Contemporary Educational Psychology*, 3(1), 87-94. <https://doi.org/10.1016/0361->

476X(78)90013-9

Wice, M., & Davidai, S. (2021). Benevolent conformity: The influence of perceived motives on judgments of conformity. *Personality & Social Psychology Bulletin*, 47(7), 1205-1217.

<https://doi.org/10.1177/0146167220963702>

Wiener, P., & Dewey, J. (1972). *Evolution and the founders of pragmatism*. University of Pennsylvania Press.

Wilczewski, M., Gorbaniuk, O., Mughan, T., & Wilczewska, E. (2022). The effects of online learning experience during the COVID-19 pandemic on students' satisfaction, Adjustment, Performance, and Loyalty. *Journal of International Students*, 12(3), 694.

<https://doi.org/10.32674/jis.v12i3.3930>

Williams, P. J., & Barlex, D. (2020). *Pedagogy for technology education in secondary schools: Research informed perspectives for classroom teachers*. Springer.

Wong, R. (2020). When no one can go to school: Does online learning meet students' basic learning needs? *Interactive Learning Environments*, 1-17.

<https://doi.org/10.1080/10494820.2020.1789672>

Wright, S. (2019). *Using NVivo & ATLAS.ti to study craft brewing*. SAGE Publications Ltd.

<https://doi.org/10.4135/9781526495495>

Wuryaningsih, W., Susilastuti, D. H., Darwin, M., & Pierewan, A. C. (2019). Effects of web-based learning and f2f learning on teachers achievement in teacher training program in Indonesia. *International Journal of Emerging Technologies in Learning*, 14(21), 123.

<https://doi.org/10.3991/ijet.v14i21.10736>

Xu, Y., & Tang, Q. (2021). The reform of modern education during the COVID-19 pandemic. *Journal of Physics. Conference Series*, 1748(4), 042051. <https://doi.org/10.1088/1742->

6596/1748/4/042051

- Yang, J., Zhang, J., & Zeng, D. (2022). Scientific collaboration networks and firm innovation: The contingent impact of a dynamic environment. *Management Decision*, 60(1), 278-296. <https://doi.org/10.1108/MD-08-2020-1050>
- Yasuda, R. (2021). Online knowledge construction mediated by mobile instant messaging. *Knowledge Management & E-Learning*, 13(1), 21-38. <https://doi.org/10.34105/j.kmel.2021.13.002>
- Yi, H. (2019). Securing instant messaging based on blockchain with machine learning. *Safety Science*, 120, 6-13. <https://doi.org/10.1016/j.ssci.2019.06.025>
- Yilmaz, R. M. (2023). Effects of using cueing in instructional animations on learning and cognitive load level of elementary students in science education. *Interactive Learning Environments*, 31(3), 1727-1741. <https://doi.org/10.1080/10494820.2020.1857784>
- Yim, M. C., & Park, H. S. (2021). The effects of corporate elitism and groupthink on organizational empathy in crisis situations. *Public Relations Review*, 47(1), 101985. <https://doi.org/10.1016/j.pubrev.2020.101985>
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications, Inc.
- Young, P. A. (2021). The ever evolving MOOC. *Educational Technology Research and Development*, 69(1), 363-364. <https://doi.org/10.1007/s11423-021-09959-6>
- Yu, Y., Bonawitz, E., & Shafto, P. (2019). Pedagogical questions in parent-child conversations. *Child Development*, 90(1), 147-161. <https://doi.org/10.1111/cdev.12850>
- Zhou, J. (2022). Deep learning-driven distributed communication systems for cluster online educational platform considering human-computer interaction. *International Journal of*

Communication Systems, 35(1), e5009. <https://doi.org/10.1002/dac.5009>

Zou, C., Plaks, J. E., & Peterson, J. B. (2019). Don't get too excited: Assessing individual differences in the down-regulation of positive emotions. *Journal of Personality Assessment*, 101(1), 116. <https://doi.org/10.1080/00223891.2018.1501247>

Appendix A: IRB Approval Letter**LIBERTY UNIVERSITY.**
INSTITUTIONAL REVIEW BOARD

June 26, 2023

Dave McGee
Jerry Woodbridge

Re: IRB Exemption - IRB-FY22-23-1643 Pedagogical Disruptive Innovations and Positive Deviance During COVID-19 Mandatory School Closures: A Case Study of Public-School Teachers in San Juan County, New Mexico

Dear Dave McGee, Jerry Woodbridge,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under the following exemption category, which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:104(d):

Category 2.(iii). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:

The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).

Your stamped consent form(s) and final versions of your study documents can be found under the Attachments tab within the Submission Details section of your study on Cayuse IRB. Your stamped consent form(s) should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document(s) should be made available without alteration.

Please note that this exemption only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued exemption status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this exemption or need assistance in determining whether

possible modifications to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,
G. Michele Baker, PhD, CIP
Administrative Chair
Research Ethics Office

Appendix B: Recruitment Letter/Email

Hello [Participant Name]

My name is Dave McGee, and you were referred to me as a study participant in my research project. I am a doctoral candidate in the School of Education at Liberty University in Lynchburg, Virginia. I am conducting research as part of the requirements for a Doctor of Philosophy in Organizational Leadership in the Department of Education.

I was referred to you by [referral], and I am seeking participants who are teachers working in San Juan County before, during, and after the COVID-19 pandemic mandatory school closures. The purpose of my single case study is to discover and describe the types of positive deviance and disruptive innovation that were created during the non-voluntary transition to remote learning in San Juan County, New Mexico.

- Positive deviance is defined as any novel, non-normative, unique, deliberate creation of a new outcome that benefited you, your students, and your school.
- Disruptive innovation is defined as any “just good enough” innovation that created a new process, procedure, or outcome. I am writing you to invite you to join my study.

Procedures and Outcomes

My study has three activities. First, I will ask you to upload a copy of your pacing guide and at least three lesson plans:

1. One from before your transition to remote learning or lesson plan pre-COVID.
2. One lesson plan you created during your transition to remote learning.
3. One lesson plan after transitioning back to face-to-face learning or lesson plan post-COVID.

I would ask you to author a three-to-five-page reflective journal/essay describing and reflecting on your transition to remote learning, answering the following five questions. I estimate this activity will take three to four hours:

1. Please describe your activities and reflections about adapting your pacing guides and create a lesson plan for remote learning.
2. From your point of view, what was different in your approach to adapting your lesson plans from your traditional classroom?
3. What support did you have in adapting your lesson plan for remote learning?
4. What was the most difficult issue you had to overcome adapting your pacing guide and lesson plan for remote learning, and what did you do to mitigate it?
5. What lessons learned did you take away from your experience adapting your pacing

guide and lesson plan remote learning?

I will schedule a personal interview using Microsoft Teams and ask you eleven questions about your pedagogical routines, what types of innovation and collaboration you did, and lessons learned. The personal interview is expected to last between 45 minutes to an hour.

Is this a study you would be interested in participating in (Yes/No)?

1. Are you currently teaching in one of the four school districts in San Juan County (Yes/No)?
2. Were you teaching in San Juan County before, during, and after the COVID-19 pandemic school closures (Yes/No)?
3. Would you have four to five hours to participate in my study (Yes/No)?

If any answer is No:

OK, thank you for the opportunity to chat with you; I appreciate your time. (End the call)

If all four questions are Yes:

Great, I appreciate your willingness to participate. Can I get some information from you?

1. Your full name.
2. What email address can I use?
3. Is this phone number I contacted you the best one?

Please check your email inbox in the next 30 minutes to an hour for two emails. One email will be information for you to log in to my study's Website. You will have a username and password so you can upload your pacing guide and lesson plans.

The second email will be from Docusign with a link for you to log in to view a study consent form for you to initial and sign.

In closing, thank you, and in consideration of your voluntary willingness to participate and to compensate you for your time. Upon completing these three study activities, I will compensate you with a \$75.00 Amazon or Visa gift card.

Do you have any questions?
(End the call).

Appendix C: Recruitment Email Template

Dear [Participant full name], thank you for your willingness to participate in my study:
Pedagogical Disruptive Innovations and Positive Deviance During COVID-19 Mandatory School Closures: A Case Study of Public-School Teachers in San Juan County, New Mexico.

A Study Website has been created (<https://www.e2group.org>) for you to upload your pacing guide and a minimum of three lesson plans. Please use the following username and password to log in:

Username: [callsign]@e2group.org
 Password: [P@ssWder1234]

Once you have logged in to the site, you will see a SharePoint document library, navigate to and click the new document to upload your pacing guide and a minimum of three lesson plans (you can upload as many lesson plans as you like, but no more than ten is needed):

- One lesson plan you created before transitioning to remote learning during the COVID-19-mandated school closures.
- One lesson plan you created for the transition to remote learning during COVID-19 school closures.
- One lesson plan you created after returning to face-to-face learning after COVID-19 restrictions were lifted.

Please draft a three-to-five-page journal/essay elaborating on these five questions:

1. Please describe your activities and reflections about adapting your pacing guides and create a lesson plan for remote learning.
2. From your point of view, what was different in your approach to adapting your lesson plans from your traditional classroom?
3. What support did you have in adapting your lesson plan for remote learning?
4. What was the most difficult issue you had to overcome adapting your pacing guide and lesson plan for remote learning?
5. What lessons learned did you take away from your experience adapting your pacing guide and lesson plans from this experience?

From your dashboard, you will see a calendar of available times to schedule a personal MS Teams interview. Please select three or four dates and times that are convenient for you. Note, if

a date and time are unavailable, please email, or call me, and we can schedule a time that is better suited for your schedule.

Contacts and Questions

The researcher conducting this study is David McGee; you are encouraged to ask any questions you may have at any point in this research study. You can reach David via email at [REDACTED], or via phone at [REDACTED]. You may also contact the researcher's dissertation chair, Dr. Jerry Woodbridge, at [REDACTED]. If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, [REDACTED], by phone at [REDACTED], or email at [REDACTED].

*Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University. **Please notify the researcher if you would like a copy of this information for your records.***

Respectfully,

David R. McGee M.Ed.
[REDACTED]

Doctoral Candidate, Liberty University
[REDACTED]

Appendix D: Consent Form

Title of the Project

Pedagogical Disruptive Innovations and Positive Deviance During Covid-19 Mandatory School Closures: A Case Study of Public-School Teachers in San Juan County, New Mexico

Principal Investigator

David R. McGee M.Ed. Doctoral Candidate, Liberty University, School of Education
Organizational Leadership.

Invitation to be part of a Research Study

You are invited to participate in a research study. To participate, you must currently teach in San Juan County, New Mexico, and have taught in San Juan County before, during, and after the COVID-19 mandatory school closures.

Purpose of this Research

The purpose of my single case study is to discover and describe the types of positive deviance and disruptive innovation that were created during the non-voluntary transition to remote learning by teachers working in San Juan County, New Mexico.

- Positive deviance is defined as any novel, non-normative, unique, deliberate creation of a new outcome that benefited you, your students, and your school.
- Disruptive innovation is defined as any “just good enough” innovation that created a new process, procedure, or outcome.

Procedures and Outcomes

If you agree to be in this study, I will ask you to do the following:

4. Provide a copy of your pacing guide.
5. Provide at least one copy of your lesson plans
 - a. One from before your transition to remote learning or lesson plan pre-COVID.
 - b. One lesson plan you created during your transition to remote learning.
 - c. One lesson plan after transitioning back to face-to-face learning or lesson plan post-COVID.
6. Author a three-to-five-page reflective journal/essay describing and reflecting on your transition to remote learning, answering the following five questions:
 - a. Please describe your activities and reflections about adapting your pacing guides and create a lesson plan for remote learning.
 - b. From your point of view, what was different in your approach to adapting your lesson plans from your traditional classroom?
 - c. What support did you have in adapting your lesson plan for remote learning?
 - d. What was the most difficult issue you had to overcome adapting your pacing

guide and lesson plan for remote learning?

- e. What lessons learned did you take away from your experience adapting your pacing guide and lesson plan remote learning?

7. Schedule and participate in a personal interview.

Benefits of Your Participation

Your participation will contribute important empirical evidence that teachers will find creative and novel ways to overcome difficult situations and create new innovations and positive outcomes for their students. Your participation is needed to shed insight into what educators and education leaders can do to mitigate any future such events where schools must leverage remote learning to serve their communities.

Risk of Your Participation

The expected risk from participating in this study are minimal, which means they are equal to the risk you would encounter in everyday life. Since all contact in this study will use remote technology, there will not be a physical face-to-face meeting.

Protecting your Identity

Documents and data collected for this study will be kept private and securely stored on the study's SharePoint Web site using Secure Socket Layer (SSL) certificate and encrypted to prevent information spillage. Only you and the researcher will have direct access to your information, documents, and transcript from recordings you participate in.

Your identity will be vigorously protected, and your name will be marked using an assigned pseudonym. The personal interview will be conducted using MS Teams, and you are encouraged to choose a quiet and secure location for the interview. Data collected from you may be used in future research or shared with other researchers. However, if data collected from you is reused or shared, any information that could identify you will be removed.

All data collected for this study will have a records retention policy applied, and data will be retained for three years after the completion of this study. After the three-year retention policy is expired, a review will be conducted to see if there is a need to extend the retention period, if not all data will be destroyed in accordance with rules established by the National Records Archiving Administration (NARA), and a destruction certificate will be provided.

Voluntary Nature of the Study

Participation in this study is voluntary. Your decision to participate or not participate in this study will not affect your current role at your school. If you decide to participate, you are free not to answer any question or withdraw at any time without affecting relationships.

Researchers Positionality

The researcher of this study is an independent investigator and has no affiliation or association with any school district in San Juan County. The researcher acknowledges that he was raised in

San Juan County and graduated from one of the high schools in the area. This disclosure is made so you can decide if this relationship will affect your willingness to participate in this study. No action will be taken against an individual based on their decision to participate or not participate in the study. The researcher does not have a financial interest in the outcomes of this study, and the sole motivation for conducting this study is to describe and categorize the complexity teachers encountered during the non-voluntary transition to remote learning and to provide insight for educators and education leaders to mitigate any future such events.

How to Withdraw from the Study:

Participation in this study is voluntary and deciding whether to participate will not affect your current or future relationships with Liberty University. You are free not to answer any question or withdraw at any time from the study prior to submitting any document upload or participating in the personal interview.

If you choose to withdraw from the study, please inform the researcher via email or phone number in the contacts section below or by completing the “I wish to withdraw” form from your research dashboard. If you withdraw, any document upload, recorded audio/video file, transcripts, and any other artifact you provided will be immediately destroyed and will not be used in the study.

Contacts and Questions

The researcher conducting this study is David McGee; you are encouraged to ask any questions you may have at any point in this research study. You can reach David via email at [REDACTED], or via phone at [REDACTED]. You may also contact the researcher’s dissertation chair, Dr. Jerry Woodbridge, at [REDACTED].

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, [REDACTED], by phone at [REDACTED], or email at [REDACTED].

*Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University. **Please notify the researcher if you would like a copy of this information for your records.***

Statement of Consent

Before agreeing to be part of this research study, please make sure you understand what the study is about before you sign. You will be given a copy of this document for your records. The researcher will keep a copy of the study records. If you have any questions about the study after you sign this document, you can contact the researcher study team using the information above.

I have read and understood the above information, I have asked questions, and I have received answers. I consent to participate in the study.

The researcher has my permission to audio and video record me as part of my participation in this study.

Print Name

Signature of Participant

Date

Appendix E: Participant Dashboard

Hello [call sign], this will be your dashboard for you to interact as a participant in this study. This dashboard contains detailed instructions on uploading copies of your pacing guides, lesson plans, and reflective journal.

Site layout.

The screenshot shows a web browser displaying the participant dashboard. Three red callout boxes highlight specific areas:

- Zone 1: Study Procedures Activity 1 & 2** points to the "Study Procedures" section, which includes instructions for the first activity (uploading documents) and the second activity (writing a reflective journal).
- Zone 2: Study Procedures Activity 3** points to the "Third Activity" section, which includes a table of procedures for the personal interview and a calendar for scheduling.
- Zone 3: Document Uploads** points to the "Documents" section, which shows a "new document or drag files here" button and a table for document management.

Study Procedures
This study has three activities:

First Activity (approximately 10 - 20 minutes): Upload your pacing guides and a minimum of three lesson plans. Once you have these documents, please navigate to the Document upload zone.

- * One lesson plan you created before COVID-19 school closures.
- * One lesson plan you created and delivered during COVID-19 remote learning.
- * One lesson plan you created after COVID-19 restrictions were lifted and you resumed in-person instruction.

Second Activity (approximately two to four hours): Please write a reflective journal/essay describing and reflecting on your transition to remote learning. Reflecting on these questions, the estimated length of your journal/essay may be between 750 to 1500 words (three to five pages). The purpose of the reflective journal/essay is to capture your thoughts outside an organized personal interview so you will not feel pressured by a time constraint. Once your essay is completed, please navigate to the Document upload zone.

1. Please describe your activities and reflections about adapting your pacing guides and create a lesson plan for remote learning.
2. From your point of view, what was different in your approach to adapting your lesson plans from your traditional classroom?
3. What support did you have in adapting your lesson plan for remote learning?
4. What was the most difficult issue you had to overcome adapting your pacing guide and lesson plan for remote learning, and what did you do to mitigate it?
5. What lessons learned did you take away from your experience adapting your pacing guide and lesson plan remote learning?

Third Activity (approximately 45 minutes to one hour): After activities one and two are complete, the Personal Interview zone calendar will be enabled; please select up to three times to schedule a personal interview.

Procedures for the Personal Interview on the day of the interview.

Steps	Procedures
1.	Check your email for an MS Teams interview time. If you do not receive this email, please check your junk folder. If you cannot find the email, please contact the researcher to get any technical issues resolved.
2.	On the day of the interview, navigate to and click the email with the MS Teams link.
3.	If you have the MS Teams app installed on your computer, please be sure to log out of your active MS Teams app. The interview will leverage the Webteams feature.
4.	When the MS Teams web opens, you will enter a participant's name. You will enter your call sign... i.e., Maverick as the member; then click the Join button. You will be placed in the personal interview lobby and will be admitted to the MS Teams meeting by the researcher.
5.	Before the interview begins, a technology check will be conducted to check MS Teams recording and transcript service.
6.	The interview will begin with a reading of the purpose statement, will include a reading of your right to withdraw from the study, and will end with confirming you are willing to participate in the study.
7.	The interview will be conducted and will conclude when both you and the researcher are satisfied that all questions are answered.
8.	Before the personal interview ends, you will be given an opportunity to ask any questions. When you are satisfied all your questions are answered, the researcher will end the recording and transcript and close the MS Teams meeting.

July 2 - July 8 2023

	2 SUNDAY	3 MONDAY	4 TUESDAY	5 WEDNESDAY	6 THURSDAY	7 FRIDAY	8 SATURDAY
1 PM							
2							
3							
4							
5							
6							

Documents
new document or drag files here

<input checked="" type="checkbox"/>	Name	Modified	Modified By
There are no documents in this view.			

Zone 1 provides instruction for research activities one (document uploads) and two (reflective journal/essay).

Zone 2 provides instructions and processes for the personal interview. Zone 2 includes a calendar so participants can choose interview dates and times.

Zone 3 is the document upload area so participants can upload artifacts.

Appendix F: Example of Master Pacing Guide.

5th Grade 2022-2023 Quarter 1 Master Pacing

WEEK	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
DATES	8/16-20	8/23-27	8/30-9/3	9/6-10 (Labor Day – Mon. 1 2 hr early release)	9/13-17	9/20-24 (1 Early Release Day)	9/27-10/1	10/4 -8 (PD Day on Wed)	10/11-15
ELA CORE	RL5.3	RL5.3	RL5.3	RL5.2	RL5.2	RL5.2	RL5.2 / RL5.3	Reteach	Reteach
ELA Ongoing Standards	RL5.1 RL5.4	RL5.1 RL5.4	RL5.1 RL5.4	RL5.1 RL5.4	RL5.1 RL5.4	RL5.1 RL5.4	RL5.1 RL5.4	RL5.1 RL5.4	RL5.1 RL5.4
MATH CORE	NBT.A.1 NBT.A.2	NBT.A.3a, b	NBT.A.3a, NBT.A.4	MD.A.1 (customary) NBT.B.5	NBT.B.6	NBT.B.5 NBT.B.6	NBT.B.7	OA.A.1 OA.A.2	NBT.B.7
Math Ongoing Standards	Review Multi-Step Word Problems <i>Focus: MD.A.1 (Metric)</i>	Review Multi-Step Word Problems <i>Focus: MD.A.1 (Metric)</i>	Review Multi-Step Word Problems <i>Focus: MD.A.1 (Metric)</i>	Review Multi-Step Word Problems <i>Focus: MD.A.1 (Metric)</i>	Review Multi-Step Word Problems <i>Focus: MD.A.1 (Customary)</i>	Review Multi-Step Word Problems <i>Focus: MD.A.1 (Customary)</i>	Review Multi-Step Word Problems <i>Focus: MD.A.1 (Customary)</i>	Review Multi-Step Word Problems <i>Focus: NBT.B.5,6,7</i>	Review Multi-Step Word Problems <i>Focus: NBT.B.5,6,7</i>
Writing	Baseline Paragraph 6 +1 Traits	6 +1 Traits Backwards Narrative planner (pages 448-452)	introduce/create/ use/ writing routine folder for narrative for students to keep (page 449-450)	Use backwards planner as a model for their first Personal Narrative plan-	Personal Narrative	Imaginative Narrative	Imaginative Narrative	Teacher Choice- Personal or Imaginative Narrative depending on class data, CIA data (TAP).	Teacher Choice- Personal or Imaginative Narrative depending on class data, CIA data (TAP).
Science	5-PS1-1 RI5.3	5-PS1-2 RI5.3	5-PS1-3 RI5.3	5-PS1-4 RI5.2	5-PS3-1 RI5.2	5-LS1-1 RI5.2	5-LS2-1 RI5.2/RI5.3	Reteach	Reteach
Assessments		Math Exit Ticket	Math CFA #1	Math Exit Ticket	Math Exit Ticket	Math CFA #2	Math Exit Ticket	Math CIA #1	Math Exit Ticket
		ELA Exit Ticket	ELA CFA #1	ELA Exit Ticket	ELA Exit Ticket	ELA CFA #2	ELA Exit Ticket	ELA CIA #1	ELA Exit Ticket

Appendix G: Example of Participants Personal Interview

0:1:19.980 --> 0:1:25.230

Researcher

OK, this personal interview should last about 45 minutes, a little bit longer, depending on how robust we get into the questions, but the interview is designed not to take longer than one hour.

You are free to answer as robustly as you need, and please do not feel like you need to answer with any predetermined or expected answer. The purpose of this interview is to catalog what teachers like yourself did in the classroom when you transitioned from in-person to remote learning.

The general theme of what we are doing here is that I'm trying to identify acts of positive deviance or disruptive innovation in the classrooms. I believe there are four key areas where positive deviance and disruptive innovation might occur. Classroom design, Instructional design, Use of technology, and pedagogical approaches.

The purpose of this single case study is to discover and describe the types of positive deviance and disruptive innovation by teachers from San Juan County, New Mexico, during the non-voluntary transition to remote learning. This study specifically seeks to identify and catalog if classroom teachers altered their pedagogical approaches through acts of positive deviance from their face-to-face classroom juxtaposed to their nonvoluntary transition to remote learning.

The three research questions of this study ask: What acts of positive deviance and/or disruptive innovation did classroom teachers report when adapting their pedagogical approaches when transitioning to remote learning during the pandemic?

What was the impact of peer and/or organizational collaboration on the development of positive deviance and disruptive innovation?

Sub question: what are the general perceptions and ad hoc adjustments teachers reported OK? Any questions?

0:3:59.790 --> 0:4:0.840

Participant

No, I do not think so... not yet anyway.

0:4:4.870 --> 0:4:24.740

Researcher

We will start the interview, and depending on the answers you provide, there may be some Ad hoc questions if some theme, thought, or idea comes into your mind. Free to share.

All right, the design of this personal interview is to ask open-ended questions that allow the participant to share their thoughts. There is no wrong answer, and there are eleven total questions grouped into six categories.

There is one background question.

There is one Behavioral and psychology.

There are four teacher routine questions.

There are two innovation and adapting questions.

There are two collaborative or collaboration questions.

Finally, one lesson-learned question.

0:5:16.510 --> 0:5:19.680

Researcher

OK, please share your current role. How many years have you been teaching, the number of years you have taught in San Juan County, and the number of years teaching at the grade level when you transitioned to remote learning?

0:5:33.670 --> 0:5:36.600

Participant

So, up until this point. I have a total of twenty-eight years of teaching experience as of the end of this past year. When COVID came, it was twenty-five years. I have taught for 21 years in San Juan County, and seven were out of state. I am teaching grades four, five, and six, and I was doing that during COVID as well. I am currently teaching special education.

0:7:7.40 --> 0:7:12.190

Researcher

What, just out of curiosity, what is it about teaching special education? Is teaching special education a passion? Is that the teaching level you enjoy teaching?

0:7:23.140 --> 0:7:23.690

Participant

Yes.

0:7:23.880 --> 0:7:31.890

Participant

One of the things I like is that, frequently throughout my career, I've had the same group of kids for successive years. So, you really get to know the kids, and there won't be a lot of surprises when school starts next year. And then I just like trying to motivate the kids and trying to get them to enjoy school because most of them do not; they are already past that point by the time they're in Special Ed; they usually don't like school. They do not want to be there.

They know they cannot learn. They know they are below the other kids, so I like to encourage them to try to turn it around.

0:8:9.180 --> 0:8:13.870

Researcher

Give me an example of some of the things your innovations that you've tried to kind of turn around.

0:8:15.580 --> 0:8:25.220

Participant

Well, I tried to make the class fun, so one of the things I've done in the past is pick a novel to read that has a movie with it. You know, "Hollywood good movie" like Harry Potter, for instance. And then we do all the things that we need to do with reading in the novel.

Generally, I pick a book that they cannot read. Their reading level is too low for that, but it is a book that their peers are reading often just for fun. Again, like Harry Potter, I have a library of these types of books. So we go through all the things with character setting, vocabulary comprehension, all of that, but we try to make it fun. I include some fun activities with it every day, and then, of course, we get to see the movie when the book is over, and then we go on and compare the book and the movie.

So that is one of the things I like to do. That way, when the kids hear other kids talking about books they have read, they can join in. They know what is going on, and they don't have to think. You know, gosh, I don't; I can't read that book; it's too hard for me. I don't know what they're

talking about. And then that puts them in a bad mood, and they get grumpy, and it goes on from there. So I try to do things like that, try to make it fun for them while they're learning.

0:9:36.670 --> 0:9:42.690

Researcher

It sounds like reading inspires them to keep going?

0:9:41.370 --> 0:9:44.170

Participant

Sometimes, it depends on the kid, of course, because some of them have lost their interest in school more than others. It also depends on parent support and sometimes how quickly they were placed in the special education classroom and taken out of the general education classroom, at least for part of the day.

0:10:9.170 --> 0:10:17.580

Researcher

So, from a behavioral point of view, please describe or give me an example of a motivation or distraction you experience.

0:10:29.910 --> 0:10:37.350

Participant

So, for a lot of special Ed kids, being unable to read is the biggest problem. And I mean, we do not even stop to think how much we read every day. Even getting onto a computer, you must be able to read. For example, click here, click there, or whatever, and they're embarrassed because they fully realize that they are well below their peers. I mean, when they're sitting in a class, a general class, and the kids are taking turns reading out of a science or social studies text, and they can't even follow along, they're so lost they can't read the words well enough to follow along. Yet, here's a kid their age reading without much difficulty. They realize that they can't do that, and it embarrasses them, especially the older they get. They don't want to be seen as that kid that can't read or, you know, that kid that has trouble.

0:11:37.730 --> 0:11:40.890

Researcher

So it's a peer pressure or a peer group.

0:11:42.0 --> 0:11:44.710

Participant

It's not even something that the other kids do to them. It's something they do to themselves. Most of the time, they don't even have to be teased about it. They just, they already know. I try to think of it as if I went into a college-level chemistry class, everybody was around halfway through the semester, everybody around me knew what was going on, and I was completely lost. I would be embarrassed to raise my hand and say, I don't know what you guys are talking about, and I'm an adult, not a 9-year-old, yeah.

0:12:33.740 --> 0:12:38.40

Researcher

What are some of the strategies that you personally dealt with? Not necessarily in front of the kids, but during your more pensive private moments after the classrooms. What kinds of strategies or innovations were you inspired to think about?

0:13:7.420 --> 0:13:10.890

Participant

As far as academics, I have to think back because, over the years I have learned to adapt; I'll try anything.

I've lowered the reading level of science and social studies books. For example, the kids know that in their general Ed classroom, the students are learning about Egypt. So, I would find a 6th-grade textbook on Egypt, and I would go through it and write on chart paper exactly what the paragraph says. I would make it easier to read the language by dropping the reading level.

So the kids can read it and know what's coming ahead of time, so that when they go to their general Ed class, they are like, I do know what they're talking about. I gave them vocabulary words ahead of time so that they kind of have an idea of what those words mean. I gave them a quick lesson in math, telling them this is what they're going to be learning so they don't stress about it. We would go over the lesson more, but I wanted them to just look at it, kind of like preloading some of that stuff and then, of course, reviewing it when they get done.

I draw a lot of pictures on my board, and I am not a very good artist. Most of my drawings, they are all stick figures. For example, I read A Christmas Carol to them most years, but I don't know if you're familiar with the story. Scrooge goes back in time and then moves forward in time with the ghost of Christmas past going right over their head, so I draw a big diagram. On the board, I show them, with arrows, how he went back to when he was a kid and how he moves forward step by step.

I do this before we read the chapter so that they are aware of what's about to take place.

Otherwise, it just goes over their head, and they start messing around, and they don't listen to the book and things like that.

0:15:33.380 --> 0:15:41.790

Researcher

So, when you transitioned to remote learning, can you explain how you adapted?

0:15:43.440 --> 0:15:52.100

Participant

So, when we went to remote learning, it was very difficult at first because I had never used Google Classroom before. I was learning how to use the technology to teach the students at the same time as I was doing it. There is a feature in Google Classrooms called White Board, and I also have a smaller-sized whiteboard of my own that I propped up from behind me in the room I was sitting in. I would prop it up on furniture so that I could use it and students could see through the camera. I would have my computer up on crates so that they could be at the same level as the whiteboard. That way, I was able to use the pictures and, of course, the front-loading things beforehand so I could illustrate what I was teaching. But what I was doing did not keep up with what other teachers were teaching at the same time, so I had to find out what other teachers were going to teach and frontload that for the student. At first, I just couldn't do it, but it became easier. But when we first transitioned, no, it was too much, too time-consuming.

0:17:18.120 --> 0:17:22.130

Researcher

So there was a learning curve for everybody. On average, what would you say the time to adapt was like? Days, Weeks, Months.

0:17:34.450 --> 0:17:43.890

Participant

I would say weeks to probably a couple of weeks to get a routine of some sort down, and we did the same thing every day. The kids knew what to expect, which is pretty important with special Ed Kids; they generally, no matter what they tell you, don't like change on all those fun days when the kids get to go do something special. A lot of the special Ed kids misbehave because it's out of their routine. It's something different. They don't know how to act so, so that didn't help

much. So, I tried to get a routine down as soon as possible so we would have a warm-up where they could come in within a 10-minute gap to join the meeting no questions asked.

You know, if they showed up 10 minutes after we started, I didn't say a word other than to greet them. I didn't ask where they were. I didn't ask why they were late. We would play music and show quick little school-appropriate videos during that time so that all the kids could kind of chitchat with each other because a lot of them were home alone, completely alone. Some of them were home with siblings. Some of them were not. Some of them were just there all by themselves.

The parents were at work, so we had that kind of chat time, and then we would move into lessons and after each subject area. I would provide them with a break, and I used a video from YouTube with an animated little bomb on the screen so that it would count down the minutes for their break, and then it would explode and make this big boom sound so that they could hear it all over their house and come back.

Things like that type of innovation aided the lessons. I gave them, instead of the 40 minutes we're allowed from lunch, I gave them an hour because a lot of them had to go fix their own lunch. They couldn't go to the cafeteria and get a tray. They had to go into the kitchen and make something, and then they had to clean up the mess. So, I gave him extra time for lunch and, you know, as far as the lessons, we use the Google Whiteboard and my own whiteboard at home. As time progressed. We would sit, and we were allowed to go to the school at some point so that we could photocopy things and do things at school, but the students were still not there. I would make paper packets of everything that they were going to do. These packets were sent to their parents, and parents had to come to pick them up at the school outside the building. There was this little plastic garden shed with shelves in it, and we had books in there for the kids to borrow. So we would put packets of paper in there for them to take in Manila envelopes with their names on them, and then I would upload those pages onto my Google Classroom so that I could display the page, and they would have it at home in front of them.

0:21:8.200 --> 0:21:26.850

Researcher

So based upon that, would you say, from your point of view, that you tried it as quickly as possible to adapt to what you were doing face to face and then kind of mimic that in the remote using the video? Rearranging your camera and the whiteboard so you were duplicating the classroom instruction.

0:21:38.350 --> 0:21:38.780

Participant

Right, at first. Definitely. Yep.

0:21:41.520 --> 0:21:45.310

Researcher

And the kids find value in that? It sounds to me like you think the students responded well to that.

0:21:49.670 --> 0:22:2.640

Participant

Well, the ones who showed up did so at the time that we had COVID, and we switched from in-building to virtual. I taught a behavior class. The students in the class were maximum-level special Ed, which means more than 50% of the day in special education. In their case, most of them were 100% on their ISP, so they had severe behavior problems. Most of them were

emotionally disturbed somewhere other health impaired. Most of the other health-impaired kids had ADHD, so they already had trouble behaving in school as it was in person.

I lost one student altogether; he never showed up online, and no one at the school was able to contact him. If we had students we couldn't contact, we had to turn their names into our principal so that they could turn it over to the district, and they had someone who would try to make that contact. That was their job was to contact people that we couldn't contact. They were unable to contact him the entire school year. Yeah, so we lost him. He did come back the next year when we were in person, but he had advanced to grade and was in a different building, so I never saw him again.

A couple more of my kids would show up periodically online. These were the kids who would show up and pull their hoods over their faces because the school wanted them to have their cameras on, so they would pull their hoods over their face or put a ball cap down over their face. They wouldn't say a word. They would do nothing, and they would stay 15 to 20 minutes, and then they would log off, and they never turned in any work.

Parents never came and picked up any of the packets, and then we had some kids who tried, mostly because their parents wanted them to, but even then, they knew there wasn't anything that could be done. There were no consequences for them, so the program had a system of levels, and they had a daily point sheet that was divided into ten segments for a school day, and they could earn up to 100 points, 10 points per segment, and we continued with those point sheets.

We altered them because the time of the school day was reduced for the first year in, but it but dropped a level, losing their points and dropping a level meant nothing to them. As they increased in level when we were in the building, they were allowed to go back to their general Ed class with their peers. So if they were really well-behaved, they got up to, say, Level 3, and then they got to go to lunch with their friends instead of eating in my classroom. Most of them really liked that, but now all of a sudden, they're at home anyway.

They're not eating lunch with their friends. They're eating lunch by themselves cause their parents are at work. So now they don't care about earning lunch. They don't care about going to PE and music because they're not going to go to PE in music; they're all online. They can go no matter what level they're on or not go.

On Fridays, they would get to shop in a store that the district provided. Quite a bit of money actually for them to pick out rewards for having done so well all week. Well, that store was locked up in the school building, and they were at home, so they didn't care about behaving. Everything that they had that helped them to behave at school was gone. So no, they didn't do particularly well.

0:26:20.420 --> 0:26:27.510

Researcher

So you think this was kind of across the board with all special Ed teachers?

No, I think mine were because mine were maximum-level behavior students.

I had one of my students who was not online one day took a BIC cigarette lighter and set her curtains on fire in her bedroom. They had called the fire department, and she ended up in residential treatment.

Now, can I say that was directly related to COVID? No, because she could have done it on a weekend or after school. But when she did do it, it was during the school day. She should have been in school, but we couldn't come to school. And I'm not saying that we should not have closed the school buildings. I safety first, but It was not good for them at all.

0:27:33.950 --> 0:27:44.200

Researcher

In a normal classroom, how do you assess students?

0:27:56.210 --> 0:28:1.60

Participant

How they assess students changed in our district. At the high school level, they use the grade point average for college, but below that, grading is based on a one through four scale.

Again, that didn't really matter much to my students because they were below grade level because they did not behave at school. Not every one of them, and not every single subject was a problem, but most of them were working below grade level; they did not feel they were learning anything. If they're, if they're busy crawling around on the floor and a general Ed classroom before they were identified as a behavior issue, they're crawling around on the floor, or they're sitting in the principal's office, or they got suspended for three days.

During suspension days, they're not learning anything, so they tend to be well behind their peers when I get them. So, since they're not doing grade-level work, they're not working on the standards for their grade level. I have to give them a one for everything on their report cards.

They have to be working on grade level to earn a 2-3 or four, so again, not much of an incentive. They know they're going to get one anyway.

When we were in the building, like I said, we had all those supports for them that would give them an incentive to try to do what they were supposed to do. One of the things they were supposed to do was try to learn. So they got points for doing an assignment, but that assignment they were in 6th grade. The assignment was at a fourth-grade or a third-grade 3D level or math level.

0:30:2.330 --> 0:30:15.280

Researcher

So, really, from your point of view, there were no innovations or ideas that came up or out-of-the-box ideas.

0:30:13.930 --> 0:30:16.80

Participant

Stopgap kept them busy.

If they showed up, it is all it to keep them interested. That you know, which is more interesting to a 10-year-old listening to your teacher read a book and having them help you fill out a worksheet or play video games on your home system. Yeah, nobody's home to make you, and all you got to do is click that button and you close your meeting. You could do whatever you want to do and then tell your mom I couldn't get the computer to work.

0:31:19.500 --> 0:31:33.120

Researcher

Moving down to the collaboration part, this would be on slide ten if you got it; how did you collaborate?

0:31:33.130 --> 0:31:36.460

Researcher

Tell me how you collaborated during face-to-face and then how you collaborated when transitioned to remote learning. Did collaboration impact your ability to try anything new?

0:31:53.390 --> 0:32:1.120

Participant

I have a co-teacher who, at the time, was also teaching special Ed. She was teaching 5th-grade

resource students who were in the building and would be pulled out of their general Ed room and come to her for help in either reading or math. Sometimes written language, and she was very good with technology. She used a lot of technology in her classroom before COVID.

We would have Google meets at a district level with all the special Ed staff. So, we would get ideas there, and we could talk to each other there.

We would have Google meets with our whole school, and then we would also have Google meets with just our special Ed staff, which was five people, five people plus EAs. The district gave us time to collaborate and ask questions of each other.

And, of course, one of the things I always asked was, how are you doing this? How are you showing the kids this? How are you having the kids turn in their papers? She was always very patient and would explain it to all of us, and this is how I found out about the whiteboard in Google Classroom.

She gave me some asynchronous programs to use, you know, where the kids just work on it, and then you can go in and check their progress. She gave me the names of several of those programs that she had already been using before COVID that were free to the district and didn't have to pay for them.

Some of them were a minimal charge, which I paid for.

Uh, so there were ways the district saw that we had ways to collaborate with each other. And then, of course, in the case of Anissa, I had her home phone number; she had mine so that we could text each other. So, from your collaboration experience in person, the remote has it. Have you reflected on or on anything that would say you know what I need to change my teaching approach, my pedagogical approach?

Uh, you know, because you know that you've had both experiences. Is there any kind of alignment that you can see there that has made you rethink your approach to teaching? I used technology more than I used to. I used to use it, don't get me wrong. It's not like I was back in the Stone Age or anything, but I use it more than I used to with one of our with one of series of tests that the kids have to take district-wide.

They have it and get all their information from Google Classroom, so we still have to maintain a Google Classroom, and I always make sure at the beginning of the year that my kids are on there. Usually, that involves sending them an email that they have to accept, they have to get on to Google Classroom at least once.

So you know, we do that every year at the beginning of the year. Make sure they're on there and that everything's good so that when that information gets loaded up for testing, it's already done, and we're not sitting there waiting to test because one kid can't get on, and I'm calling, you know, to try to get help with that so we kept track of the Google Classroom plus it's a good way if the kids are absent, they can always check on there if they need to.

I still maintain things for them to do on Google Classroom. If they are interested in doing it when they're either homesick or over the weekend, I have access to songs and access to the Houston Zoo webcams. I have a yoga poster so that they can do some exercises if they want; I keep up. Reading and math, you know, reminders. If you're trying to figure this out, remember this is how you do this kind of thing. You know where they can go in and look at that if they want to. So yeah, I've changed the way I taught from before COVID a little bit, but I still have a lot of the same things, but some have changed.

0:37:25.410 --> 0:37:30.100

Researcher

This may sound a little redundant; what was, from your experience and your point of view, that worked well during the transition?

0:37:45.70 --> 0:37:54.970

Participant

I really have to say that, first of all, our district requires all those meetings; I mean, I know the last thing you want to do is go to a staff meeting. It's like, oh, man, I've got tons of things to do. I don't want to go sit there for an hour in person on Zoom or Google Meet. It doesn't matter, you know, but the fact that they had them and had them so frequently because they increased the frequency during that time period gave everybody a chance to get together, to talk, to know that we were all having the same problems.

You know that a lot of teachers were losing. Kids, do you know that they couldn't contact a lot of teachers were having trouble with the technology? A lot of teachers were frustrated; aside from learning how to do things and what the new procedures were and all of that, it was just good to know that you weren't alone. So I have to say that having all of those meetings really helped.

0:38:54.440 --> 0:39:6.730

Researcher

That said were there any one or two things that you from your point of view could have worked better? I mean, was there something out there that could have been tried now that you've had the experience and you've had it here or two to think about it, that could have been trying to make that experience better?

0:39:19.780 --> 0:39:35.760

Participant

The only thing that I've thought that that could have been tried, not that it should have, is that is that we should, if we had known how to use the technology before COVID.

But there was no reason to teach the entire district staff how to use Google Meets when we were never going to use it. We didn't know COVID was coming; we didn't know how big the impact was going to be; I would say that school, our school district, every school district, because I have friends who've taught other places. The school districts were not ready to go virtual.

We had to do it on the fly because we didn't see it coming. Nobody saw COVID-19 coming. I mean, we've had businesses fail because of COVID, so nobody saw it coming.

0:40:30.100 --> 0:40:31.310

Researcher

Are these friends all in San Juan County or elsewhere?

0:40:36.950 --> 0:40:37.810

Participant

Mostly here.

0:41:49.20 --> 0:42:4.530

Researcher

It sounds to me that you grew into the adoption of face-to-face technology. So, based upon that, how would you think your ability to do another transition in the event of something terrible happening and you have to do it again? What are your thoughts? How would you be prepared for it? What would you anticipate?

0:42:28.250 --> 0:42:33.750

Participant

Yes, we would be more prepared for it, and we would get used. We got used to the transition because they don't remember now how it worked, but the state had guidelines on how many

people had COVID in your building. So, once we came back the next year, we had the full school year (that would have been 2020-21) we would come back doing general Ed with kids. Kids would come in half time to class on Monday. Tuesday and then Wednesday were all virtual because the custodians had to clean the building.

Then the other half of the general Ed kids would come in the building on Thursday and Friday, and then the custodians would clean the building again over the weekend, and that continued like that, except for my classroom and the life skills classroom came all four days. Just not on Wednesday because it was for social distancing. You can't have 20 kids in a hallway 6 feet apart.

0:43:48.960 --> 0:43:52.620

Participant

The hallway is not that big, and you can't have 20 kids in a classroom and keep them six feet apart. The classroom is not that big, so that's why they divided the classes in half. Well, in my class, I only had five or six kids, so it was easy to keep them that far apart. So, that's why they came all the time. But then, if you had so many kids or so many adults with COVID that you couldn't replace them with substitutes, right? Have too many staff members homesick. There weren't enough substitutes to cover, so we had to go virtual, so that school year, we went back and forth.

You know, you'd on a Thursday, they would tell you, so starting tomorrow, we're going to be virtual. Make sure you take home whatever you need to take home to go virtual for the next however many days we'll see you back here whenever you know they would give you the dates so that entire school year, we went back and forth between in building and virtual repeatedly. So yeah, we got we got pretty good at it.

0:44:58.480 --> 0:45:2.770

Researcher

I heard you say you're using Google. Google needs the Google Docs stuff like that, so it's a Google platform.

0:45:7.450 --> 0:45:10.250

Participant

Yes, that's what the district had us on, yes.

0:45:10.800 --> 0:45:12.770

Researcher

So were there any other were there any other technologies you used?

0:45:18.30 --> 0:45:26.10

Participant

So, the district has us using EPIC, which is a reading program. The kids can pick books, and I'll read to them or highlight words, or they can read them to themselves. It's their option. Imagine learning was a district program that had both reading and math. We used the other teacher in this, and I used Happy Numbers, which is a relatively inexpensive program that tests the kids in math and then gives them a program to go through.

You know, so many lessons, and then they test and so many lessons, and they test, and the teacher can access their testing information and their progress and print reports. So yeah, there was a lot of other technology too that we were able to use and a lot of and a lot of places, you know, offered up their technology for free during COVID, yeah.

0:46:32.100 --> 0:46:35.80

Researcher

Those places would be examples of what places?

0:46:35.950 --> 0:46:37.560

Participant

Let me see if I can remember.

0:46:38.110 --> 0:46:40.770

Participant

It was a NEWSELA offering, so you could get that for free and use that for both reading and social-emotional, which was a which was a really big component. First of all, I had to teach social skills to my students because they were in a maximum-level special Ed class for behavior. So, 30 days, 30 minutes a day before COVID, we had to do social skills training. So then, of course, with COVID and so many kids isolated, it became more important for teachers to provide some kind of social-emotional support for the kids.

0:47:31.980 --> 0:47:37.150

Researcher

So did the kids have to rely on their own technology, or did the district give them, you know?

0:47:37.340 --> 0:47:52.480

Participant

So, each student had their own school-issued computer and charging cord, and then, uh, parents could call the district's IT office and get a hotspot if they needed one. Because, of course, out on the reservation, there were places where there was just no Internet. That's what happened with the one kid I never heard from. No, Internet parents didn't have a phone when they did have a cell phone. It didn't work, or they had a prepaid phone and couldn't afford the minutes.

It's so remembered that a lot of people didn't have jobs during COVID-19 as well, so yeah, some of our kids do have Internet access, period.

They were provided with paper packets.

0:48:27.620 --> 0:48:30.930

Researcher

OK, I like the old correspondence-type classes.

0:48:31.30 --> 0:48:32.160

Participant

Right, exactly. They would have to come to the school to pick it up in some cases; some teachers would take them to their houses and leave them, you know, like on the porch or something because you weren't. You weren't supposed to make any real 6 feet social distancing. So things like that, sometimes they went to chapter houses and picked up packets.

0:48:59.930 --> 0:49:3.770

Researcher

How was the technology respected or treated by these students? If students were given a laptop from the school?

0:49:25.120 --> 0:49:30.450

Participant

So, for the most part, students are very careful with their computers. I believe they all got cases to keep them in foam boom cases like little backpacks, you know? Parents had to sign for the technology and sign a financial liability. I'm not entirely sure, but I think the limit was \$100, so that's the most apparent. Could be charged if something went wrong with the computer that their kid caused. I think, for the most part, most students respected the technology and took care of their stuff.

Some of my kids did get frustrated and punched the screen, and one kid threw a computer. My kids were, you know, behavior, so they were different, but I think for the most part, most of the kids took pretty good care of their computers.

0:51:3.180 --> 0:51:14.510

Researcher

What was the most prudent, prominent kind of feedback you got back from the students that was either positive or negative? What I mean, I'd like to get an idea of what the some of the positive feedbacks you got and some of the negative feedbacks that you got.

0:51:23.350 --> 0:51:37.310

Participant

Well, the negative feedbacks were them refusing to answer questions you know on when we were online or turning off their just closing out of the Meet. I did have parent phone numbers and I would quite often call parents and say you know, little Johnnies not joining the meat or he was on for 10 minutes and logged off and sometimes they would come back on and sometimes even the parent wouldn't respond. So that was the negative for the positive, you know, several of my kids tried really hard and they tried to answer questions. They tried to ask thoughtful questions. They tried to make the best of it.

0:52:20.950 --> 0:52:24.360

Researcher

You know, if you want to share, just general observations. General feelings and your thoughts about how this experience has changed you as a person and as a teacher. You kind of answer some of those questions, but if there are any kind of closing comments or anything like that, do you want to share?

0:52:41.270 --> 0:52:45.830

Participant

Like I said, you know, I use more technology in my room than I did before COVID. I'm more comfortable with it. So when we I've never used this format that you're using today, but when I got on here, I'm like, oh, this is pretty much like Google Meets or Zoom. OK, I can figure this out. Yeah, I'm not like, oh, my gosh, what do we do? I think just being more comfortable with the technology and using it on a daily basis.

Appendix H: Example of Lesson Plans

2020 – 21 Lesson Plan Remote

Remote/Virtual
2019-20

Google Classroom:
Martinez (GREEN):
www.bsin.k12.nm.us
For Students
Software Links
Classlink
Google Classroom
Martinez
Join

Epic
www.bsin.k12.nm.us
For Students
Software Links
Classlink
Epic
Code: vix0050

Happy Numbers.com
Code: 110 589

8:00-8:50 Social Skills
Happy Songs
Yoga
Social Skills Lesson

8:50-9:00 Break

9:00-9:45 Math
Daily Skills
Coins up to Quarter
Evan Moor Gr. 2 Remedial

9:45-9:50 Break

9:50-11:30 Reading
Reading Plus

11:30-12:30 Lunch
Extra time is given for lunch to give students time to prepare, eat, and clean up.

12:30-3:00 Asynchronous Learning
Epic
Happy Numbers
Choose Nitro Type or Code.org from my Google Classroom

2020- 21 Lesson Plan 5th HYBRID

	Name:	Name:
8:05	BBI Paperwork	BBI Paperwork
8:10-9:30 CORE Rdg/LA	8:30-10:10 MSRC Gram Minute Reading Plus Evan Moor Rats of NIMH Rdg Mast	8:30-10:10 MSRC Gram Minute Reading Plus Evan Moor Rats of NIMH Rdg Mast
9:30-10:10 Specials	10:10-10:50 Specials (Miller)	10:10-10:50 Specials (Jones)
10:10-10:50 Writing/SEL	10:50-11:50 ELL for Ms. Y	10:50-11:50
10:50-11:50 CORE Math	11:00-11:30 EPIC Th SW	11:00-11:30 EPIC Th SW/ Fri OT
11:50-12:30 LUNCH	LUNCH	LUNCH
12:30-1:10 Science	12:30-1:00 Epic	12:30-1:00 Epic
1:10-1:50 SpEd/Bil	1:00-1:30 CORE Math Gr 5 & Remedial	1:00-1:30 CORE Math Gr 5 & Remedial
1:50-2:40 Math Interven	1:30-2:00 Imagine Math	1:30-2:00 Imagine Math
2:40-3:10 RDG Interven	2:30-3:10 SEL FRIDAY SHOP/GOO	2:30-3:10 SEL FRIDAY SHOP/GOO

2020 – 21 Lesson Plan 5th Full Entry

	Name:	Name:
8:05	BBI Paperwork	BBI Paperwork
8:10-9:30 CORE Rdg/LA	8:30-9:30 Epic	FRI 9:00-9:30 OT 8:30-9:45 Epic
9:30-10:10 Specials	9:30-10:10 Specials (Miller)	9:45-10:10 Evan Moor Edmark/Rdg Mastery
10:10-10:50 Writing/SEL	10:10-11:00 Evan Moor/Rdg Mas 10:50-11:10 MSRC & Syl Game Social Studies Thurs 10:40 SW	Specials 10:10-10:50 (Nunn) 10:50-11:10 MSRC & Syl Game Social Studies Thurs 10:40 SW
10:50-11:50 CORE Math	11:00-11:30 Finish Rdg	11:00-11:30 Finish Rdg
11:50-12:30 LUNCH	LUNCH OUT/EAT	LUNCH EAT/OUT
12:30-1:10 Science	12:30-1:00 Happy Numbers	12:30-1:00 Happy Numbers
1:10-1:50 SpEd/Bil	1:00-1:45 CORE Math Remedial	1:00-1:45 CORE Math Remedial
1:50-2:40 Math Interven	1:50-2:40 ELL	1:45-2:30 Happy Numbers
2:40-3:10 RDG Interven	2:30-3:10 Science FRIDAY SHOP/GOO	2:30-3:10 Science FRIDAY SHOP/GOO

Appendix I: Study Expense Report

The budget established for this study is \$3,500.00

Expense Description	Cost
Web site hosting: Apps4Rent	\$358.20
SSL Certificate (HTTPS)	\$75.00
Site development e2group.org	\$100.00
Study participant compensation	\$825.00
Microsoft Office 365 subscription (pro-rated)	\$75.00
Independent Editor	\$1000.00
Total	\$2,333.20