HADDAD LINGLE, JENNIFER. Ph.D. Everyday Teacher Creativity: A Mixed Methods Case Study of Teachers' Profiles for Fostering a Creative Classroom Ecology. (2024) Directed by Dr. Beverly Swaim Faircloth. 112 pp.

This mixed methods case study dissertation research aimed to examine specific characteristics of general education teachers (non-arts-based, non-gifted-education-based) related to how teachers foster creative classroom ecologies in their traditional classroom environments. The targeted characteristics involve two dimensions potentially related to fostering creative classroom ecologies: 1) levels of nine creativity-supporting behaviors (evaluation, flexibility, frustration, independence, integration, judgment, motivation, opportunities, and questions; Cropley, 1995; Soh, 2000), and 2) measures of intrinsic motivational factors as elements of self-determination theory (competence, autonomy, and relatedness; (Reeves et al., 2018; Roth et al., 2007). These dimensions were collected via quantitative online surveys (Phase One) with 25 public middle school teachers. Clustering techniques guided the statistical analysis of patterns found in the survey responses. In Phase Two, eight of the 25 teachers were interviewed using a semi-structured format and a card-sorting task to uncover contextual factors to deepen the quantitative results. The results from Phase One and Two were integrated into two profiles that summarize key characteristics from two clusters groups. Theoretical and methodological implications, applications for pre- and in-service teacher development, as well as recommendations for future research in teacher education are also discussed.

EVERYDAY TEACHER CREATIVITY: A MIXED METHOD CASE STUDY

OF TEACHERS' PROFILES FOR FOSTERING A

CREATIVE CLASSROOM ECOLOGY

by

Jennifer Haddad Lingle

A Dissertation
Submitted to
the Faculty of The Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro

2024

Approved by

_____
Dr. Beverly Swaim Faircloth
Committee Chair

DEDICATION

For everyone from the house that built me.

APPROVAL PAGE

This dissertation written by Jennifer Haddad Lingle has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

Committee Chair

_____
Dr. Beverly Swaim Faircloth

Committee Members

_____
Dr. Ye He

_____
Dr. Robert A. Henson

_____
Dr. Dale H. Schunk

March 11, 2024
_____
Date of Acceptance by Committee

March 11, 2024
_____
Date of Final Oral Examination

ACKNOWLEDGEMENTS

I would like to thank Dr. Beverly Faircloth for her unwavering support as my dissertation chair, advisor, and mentor throughout my time at UNC Greensboro. Your guidance and friendship supported me every step of the way. Your trust in my ability to do this work has given me invaluable insights and experiences within the landscape of higher education and allowed me to grow into the scholar and teacher educator I am today.

I am forever grateful to my dissertation committee for sharing their expertise, insights, wisdom, and time with me and my research interests. Dr. Ye He, Dr. Robert A. Henson, and Dr. Dale H. Schunk, I will forever remember the enthusiasm and encouragement you repeatedly gave during each of my oral defenses. I will cherish those few hours of scholarly conversation where you graciously molded me into an emerging scholar.

To my grad school sisters and brothers – I would never have made it through without you. Thank you for being a friend. Traveled down the road and back again…

To all the educators I have had the honor of teaching with over the first 20 years of my career, you are always present in the work I do. To the preservice teachers and cooperating teachers I have worked with at the start of the next 20 years, you keep me grounded and remind me to never forget where I came from. Together, you inspire me to find the creativity in all of us.

And to my family and my village, there aren't enough words to say how much your love has supported me during this journey. Without all of you, this dream would never have become a reality.

TABLE OF CONTENTS

.

LIST OF TABLES

LIST OF FIGURES

CHAPTER I: INTRODUCTION

"In the present-day context, creativity permeates all subjects in the school. Thus, teachers need to teach not only language but also creative language, not only mathematics but also creative mathematics, not only science but also scientific creativity" (Soh, 2017, p. 58). And yet, not all teachers agree that creativity permeates *all* school subjects or that teachers must teach the creative side of their content. In fact, teachers most often list the arts-based subjects of music, dance, theatre, visual arts, and literature at the top of the list of the most common places for creativity, with science and mathematics at the bottom (Soh, 2017). Yet at the same time, teachers agree that creativity is an essential skill for students' success in the real world (Kampylis et al., 2009). To further complicate these (dis)agreements, many teachers also admit they do not know even how to define creativity (Bereczki & Kárpáti, 2018), nor do they believe they have the necessary skills to teach creatively or teach for creativity (Jeffrey & Craft, 2004). These beliefs are important variables in understanding the frequency and depth of creative experiences in classrooms. If a teacher's knowledge base significantly impacts the teaching and learning in their classroom (Darling-Hammond, 1995), it is no wonder then that creativity has not yet permeated all subjects in school given this level of conflicting beliefs.

However, as one possible solution to this creativity conundrum, Soh (2017) makes an argument that all teachers can foster a creative classroom environment by focusing on a set of conditions that are conducive to creativity regardless of teachers' content or grade level and without requiring a highly developed set of traditional creativity skills. When teachers purposefully include the conditions of *evaluation*, *flexibility*, *frustration*, *independence*, *integration*, *judgment*, *motivation*, *opportunities*, and *questions* (Cropley, 2004; Soh, 2000) into their daily classroom environment, they can work toward a *creative classroom ecology* where

1

creativity is routinely encouraged without being overtly stated. This creative classroom ecology takes into consideration the dynamic interactions between the basic structure (e.g., the teacher, students, physical environment, curricula & learning tasks, available materials, grades, etc.) and the sociocultural layers (e.g., core qualities, mission, beliefs, identities, competencies, communities, and cultures) of a classroom environment.

Statement of the Problem

Teaching in the era of COVID-19 may be considered the most challenging teaching moment of modern times. However, it can also be considered as a moment that inspired and manifested some of the most creative teaching of modern times (Hewitt et al., 2020). When the global pandemic sent U.S. children home for learning, teachers faced immediate and unprecedented challenges specific to the classroom environment. Practically overnight, classrooms were forced into virtual, remote, and hybrid environments. Teachers were determined to find ways of embracing their new learning environments. They rose to this challenge in creatively inspired ways: YouTube channels for technology assistance, morning announcements posted daily on social media, virtual spirit weeks, and video conference sessions for science labs. Keeping their curriculum at the heart of their daily work, teachers pushed on the boundaries of their pedagogical practices to meet the needs of their students in meaningful ways. These examples support Soh's (2017) argument that all teachers can foster creativity in their classrooms without a highly developed definition of creativity or a set of traditional creative skills.

While it can be said that creativity was newly pushed to the forefront of average teachers' minds (unaware or by sheer necessity), creativity is not new to the field of education. Tucked firmly inside the field of gifted and talented education (academic and arts-based), creativity has a long history in teaching and learning (Flint, 2014). Creativity research predominantly looks at

students (and more recently teachers) who possess characteristics of highly creative people. These are people who engage in successful creative processes, who produce numerous creative products, and who utilize creative spaces (Hennessey & Amabile, 2010). These contributions to the field of creativity, however, have primarily promoted a dichotomous understanding of creativity: Who is (or is not) considered creative? What product is more (or less) creative than the rest? Which processes support (or hinder) creative insight? What physical environments contribute more (or less) to creativity? The body of research also includes arguments for (or against) definitions and perspectives, (re)validates various creativity measures, and often perpetuates a list of known constraints and supports of creativity in the classroom (Kampylis et al., 2009).

Instead of continuing this existing approach marked by dichotomies (i.e., continuing to conceptualize and evaluate creativity around questions of how much a teacher, student, thinking process, or classroom is or is not creative), Glăveanu (2018) urged researchers to shift their perspective toward localized understandings of what and how creativity permeates specific classroom cultures. Making this shift positions creativity squarely in a sociocultural perspective, freed from traditional dichotomies. This dissertation research project intends to expand upon current understandings of creative classroom ecologies through a multifaceted lens that honors the complexity of classroom cultures and maximizes teaching and learning by considering creativity as a sociocultural phenomenon, universal across classroom cultures but not uniform in its existence (Glăveanu, 2018; Shweder & Sullivan, 1993).

Statement of Purpose

While it appears that "being creative" was a survival technique during the last few years, there is value in continuing to seek out other ways of "being creative" in current classrooms.

This dissertation research study intends to provide teachers with one possible sociocultural model of creativity to begin their understanding of creativity as a universal but not uniform concept that can occur in all classroom environments. This model incorporates creativity-fostering behaviors, intrinsic motivation factors, and the contexts of their classrooms as a way to see "being creative" as so much more than being artistic, thrifty, innovative, or savvy.

Non-arts based/non-gifted based middle grades general education teachers in traditional classroom environments are the focus of this instrumental case study mixed methods research design (CS-MMR). Quantitative and qualitative data were used to construct richly descriptive teacher profiles describing their self-perceptions and experiences with creativity fostering behaviors in their classrooms. Additionally, individual profiles were combined into collective profiles to illustrate patterns for fostering a creative classroom ecology found among teachers.

Statement of Purpose for Case Study Mixed Methods Research

To capture the complex phenomenon of creative classroom ecologies, an explanatory sequential mixed methods research design will be embedded into an instrumental case study. An instrumental case study is an appropriate choice of methodology since the cases (referred to as profiles) facilitate the understanding of the broader topic of fostering a creative classroom ecology rather than just the cases themselves (Cook & Kamaloden, 2020). The explanatory sequential design allows for a framework of data collection, co-analysis with the participants, and integration that systematically emerges from multiple, authentic, and in-the-moment perspectives. First, quantitative data will be collected and analyzed through a post-positivist paradigm. Next, through a sociocultural perspective, the qualitative data will be collected and co-analyzed (researcher and participant(s) together during the interview) while considering the layers of a classroom ecology. Finally, integrating the quantitative and qualitative data into

4

profiles will further explain and give voice to the teachers' "experience-near concepts" (Shweder & Sullivan, 1993, p. 507), while providing a rich description of the sociocultural factors that influence fostering creative classroom ecologies.

Researcher Positionality

It is important that I establish my positionality with respect to creativity, learning, and teaching. It is not uncommon for researchers to be drawn toward research topics, methodologies, or methods that are of personal significance to them. This holds true for me and this study as well.

I became a middle school teacher because it was my favorite time in public school. I attended a very progressive public middle school in New England in the mid-1980s. The mission of this school was grounded in creativity and social constructivist learning theory. While reflecting on my experiences as a middle school student, I noticed that I consistently remembered times when I had space (literal and figurative) to explore my creativity (i.e., personality, process, products) while participating in the required curricula. These opportunities included time to work alone or collaboratively, feedback that included an evaluation of my work, chances to ask multiple questions, and time to express my frustrations. I was routinely encouraged toward flexible cross-curricular thinking yet motivated to master the basics. My memories as a middle school student profoundly informed my work as a middle school teacher because I routinely replicated these opportunities in my own classes. Creative classroom environments, creative teaching, and creative learning followed me from my time as a public-school teacher to my current work as a teacher educator and emerging scholar. The positive lasting effect of creativity fuels my passion for creativity in education.

Knowing that creativity was instrumental in many of my school experiences, it is not surprising that creativity flows through my core beliefs about teaching and learning in classrooms.

In my teaching and learning experiences, I believe…

…that every learner has the potential to be creative in any facet of human existence that interests them.

…that daily engagement in creativity-fostering behaviors is an essential part of teaching and learning regardless of how creative you believe yourself to be.

…that fostering a creative classroom ecology can occur in all classrooms and does not depend on a teacher's self-perceived creativity within the content(s) they teach.

…that being creative is so much more than being artistic.

It is also important to note that I am familiar with every participant in this dissertation since the sample of teachers come from the list of cooperating teachers associated with the university's middle grades education program that I worked in. I have spent time in these teachers' classrooms observing their student teachers, and I have also provided support to them as cooperating teachers during their field placement experiences. This familiarity provides a strong bias that I actively resisted during this project. I made a promise to my teaching colleagues when I stepped out of the classroom to become a full-time doctoral student: I promised *never* to forget how difficult it is to be a public middle school educator and I promised to spotlight their voices so that others can hear about the innovative and creative work they do every day. It is my hope that this dissertation upholds that promise.

Research Questions

To gain a better understanding of the ways that non-arts based/non-gifted based general education teachers are fostering a creative classroom ecology, the following research questions will be considered throughout the case study:

- When teachers' creativity-supporting behaviors and intrinsic motivation factors are explored through a sociocultural perspective, what profiles of teachers emerge for fostering a creative classroom ecology?

  - RQ1: What pattern(s) of intrinsic motivation factors occur among teachers for fostering a creative classroom ecology? (quantitative phase)

  - RQ2: What pattern(s) of creativity-supporting behaviors occur among teachers for fostering a creative classroom ecology? (quantitative phase)

  - RQ3: What patterns(s) between creativity-supporting behaviors and motivation factors emerge among teachers for fostering a creative classroom ecology? (quantitative phase)

  - RQ4: What contextual factors emerge within teacher narratives that help to explain the pattern(s) found related to fostering a creative classroom ecology? (qualitative phase)

CHAPTER II: REVIEW OF THE LITERATURE

The focus of this review of the literature is to synthesize the scholarship related to exploring the question: When creativity-supportive teacher behaviors and intrinsic motivational factors are explored through a sociocultural perspective, what teacher profiles emerge with respect to fostering a creative classroom ecology? To uncover answers to this question, areas of creativity need to be understood across the following topics: a brief history of creativity, relevant definitions and models, relevant measures of creativity, a connection between motivation and creativity, and a creative classroom ecology.

It is important to point out that this research study is not an exploration into the identification of people that are or are not creative. There is extensive research into that topic that resides predominantly in the areas of genius (Simonton, 1999), giftedness and gifted education (Karp, 2010; Luria et al., 2016; Renzulli, 2005; Sarouphim, 2004; Saunders Wickes & Ward, 2006), as well as talent and talent development (Dai, 2015; King et al., 1996). This study is also not an exploration into arts-based manifestations of creativity in education because an abundance of scholarship exists within arts-based education and arts-infused pedagogy (Trousas, 2009; View et al., 2012; Zimmerman, 2009). This study intends to explore the creativity-supporting behaviors and motivational factors connected to fostering a creative classroom ecology in the daily work of non-arts-based general education middle school teachers.

A Brief History of Creativity

To understand this brief history of creativity, it is essential to first define creativity. In simplest terms, creativity is someone or something deemed novel or unique as well as meaningful or appropriate within a given context (Runco & Jaeger, 2012). The next section will

discuss additional definitions of creativity in greater detail. For this section of the literature review, however, this commonly held definition will be sufficient.

In the opening chapter of the 2019 edition of the Cambridge Handbook of Creativity, Glăveanu and Kaufman provide a brief look at the history of creativity through a modern sociocultural definition. They believe that "…creativity needs to be understood in its social, scientific, technological, economic, and political context. In other words, it needs to be understood historically" (2019, p. 9). Without this historical perspective (although their lens is admittedly entirely Euro-Western), a contextually complete picture of creativity cannot be adequately framed to understand where the field has been, where it currently sits, and where it is headed.

Creativity, though not explicitly named, traces back thousands of years to our prehistoric ancestors who engaged in creative acts for survival, such as forming tribes, migrating, and developing tools. The Greeks and Romans of the Classical Era achieved significant feats of creativity, but the concept was not acknowledged as a human trait; instead, mastery was attributed to divine gifts. The Middle Ages perpetuated the idea of divine manifestation, limiting individual credit for creative works. The Renaissance challenged this notion as societies transformed, leading to artists gaining recognition and payment for their skills. The Age of Enlightenment marked another shift, recognizing creativity as an inherent human trait, solidifying individualism in Western culture. The term "creativity" was officially documented in the late 19th century, gaining acceptance in popular culture much later.

In Eastern civilizations, a parallel history unfolds, influenced by the concept of *dao*, representing an ultimate form of nature in Confucian and Taoist philosophies. While Western creativity emphasizes novelty and individuality, Eastern creativity values social harmony and

usefulness. Confucian beliefs prioritize evolution, community ties, meaningfulness, and tradition over revolution, isolated individuals, novelty, and change. The dichotomy between East and West in creativity has become a focus of theoretical and empirical research (Morris & Leung, 2010; Niu & Sternberg, 2006).

Regardless of geographic location, creativity, as conceptualized in modern times, was barely researched until the 19th century and not scientifically researched until the mid-20th century (Sawyer, 2012). Following World War II, the possibility of unprecedented world transformations became the catalyst for targeted research into individual human creative potential and the need to understand it, measure it, and develop it in others (Niu & Sternberg, 2006). As such, in the 1950s and 1960s, systematic research of personality traits associated with novelty and divergent thinking led to a surge of scholarship in psychology, especially educational psychology. JP Guilford's Presidential Address to the American Psychological Association (APA) in 1950 opened the flood gates for scientific psychological research focusing on individual personality traits and characteristics of a creative person. These traits and characteristics were believed to be the key elements needed to identify, measure, and nurture creativity in others, especially in young children.

In a recent review of creativity assessment, Thys (2014) identified 111 different measures of criteria for assessing creativity. The most widely used examples of these measures include The Baron-Welsh Art Scale (BWAS; Schaefer, 1968), the Torrance Test of Creative Thinking (TTCT; Torrance, 1966), and the Remote Association Test (RAT; (Mednick & Mednick, 1962). While these assessments set a foundation for creativity research squarely within educational psychology with a psychometric lens, other fields began investigating creativity from other perspectives – namely, that of creative products and places. These other lines of inquiry and

assessments shifted the focus out of character traits and thinking processes to sociocognitive approaches that evaluate levels of creativity within specific social and cultural contexts using a systems view of creativity (Amabile, 1983; Csikszentmihalyi, 1988; Gruber, 1988). One such assessment widely used for creative products (Thys et al., 2014) is Amabile's Consensual Assessment Technique (CAT; Amabile, 1982) which uses a panel of experts to qualitatively evaluate a set of products within a specific domain (collage, music, etc.) and context (e.g., community centers, after school programs, public school classrooms). The Creative Achievement Questionnaire (CAQ; Carson et al., 2005) also considers the creative achievement's domain and context, placing a higher emphasis on those creative achievements that are clearly multidisciplinary and span contexts. Both the CAT and CAQ contributed to the growing notion that sociocultural context was essential to measuring creativity.

Today, more than 70 years after Guilford's presidential address, creativity research is utilizing an "interdisciplinary approach" (Sawyer, 2015, p. 4) that allows for not just the integration of disciplines (e.g., neurobiology & education) but multiple worldviews and perspectives (e.g., cognitive and sociocultural theories; Glăveanu & Kaufman, 2019). If, however, the current direction of creativity research in education is interdisciplinary, sociocultural, and universal yet not uniform, then a better understanding of these multiple modern conceptions of creativity simultaneously is the vital next step. Moving away from singular understandings, comparisons, and dichotomies of creativity in favor of contextually specific, comparison-free explorations allows for a multifaceted and authentic construct of creativity. Honoring the complexities of education and harnessing diverse cultures and histories (Glăveanu, 2018) has the potential to bring new insights into the discussion of fostering creative classroom ecologies.

This brief history of creativity, reconceptualized using a sociocultural perspective, offers a streamlined understanding of where creativity came from, where it stands now, and where it is headed as a field of research. To further this discussion on creativity, definitions, models, and measures of creativity are presented in the sections that follow. Given the vast and complex nature of creativity, an exhaustive review does not fit the scope of this project. Relevant definitions, models, and measures of creativity used in theoretical and empirical scholarship have been included in this review to guide the research project that follows.

The Challenging Nature of Defining Creativity

It seems that for every branch of creativity research, there is a researcher (re)defining creativity for the complexity and specificity of their research (Cropley, 2004; Sternberg, 1988). There is, however, scholarship on the origin of the standard definition. Runco & Jaeger (2012) traced the widely accepted two-part definition back to the works by Barron (1955) and Stein (1953). The two fundamental parts of the standard definition center on originality and effectiveness. Stein was the first to define a creative work as a "novel work that is accepted as tenable or useful or satisfying by a group in time" (1953, p. 322). The idea of resonance within a group is discussed as an important feature of creativity in Stein's work and became one part of the emerging definition of creativity. His notion of resonance can also be thought of as an accepted judgment on the perceived value of creative work.

Barron (1955) conducted research with 100 US Air Force captains in a laboratory setting that was looking at original performances in response to eight scorable tests. He determined that a response was deemed original if there was an adequate "uncommonness" (Barron, 1955, p. 478) to the social interaction being observed. His idea of uncommonness eventually morphs into the vernacular of unique and novel. Together these early definitions form the basic standard

12

definition: Something is creative if it is unique or novel and deemed meaningful or appropriate (Runco & Jaeger, 2012).

Yet as soon as creativity is given a standardized definition, questions arise about the complex nature and scope of creativity. Who decides *something* (e.g., a person, object, or a classroom) is novel and unique? What context is considered *meaningful*? Among whom is it *appropriate*? While many empirical articles within the field of education include a definition of creativity that agree with Runco & Jaeger (Abdulla & Cramond, 2017), additional clarification must be included with each study. Writ Large definitions of creativity can be sorted into two broad categories: from the perspective of the individual and from a sociocultural perspective (Sawyer, 2012). According to Sawyer, "Individualist approaches" (2012, p. 4) to creativity have definitions that are specific to the personality traits and cognitive processes within a person. "Sociocultural approaches" (Sawyer, 2012, p. 8) use definitions that include a group's organizational, social, and cultural contexts. For this project, creativity is considered "a simultaneously psychological, social, and cultural process" (Glăveanu, 2012, p.71) that requires a dynamic integration of all aspects of classroom environments.

Models of Creativity

The models, theories, and structures of creativity are as varied as the definitions and contexts that creativity exists within. There are models that focus on creative behaviors and the characteristics of individuals previously identified as being creative (Runco, 2009). Other models are specific to the production of creative thinking skills, such as divergence and convergence (Guilford, 1984). Systems views (Csikszentmihalyi, 1988), Participatory Creativity (Clapp, 2017), and Organizational Creativity (Klijn & Tomic, 2010) have models for dynamic interactions and processes for creativity. Central to the multifaceted and dynamic nature of

13

classroom environments that are at the core of this research project, Glăveanu's 5As (2015) model of creativity provides a sociocultural frame through which to focus this project. This model is additionally supported by my understanding of Rhodes' 4P Model (1961) and Kaufman & Beghetto's 4C Model (2009). Additionally, the Basic Psychological Needs mini-theory (Ryan & Deci, 2000) and Cropley's nine conditions for a Creative Ecology (1995) also support the model for this project. Each model has unique contributions that, when overlapped, collectively strengthen a conceptual model designed explicitly for this research project. In particular, the Basic Psychological Needs mini-theory and Cropley's nine conditions for a Creative Ecology are central to the research conducted for this project, and therefore receive more detailed reflection below in this section.

The 4P and the 4C Models of Creativity

The 4P Model of Creativity, devised by Rhodes in the early 1960s, identifies four key facets: person, process, press, and product. Rhodes defines a creative person by internal and external characteristics, while the process encompasses development, procedures, and practices. The press represents the environmental relationship influencing creativity, and creative products are tangible expressions of ideas. The model offers a framework for broad-strokes research categories, aiding in the categorization of creative studies across different domains.

The 4C Model of Creativity, developed by Kaufman and Beghetto, expands the understanding of creative people with four types: Big-C, little-c, Pro-c, and mini-c. Big-C creativity involves eminent figures whose work withstands the test of time, while little-c focuses on everyday creativity in personal contexts. Pro-c emerges from little-c, tied to expertise within a specific domain, and mini-c links creativity to the construction of knowledge in learning environments. Kaufman and Beghetto's model, like Rhodes', offers a convenient categorization

14

for framing research boundaries. In this study, the focus on mini-c creativity in learning

environments delineates the boundaries for the press (classroom) and the people (teacher).

The 5A Model of Creativity

Realizing the need to view creativity from a dynamic systems view, Glăveanu (2015)

pushed on the boundaries of the traditional cognitive models (e.g., Kaufman & Beghetto, 2009;

Rhodes, 1961) with a historical, sociocultural model of creativity. In this framework, he argues

that creativity is not a phenomenon defined exclusively by traits or attributes, mechanisms or

variables that can be isolated, tested for, analyzed, and taught. Instead, Glăveanu (2013)

proposed five situated and distributed elements of creativity that embrace sociocultural and

ecological psychology theories through a dynamic molecular approach. This approach includes a

temporal aspect where all elements must be connected and considered across time.

The five elements of Glăveanu's (2013) framework are *actor* (person), *action* (process),

artifact (product), *audience* (social environment/press), and *affordances* (materials or tools from

the environment/press). The 5As framework intertwines Rhodes' 4Ps into a complex model that

shifts the focus from any one element to the dynamic and temporal relationships between

elements. By changing the narrative of creativity to a holistic, distributed, and temporal

phenomenon, all five elements must be considered simultaneously as the smallest unit of

research for creativity. This dynamic framework allows for a "molecular perspective" of

creativity (Glăveanu, 2015, p. 313) rather than a more traditional "atomistic perspective" (p.

316). In other words, Glăveanu argues for the "creativity complex" (2015, p. 327) by advocating

that the 5A elements of creativity can no longer be studied in isolation (hence the atomic

analogy) but must be researched as one multifaceted complex (i.e., as the molecule.)

While Glăveanu's work was not explicitly designed for the field of education, the 5As have implications for how creativity research can be framed within a dynamic systems view of education to consider the classroom as an ecology. By considering the classroom ecology as a whole, the *actor* (teacher) and the *audience* (learners in the classroom) are interacting with the *actions* (the enactment of teaching or learning), the *artifact* (outcome/product of the learning), and the *affordances* (materials associated with the learning, the outcome, and the physical space.) Glăveanu's 5A model provides a sociocultural perspective to situate the conceptual framework of this research project.

Motivation and Creativity

In addition to research on cognitive characteristics of creativity and more in line with the sociocultural perspective of this project, there are numerous studies exploring the relationships between motivation and creativity. These points of intersection include research in creative agency or agentic creativity (Stetsenko, 2018), self and collective efficacy (Cayirdag, 2017), and intrinsic motivation (Baer, 2013; de Jesus et al., 2013). Self-Determination Theory (SDT) is a macro-theory of motivation (Reeve et al., 2018) well situated to measure and explain the ways sociocultural influences in educational environments enhance or undermine, control or support, a teacher's intrinsic motivation. SDT centers around the relationships between three "activity-generating psychological needs" (Reeve et al., 2018, p. 17) that all people, regardless of age, gender, race, culture, economic status, intellect, etc., possess: the need to feel autonomous, the need to feel and be competent when engaging with others, and the need to feel a sense of belonging in the given context or environment (Schunk et al., 2014). These basic psychological needs work collectively across the Self-Determination Continuum of motivational levels: from amotivation to extrinsic motivation to intrinsic motivation.

There are six mini-theories that each have merit when considering motivation from a self-determined perspective. For this project, the macro-theory is focused on the Basic Psychological Needs mini theory, where the three basic needs (autonomy, relatedness, and competence) are "said to be universally essential for human thriving" (Chen et al., 2014, p. 214) and will be used to provide additional insight into the ways intrinsic motivation intersects with how teachers foster a creative classroom ecology.

Situated in the intrinsic motivation end of the Self-Determination Continuum is the Intrinsic Motivation Principle of Creativity. Created by Theresa Amabile, this principle states: "*Intrinsic motivation is conducive to creativity; controlling extrinsic motivation is detrimental to creativity, but informational or enabling extrinsic motivation can be conducive, particularly if initial levels of intrinsic motivation are high*" (1996, p. 119). For example, when a creative task or problem is presented, and it aligns with an already existing intrinsic motivation to undertake the task, then it is likely that the end product will be deemed a successful creative outcome. If, however, the person is not already intrinsically motivated to complete the creative task or problem, then navigating the types of extrinsic motivation (external, introjected, identified, and integrated) and the extent to which the event is autonomy-controlling and competence-diminishing is essential to the success (or failure) of the outcome's creativeness.

Knowing that creativity *is influenced by* these individual intrinsic motivation factors that accompany external events and the types of extrinsic motivation, there is research that asserts creativity *influences* positive effects on motivation (Cropley, 2001), specifically increased intrinsic motivation (Langer et al., 1989; Yager, 1989). This connection between intrinsic motivation and creativity provides another valuable lens for this research study to explore creativity-related profiles for fostering a creative classroom.

17

Creativity Fostering Teacher Behaviors

By the 1990s, research on the traits and characteristics of creative people (e.g., standalone creative thinking training programs) gave way to research on creative processes and creative environments. In their groundbreaking research, Jeffrey and Craft (2004) detail distinctions between the processes of Creative Teaching and Teaching for Creativity. While these two processes are intertwined, they have different purposes within the field of creativity in schools. Creative Teaching is what teachers enact in their classrooms (Jeffrey & Craft, 2004). At the surface level, creative teaching can be seen through simple adaptations of traditional teaching strategies, such as dressing up as a fictional character when lecturing or using colorful pens or markers when black ink or pencil is normally required. This continuum of Creative Teaching can stretch far beyond the superficial to include much more sophisticated levels of infused creativity. For example, highly structured thematic units that incorporate locally relevant social justice issues with mandated cross-curricular standards using frequent innovative products or culminating artifacts can also be seen as creative teaching. Alternatively, Teaching for Creativity speaks directly to the types of skills & environments that support and nurture creativity in the hopes of having that creativity transfer to other environments and situations for students (Jeffrey & Craft, 2004). At the forefront of this research are two crucial departures from previous research on creative people. First, creativity was no longer bound to the traditional arts classrooms (which include music, dance, theater, and visual art) but was necessary for all school subjects. Second, creativity should not be reserved for only the gifted and talented – creative potential is a skill that should be nurtured in all students.

After analyzing several creativity programs in educational settings, Cropley (2001) articulated an "integrated, holistic approach" (p.144) to fostering creativity. At the heart of this

approach is the recognition that creativity development in classrooms cannot look to only cognitive elements (i.e., personality, motivation, domain knowledge). Instead, an ecological model including influences between the individual, the local environments (the micro-environment), and the societal, historical, and global environments (the macro- and meta-environments) should be included in a framework of conditions for creativity in education. Cropley summarized the literature into nine guidelines or conditions, claiming that the most successful creativity-fostering teachers routinely enacted the following conditions:

- encourage students to learn independently;
- have a cooperative, socially integrative style of teaching;
- do not neglect the mastery of factual knowledge;
- tolerate 'sensible' or bold errors;
- promote self-evaluation;
- take questions seriously;
- offer opportunities to work with varied materials under different conditions;
- help students learn to cope with frustration and failure;
- reward courage as much as being right. (Cropley, 2001, p.138)

Cropley noted that teachers would need guidelines to aid them in their understanding of creativity as a complex, overlapping, integrated ecological structure. As a result, Soh (2000) condensed the nine conditions into a set of teacher-friendly one-word labels: Independence, Integration, Motivation, Judgment, Flexibility, Evaluation, Question, Opportunities, and Frustration. Each condition was operationalized through a set of behavior statements based on teacher best practices in classroom that are actively working toward fostering creativity. Table 1 lists the labels and includes the brief description.

Table 1. CFTIndex Conditions and Descriptions

Condition	Description
Independence	Encouraging students to learn independently

Integration	Having a cooperative, socially integrative style of teaching
Motivation	Motivating students to master factual knowledge, so that they have a solid base for divergent thinking
Judgment	Delaying judging students' ideas until they have been thoroughly worked out and clearly formulated
Flexibility	Encouraging flexible thinking
Evaluation	Promoting self-evaluation in students
Question	Taking students' suggestions and questions seriously
Opportunities	Offering opportunities to work with a wide variety of materials and under many different conditions
Frustration	Helping students learn to cope with frustration and failure, so that they have the courage to try the new and usual

Note. All descriptions come directly from "Fostering student creativity through teacher behaviors" by K. Soh, 2017, pgs. 61 – 62.

These conditions for fostering creativity can be infused into any teachers' daily classroom routines, structures, and processes while still maintaining school mandates associated with curricular demands or pedagogical practices. But to foster a classroom ecology where students "feel free and psychologically safe to try out their creative ideas" (Soh, 2017, p. 62), teachers need to understand the interactions occurring between and within the layers of their classroom ecology through a sociocultural perspective.

A Sociocultural Creativity Fostering Classroom Ecology Model

This research project is guided by a conceptual model that integrates the aforementioned models of creativity and motivation. The model places the teacher (*actor*) at the center of an ecological model where basic psychological needs satisfaction and creativity-fostering teacher

behaviors (*actions*) influence and are influenced by the contextual factors of her classroom environment (*mini-c*), which includes but is not limited to her students, teammates, administration, and parents (*audience*); the curriculum, standards, and materials present and available (*affordances*); and the learning products her students create (*artifacts*). Figure 1 illustrates the conceptual framework.

Figure 1. Conceptual Framework
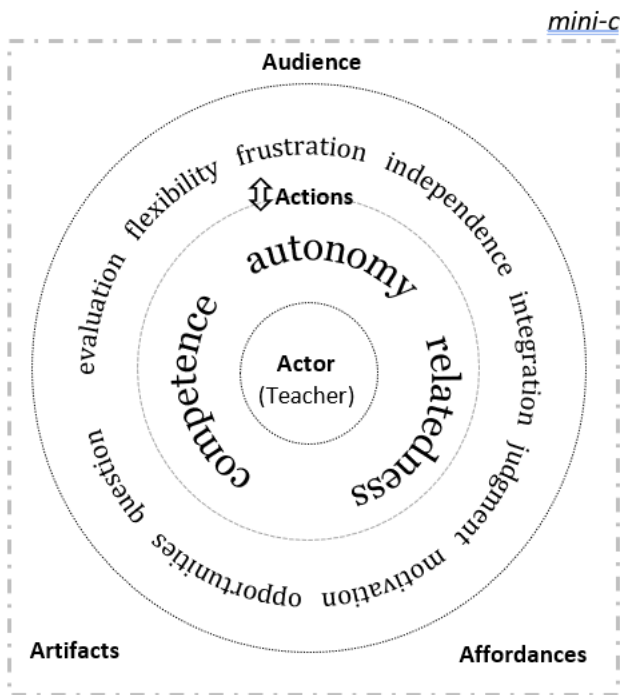
Integrating These Complex Perspectives on Fostering Creative Classroom Ecologies

This study centers on exploring teacher's perceived behaviors and contextual factors related to fostering a creative classroom ecology by integrating three lines of inquiry: (1) self-reported measure of teacher behaviors that support fostering a creative classroom ecology, (2) self-reported level of basic psychological needs satisfaction (i.e., competence, autonomy, belonging) for teaching, and (3) their description of contextual factors that influence their perceptions of fostering a creative classroom ecology. There is existing scholarship with well-

established themes on each of these topics. However, the research was most often conducted separately within single worldviews and paradigms. Little to no research has considered the intersection of these three lines of inquiry. My intention is to investigate this intersection by integrating these lines of inquiry to see what profiles emerge related to fostering a creative classroom ecology.

Given the complexity of teacher creativity, multiple world-view perspectives must be included in the design of this CS-MMR project. To better understand the interconnectedness of the teacher and the creative classroom ecology, a sociocultural perspective is necessary to capture the complexity of creativity and education. In the quantitative phase, a cognitive perspective will guide the collection of the individual creativity-supporting behaviors and intrinsic motivational factors are present in their teaching. These data points provide a first look into the behaviors and factors. In the qualitative phase, a sociocultural perspective guides the data collection necessary to further explain and richly describe the dynamic nature of the contextual factors influencing their classrooms.

Korthagen and Vasalos' (2005) ecological model for core reflection (a.k.a. The Onion Model) provides a framework for integrating the core qualities of the teacher (e.g., beliefs, vision for teaching) with sociocultural aspects of the teacher's classroom (e.g., environmental context). The Onion Model places a teacher's core beliefs at the center of the reflection process and aims to align the basic psychological needs of the teacher (e.g., autonomy, relatedness, competence, etc.) with the sociocultural complexities of classrooms (e.g. mission, vision, behaviors, contextual factors.) The reflection cycle is designed to uncover the ways in which a teacher may be getting in their own way, often unknowingly, and thus, contributing to the dissonance they experience in their classroom. By actively working to align the layers of the model through core

reflection, a teacher can explore their interactions in the classroom and redirect their reflection outcomes towards action that fosters resonance (Korthagen & Vasalos, 2005, p. 55). Figure 2 illustrates The Onion Model. The teacher's core beliefs are at the center of the model, with each layer radiating outward. The layers include their mission, identity, beliefs, competencies, behaviors, and environment. Each layer has questions that prompt the teacher to reflect on possibilities for action based on their core qualities, rather than focus their reflection on problems constrained by their qualities.

The Onion Model and the current conceptual framework work in tandem to integrate the lines of inquiry. The conceptual framework provides an overarching structure for the classroom and its complex components, while the Onion delineates additional layers of the ecology where the teacher's creativity-fostering behaviors and basic psychological needs are rooted.

Figure 2. The Onion Model
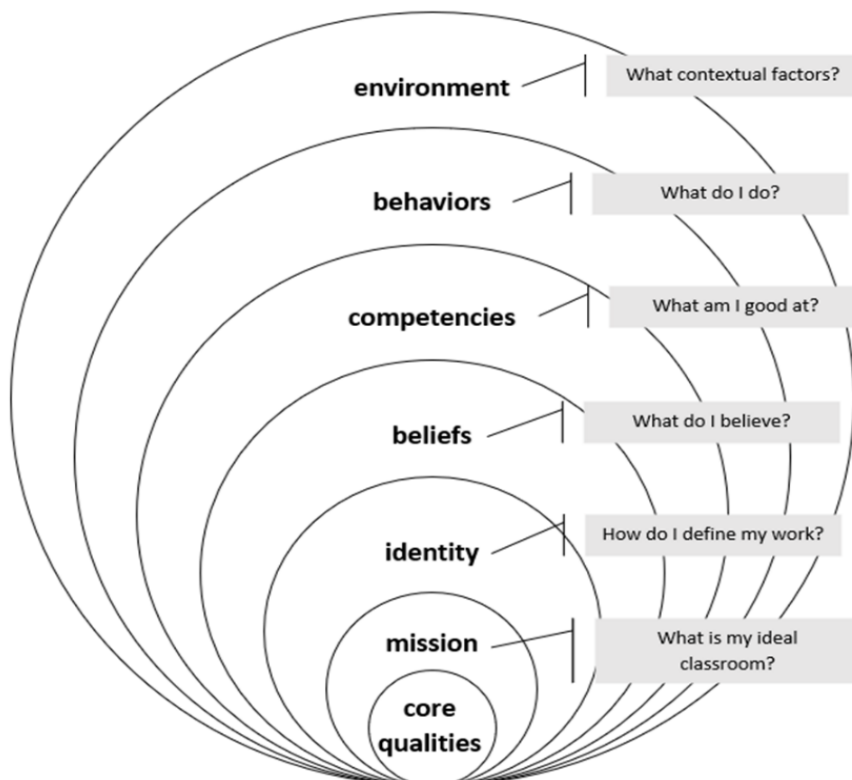
Note. Adapted from "Levels in Reflection: Core Reflection as a Means to Enhance Personal Growth" by F. Korthagen and A. Vasalos, 2005, *Teachers and Teaching*, 11(1) p. 54 (http://doi.org/10.1080/1354060042000337093).

CHAPTER III: METHODOLOGY

Study Design

To answer the dissertation research questions, I used a mixed methods design (Creswell & Plano Clark, 2018), which is an approach to analyzing and integrating or converging qualitative and quantitative data during one research project. A total of 25 middle grades teachers participated in a survey, and eight agreed to a follow-up interview regarding their reflections on the survey results.

Methodological Approach

This dissertation used an instrumental case study – mixed methods research (CS-MMR) design (Guetterman & Fetters, 2018). In this design, the quantitative data is collected and analyzed first, while the qualitative data is collected and analyzed second, in sequence, and helps explain, elaborate on, and deepen the quantitative results obtained in the first phase. In this dissertation research study, the quantitative results helped initially identify patterns among teachers based on a cluster analysis of their creativity and motivation scores. The clusters were then used to assist the analysis of the data collected in the qualitative phase. Qualitative interviews were used to consider and explain contextual and personal factors influencing the scores during the quantitative phase. Thus, the quantitative results provided the foundational answers to the research problem, while the qualitative results further enhanced and explained the initial statistical findings. Collectively, the integrated data at both the individual and cluster levels created richly descriptive profiles to help shape an understanding of the complexity of fostering creative classroom ecologies. An outline of the MMR design is provided in Table 2.

The priority of approaches (Creswell & Plano Clark, 2018) in this study was carried equally between the quantitative and qualitative data. Neither set of analyses is sufficient to

capture the complexity of creative classroom ecologies alone, thus the results of the qualitative

and quantitative phases were integrated to provide answers to the research questions found in

Chapter I.

Table 2. Outline of Instrumental CS – MMR Design

Phase	Procedure	Product
quantitative data collection	• online survey: CFTIndex and BPNSFS (N = 127) • administered online via a unique Qualtrics link	• numerical scores on nine conditions for creativity • numerical scores on three intrinsic motivational factors • teaching characteristics (demographics)
quantitative data analysis	• data screening and cleaning (N=25) • descriptive statistics, psychometric information, hierarchical clustering • quantitative software (RStudio)	• radar diagrams for CFTIndex & BPNSFS • dendrograms of cluster solutions • initial findings for RQ1, RQ2, RQ3
interview protocol development	• revise individual interview questions • develop task materials based on individual quant results	• interview protocol • interview task materials for all participating cases
qualitative data collection	• individual interviews (audio-recorded) • interview task (visualization for teachers to manipulate) • email follow-up to interviews	• transcript of interview • data visualization co-created by teacher and interviewer using task materials (captured in a photograph/ screenshot) • follow-up interview question responses
qualitative data analysis	• data screening and cleaning (N=8) • compile data for upload into software • level one coding/thematic analysis for contextual factors	• summary of interview by teacher • level one code book • initial patterns of contextual factors • initial findings for RQ4
cluster case development	• specify the quantitative and qualitative data needed to integrate and generate the cluster cases • determine code list for comparisons within and between cluster cases	• level two code book • template for joint/integrated cases
cluster cases analysis	• level two coding/thematic analysis for clusters • within and between cluster analysis • pattern matching with existing themes	• summary of cluster case(s) • joint display of quantitative data integrated with qualitative data • findings for overarching RQ
interpretation of integrated cases	• interpretation and explanation of the generated cases	• discussion • implications • future research

Protection of Human Subjects and Prevention of Potential Ethical Issues

This study was approved by UNC Greensboro's Institutional Review Board (IRB; see Appendix F). Processes and procedures that follow the IRB's policies and protocols for research on human subjects in social science research, including a recruitment email with informed consent, were developed and have been approved for use (see Appendix G). Although teachers will be invited to participate in this study on a volunteer basis, an incentive to encourage prompt response to the surveys was included. Teachers who consented and completed the survey within the 3-week data collection period had their name entered into a drawing for a $50 Amazon gift card.

Privacy and confidentiality was upheld for all teachers; however, complete anonymity was not possible during this study. During the quantitative phase, teachers were assigned a number. For the qualitative phase, all identifying information regarding the school district, school name, and teacher's name were given pseudonyms to protect their identities. The teacher number and subsequent pseudonym were used throughout the data analysis processes and for publication of results. The survey results, individual interview recordings/transcripts, all visualization activities, and researcher notes, when in paper form, were stored in a locked filing-cabinet in the researcher's office, and when electronic, were stored in a password-protected encrypted online storage folder through UNC Greensboro's secure Microsoft OneDrive.

Although this study focused on the teachers and their experiences, these experiences happen in classroom settings with their students. At no time did the researcher observe the teachers during the school day when students were in attendance. However, teaching cannot be separated entirely from learning. As such, directions in the interview protocol directed teachers to refrain from making reference to specific students' names (past or present) while engaging in

27

conversation with me. I will retain all forms of data storage, as listed above, for a minimum of five years after the research study has been completed and the dissertation approved by UNC Greensboro.

Population and Sample

The target population of this study were middle level educators currently employed as a teacher in non-arts-based subjects in grades 5 – 8. Criteria for selecting the teachers included: (1) fully licensed teachers in a core content area (English/Language Arts or ELA, Mathematics or MA; Science or SC, or Social Studies or SS); (2) active full-time teaching during the years 2018 – 2023; and (3) more than 3 years of teaching experience. This sampling frame was both purposive and convenient. It consisted of teachers known to me because they routinely volunteered to be cooperating teachers for the Middle Grades Education Program I worked with between the fall of 2018 and the spring of 2023. In order to be eligible to host a student teacher, the teachers must meet the above criteria as well as being "proficient or better" on their summative evaluations and meet or exceed student growth as measured by state testing data for three consecutive years.

The field of Creativity has extensive research on gifted teachers (Flint, 2014), award-winning teachers (Henriksen, 2016), and with pre-service teachers seeking initial licensure (Diakidoy & Kanari, 1999; Kampylis et al., 2009). This research was not interested in further examining the research of only these individuals. Instead, the term *everyday* teacher is used to include teachers who did not self-identify with more than one of the following:

- a state or national award-winning teacher

- a National Board Certified Teacher

- a teacher with a master's degree in a traditional arts-related field

- a teacher with a doctoral degree in education

- a teacher with a license that currently carries provisional or emergency status

These awards recognitions, along with being designated a fully licensed core content middle grades teacher with more than 3 years of teaching, comprised the target population criteria.

A total of 127 teachers (75% female, 25% male) from three adjacent public school districts (60% from District 1, 25% from District 2, and 15% from District 3) met the target population criteria to form the sampling frame. The confidentiality of the participants during the quantitative phase was protected by sending individual emails with a unique link to the online survey using Qualtrics Software. During this phase, respondents were assigned a number immediately following the data collection window, so that all identifiable information was removed (e.g., participant name, school name, district name, etc.) during the quantitative analyses.

From the 127 potential teachers in the sampling frame, seven emails immediately bounced back. These emails were coded as invalid and removed from the list. By the end of the data collection window, 30 participants (23.6%) had responded to the survey. Five teachers had less than 5% of the survey questions completed and were deleted from the sample. This left 25 surveys at 100% completion which constituted a 20.8% completion rate. The sample of teachers was predominantly female (92%) which resembles the gender distribution of the initial population. At the same time, 76% were from District 1, 20% were from District 2, and 4% were from District 3 which also resembles the distribution of locations found in the initial population. These 25 became the sample of teachers for the quantitative phase.

Several reasons could contribute to the low response rate. First, a handful of teachers responded to my email invitation throughout the three weeks, thanking me for the opportunity,

but stating that they currently had "no time to participate" or didn't "believe [they] were creative enough" to answer the survey. Additionally, these three weeks occurred just prior to the local school districts' spring break. Teachers expressed how tired and stressed they felt, unwilling to add "one more thing" to their day. If the recruitment window had happened at a different time of the year, it is likely that the response rate would have been higher.

Setting and Participants

The sample 25 teachers currently work in three adjacent public school districts located in the central region of a mid-Atlantic state. Schools in these districts are located in areas that could be considered "urban characteristic" (Milner, 2012, p. 560), indicating that the communities in these areas are not as large as the stereotypical urban cities, but nonetheless they are experiencing many of the same challenges to teaching and learning that historically occur in the bigger cities (e.g. increasing refugee communities, homelessness, increasing diversity). Minimal demographic data was collected because this project was not interested in statistical comparisons between standard demographics data (e.g., school district, gender, race, ethnicity, cultural heritage.) The survey refrained from collecting specific school district or school demographic information because of my pre-existing familiarity with these teachers and their current teaching locations.

Twenty-one teachers indicated at the end of the survey that they were interested in participating in a follow up semi-structured interview. Ten teachers responded to the email invitation, but only 8 were able to successfully schedule an interview during the qualitative data collection window. Three attempts were made to schedule the remaining two participants, but due to scheduling conflicts and end-of-school mandatory engagements, their interviews never occurred. The eight teachers who completed the interview were entirely female and represented

only two of the three districts from the larger sample of completed surveys. These 8 teachers became the sample for the qualitative phase of the project.

Data Sources and Instrumentation

This study collected several data sources in two phases of data collection. The first phase was an online survey based on teacher interest in the project, and the second phase was a follow-up semi-structured individual interview.

Listed below are the sources of data used throughout the two phases of research:

- The Everyday Teacher Creativity Survey (ETC)

- individual data visualizations from interview

- individual interview transcripts from interview

- researcher notes and analytic memos

Phase One Instrumentation

The Everyday Teacher Creativity Survey used in Phase one consists of two independent and validated surveys: (1) The Basic Psychological Needs Satisfaction and Frustration Scale (BPNSFS; Van der Kapp-Deeder, et al., 2020) and The Creativity-Fostering Teacher Behaviors Index (CFTIndex; Soh, 2000). Given an extensive search of the literature on the CFTIndex, this dissertation research project appears to be the first to pair these two surveys together. At the end of the survey, questions regarding the following teaching characteristics (demographics) were also collected: current grade level taught, current subject area, and whether any of the following are true: won teacher of the year, holds a master's degree in gifted education or arts-based area, holds a National Board Professional Teaching Standards Certification, completed a doctoral degree, or currently holds a provisional or emergency teaching license.

The Basic Psychological Needs Satisfaction and Frustration Scale

This section of the ETC survey asked teachers to complete the Basic Psychological Needs Satisfaction & Frustration Scale (BPNSFS) to rate their intrinsic motivation for classroom teaching as determined by their level of needs satisfaction. The scale has 24 statements divided into six categories (four questions per category): Autonomy-satisfaction, Autonomy-frustration, Relatedness-satisfaction, Relatedness-frustration, Competence-satisfaction, and Competence-frustration. An overall satisfaction score on each basic psychological need, Teachers responded to the statements using a Likert-style scale (*Not true at all* 1 – 2 – 3 – 4 – 5 *Completely true*.) Table 3 includes one sample question from each category. The complete list of statements is listed in Appendix A.

Table 3. BPNSFS Categories and Sample Statements

Category	Sample Statement
Autonomy satisfaction	I feel a sense of choice and freedom in the things I undertake
Autonomy frustration	Most of the things I do feel like "I have to."
Relatedness satisfaction	I feel that the people I care about also care about me.
Relatedness frustration	I feel excluded from the group I want to belong to.
Competence satisfaction	I feel confident that I can do things well.
Competence frustration	I have serious doubts about whether I can do things well.

Note. All sample statements come directly from "*Manual of the Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS)*" by J. Van der Kaap-Deeder et al., 2020, pg.24.

The Creativity Fostering Teacher Behaviors Index

The other section of the ETC survey asked teachers to complete the Creativity Fostering Teacher Behaviors Index (CFTIndex; Soh, 2015). This index measures nine conditions teachers habitually use to foster a creative classroom ecology (*Integration, Independence, Motivation,*

Judgement, Flexibility, Evaluation, Question, Opportunities, and Frustration). The survey

consists of 45 behavior statements (5 statements for each of the nine conditions) that teachers

responded to using a Likert-style scale (*Never* 1 – 2 – 3 – 4 – 5 – 6 *All the time*). Table 4 includes

one sample behavior statement from each of the nine conditions. The full list of behavior

statements is listed in Appendix B.

Table 4. CFTIndex Conditions and Sample Statements

Condition	Sample Statement
Independence	I encourage students to show me what they have learned on their own.
Integration	In my class, students have opportunities to share ideas and views with classmates.
Motivation	Learning the basic knowledge/skills well is emphasized in my class.
Judgment	When my students have some ideas, I get them to explore further before I take a stand.
Flexibility	In my class, I probe students' ideas to encourage thinking.
Evaluation	I expect my students to check their own work instead of waiting for me to correct them.
Question	I follow up on my students' suggestions so that they know I take them seriously.
Opportunities	I encourage my students to try out what they have learned from me in different situations.
Frustration	My students who are frustrated can come to me for emotional support.

Note. All sample statements come directly from "*Creativity fostering teacher behavior around*

the world" by K. Soh, 2015, pgs. 17-18

Phase Two Data Sources

Qualitative data was collected from eight individual teacher interviews to provide a

deeper understanding of the survey results obtained during Phase One. Semi-structured interview

questions were designed to add depth to the survey results while opening the conversation to possible contextual and personal factors that may be influencing their results. Embedded in the interview was a task (Merriam & Tisdell, 2016) that asked teachers to assemble a visualization of their survey data using cards and diagrams (see images below) while answering the questions from the interview protocol. In other words, the visualization task served as a scaffold for the teachers' (and my) sense-making of the quantitative phase while considering their perspective on the contextual factors at play.

The Interview

At the start of the interview, the teachers viewed their results from each part of the ETC survey as two radar diagrams. They learned their individual sum scores for each of the nine conditions for fostering creativity (see Figure X) and their satisfaction sum score for each motivation factor (see Figure X). The interview protocol included questions such as, "*What do you notice or wonder about your scores for the nine conditions? Any surprises or confirmations??*" or "*You scored high/low on _____ creativity-supporting condition. What do you notice or wonder about your score on that condition?*" Approximately half of the interview time was allotted for teachers to voice their notice and wonders, experiences and stories, as they reflected on their subscale scores from the survey.

The Task

Once the teacher had sufficiently reflected on their scores, she was asked to participate in the card sort using the following instructions:

> *All of the survey results I've shown you are manipulable (on cards) so that we can talk together about where you think your results overlap, support, explain, explore, etc., fostering a creative classroom ecology for you. What I'd like you to do is place the cards*

anywhere that makes sense to you as we connect your teaching experiences with the

scores from the survey. I also have markers and pens for you to draw or add to the map

in any way you see fit.

The full interview protocol is available in Appendix C. Each interview was audio-recorded and transcribed for analysis. The teacher-constructed visualization was included as additional qualitative data for analysis. Figure 3 is a sample of a participant-constructed visualization.

Figure 3. Sample Completed Interview Task

Phase One Analysis

The goal of this phase was to analyze the subscale constructs (nine conditions for creativity and three basic psychological needs satisfaction) and the overall construct for both creativity and motivation in the hopes of finding patterns among the survey responses. As such, the subscale scores and the total scores were calculated using an Excel spreadsheet. Teachers responded to 24 questions on the BPNSFS by choosing from a Likert-style 5-point scale ranging

35

from one ("Not true at all") to five ("Completely true"). Of the 24 items, half were written as satisfaction-oriented and the other half as frustration-oriented. Since this project was interested in examining the overall contributions of each unique subscale to the teacher's classroom ecology, the frustration-oriented questions were reverse coded prior to any analysis. This allowed for four sum scores: three satisfaction-oriented subscale scores and a composite satisfaction score. Similarly, teachers responded to 45 questions on the CFTIndex by choosing from a Likert-style 6-point scale ranging from one ("Never") to six ("All the time"). The CFTIndex had ten sum scores: nine creativity condition subscale scores and one total creativity sum score.

To begin, basic psychometric properties were calculated and analyzed at the item level. All questions for the BPNSFS include responses of the highest score (5 points). However, only three questions (M2r, M14r, and M18r) included the lowest score ("Not true at all") in the range of responses.

Table 5. Psychometric Properties of BPNSFS Items

Item	M	SD	Range
M1	3.5	1.0	2-5
M2r	3.0	1.0	1-5
M3	4.1	0.7	3-5
M4r	4.5	0.8	2-5
M5	4.4	0.6	3-5
M6r	4.3	0.8	2-5
M7	3.9	0.8	2-5
M8r	3.6	1.1	2-5
M9	4.6	0.6	3-5
M10r	4.8	0.5	3-5
M11	4.5	0.8	2-5
M12r	4.2	0.9	3-5
M13	4.2	0.7	3-5
M14r	3.2	1.2	1-5
M15	4.4	0.6	3-5
M16r	4.8	0.4	4-5
M17	4.3	0.6	3-5

Item	M	SD	Range
M18r	4.2	1.1	1-5
M19	3.8	0.9	2-5
M20r	3.6	0.9	2-5
M21	4.2	0.7	3-5
M22r	4.4	0.8	2-5
M23	4.3	0.7	3-5
M24r	4.4	0.9	2-5

Note. N=25

Of the 45 items for CFTIndex only three questions (C10, C28, and C41) did not include the highest score (6 points) in the range of responses. Alternatively, only two questions (also C10 and C41) included the lowest score in the range of responses.

Table 6. Psychometric Properties of CFTIndex Items

Item	*M*	*SD*	Range	Skewness	Kurtosis	SE
C1	4.7	0.8	3-6	-0.5	-0.2	0.2
C2	5.4	0.8	3-6	-1.2	0.9	0.2
C3	5.4	0.8	4-6	-0.8	-1.1	0.2
C4	4.1	1.1	2-6	-0.6	-0.6	0.2
C5	5.2	0.7	4-6	-0.3	-1.1	0.1
C6	4.2	1.0	2-6	-0.1	-0.6	0.2
C7	4.5	0.9	2-6	-1.0	0.8	0.2
C8	4.6	0.9	3-6	0.2	-0.9	0.2
C9	5.4	0.7	4-6	-0.6	-0.9	0.1
C10	3.1	1.1	1-5	-0.1	-1.0	0.2
C11	5.0	0.8	3-6	-0.4	-0.3	0.2
C12	4.9	1.0	3-6	-0.3	-1.2	0.2
C13	5.0	0.8	3-6	-0.4	-0.3	0.2
C14	4.8	1.0	2-6	-0.8	0.5	0.2
C15	4.4	1.0	2-6	-0.3	-0.5	0.2
C16	5.4	0.6	4-6	-0.1	-1.0	0.1
C17	5.2	0.9	3-6	-0.7	-0.4	0.2
C18	4.9	0.7	4-6	0.1	-0.9	0.1
C19	4.5	0.9	3-6	0.4	-0.8	0.2
C20	5.0	1.0	2-6	-1.1	0.7	0.2
C21	5.0	1.1	2-6	-1.0	0.2	0.2
C22	4.3	0.9	3-6	0.0	-1.1	0.2
C23	4.5	0.7	3-6	0.4	-0.4	0.1
C24	4.4	0.9	3-6	-0.4	-1.0	0.2

C25	4.9	0.8	3-6	-0.3	-0.4	0.2
C26	4.7	1.0	2-6	-0.6	0.2	0.2
C27	4.5	0.8	3-6	-0.6	-0.7	0.2
C28	4.0	0.9	2-5	-0.6	-0.4	0.2
C29	5.0	0.9	3-6	-0.4	-1.0	0.2
C30	4.4	0.9	3-6	0.3	-0.7	0.2
C31	3.6	0.9	2-6	0.2	0.3	0.2
C32	4.8	0.8	3-6	-0.2	-0.5	0.2
C33	4.2	1.0	2-6	-0.4	0.0	0.2
C34	4.7	0.7	4-6	0.4	-1.1	0.1
C35	4.4	1.0	2-6	0.0	-0.2	0.2
C36	4.6	1.0	2-6	-0.5	0.0	0.2
C37	4.4	1.0	2-6	-1.0	0.6	0.2
C38	4.9	0.9	3-6	-0.5	-0.5	0.2
C39	4.2	1.1	2-6	0.1	-1.1	0.2
C40	4.0	0.9	2-6	-0.3	0.2	0.2
C41	3.3	1.1	1-5	0.0	-0.7	0.2
C42	4.0	1.2	2-6	-0.4	-0.7	0.2
C43	4.6	0.8	3-6	-0.2	-0.6	0.2
C44	5.0	0.9	3-6	-0.4	-1.0	0.2
C45	4.3	0.8	2-6	-0.5	0.5	0.2

Note. N=25

Construct Validity and Internal Consistency Reliability

The reliability and validity of each survey was established using descriptive statistics, internal consistency reliability (Cronbach's alpha, α), and inter-subscale correlations. These data analyses were completed using packages in RStudio statistical software, version 4.3.0 (The R Foundation for Statistical Computing, 2023). At first, a set of statistical analyses was done with raw sum subscale scores, in order to replicate the processes from the validation articles (Soh, 2015, Van der Kapp-Deeder, 2020).

Intersubscale correlations for the BPNSFS (see Table 7) indicate two weak correlations and one less than moderate correlation. With r values of .11 and .35, autonomy does not correlate with relatedness and competence, respectively. However, relatedness and competence have an r

value of .52, suggesting a stronger, but still less than moderate correlation. These three r values suggest that they are measuring different or unrelated aspects of the larger construct.

At the same time, the measure of Cronbach's Alpha (α) indicate moderate to strong internal reliability. The individual subscales of autonomy, relatedness, and competence have moderate values of α = .68, .81, and .88. This combination of low correlation coefficients alongside moderate to high α values suggests that the subscales are representing each unique basic psychological need while the overall scale's reliability for measuring intrinsic motivation is driven by the consistency within each subscale rather than the correlation between them.

Table 7. Subscale Intercorrelations and Internal Reliabilities – BPNSFS

Subscale	α	1	2
1. autonomy	.68		
2. relatedness	.81	.11	
3. competence	.88	.35	.52*

Note. N=25. *$p < .01$.

Intersubscale correlations on the CFTIndex ranged from r = .37 (evaluation & question; opportunity & evaluation) to r = .84 (opportunity & flexibility) with a median of r = .595. Twenty-eight of the 36 correlations are greater than r = .50, and 8 are between r = .37 and r = .49. This demonstrates that the subscales are at best moderately correlated but are still relatively independent.

Internal consistency reliability was measured also using Cronbach's Alpha. Using subscale totals, the scores range from α = .45 (integration) to α = .81 (opportunity), with a median of α = .65. The score for the integration subscale suggests there is some issue with the reliability of the scale. However, this could be due to a small sample size (N = 25). Otherwise,

the scores suggest that the subscales are reasonably correlated and measure the same underlying

construct with moderate consistency.

Table 8. Subscale Intercorrelations and Internal Reliabilities – CFTIndex

Subscale	α	1	2	3	4	5	6	7	8
1. evaluation	.75								
2. flexibility	.63	.71**							
3. frustration	.70	.40*	.61**						
4. independence	.62	.42*	.47*	.54**					
5. integration	.45	.71**	.69**	.58**	.56**				
6. judgment	.65	.71**	.75**	.60**	.43*	.67**			
7. motivation	.64	.47*	.57**	.80**	.48*	.59**	.55**		
8. opportunity	.81	.71**	.84**	.68**	.37	.69**	.78**	.65**	
9. question	.75	.37	.63**	.51**	.50*	.55**	.67**	.54**	.60**

Note. N=25. * $p < .05$. ** $p < .01$.

After examining the intercorrelations and internal reliabilities, the subscale scores were graphed

using radar diagrams. Each teacher had two diagrams, one for the CFTindex and one for the

BPNSFS. These diagrams were used during the individual interviews. Figure 4 and 5 are

examples of the radar diagrams.

Figure 4. Sample Radar Diagram – BPNSFS
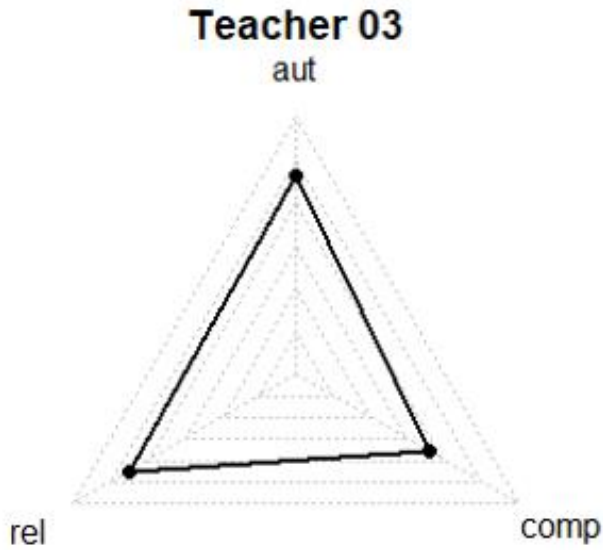
Teacher 03

Figure 5. Sample Radar Diagram – CFTIndex
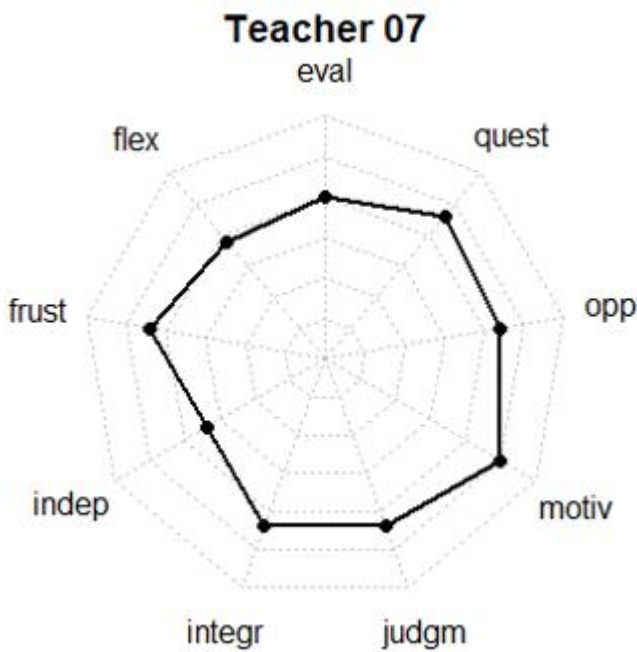
Teacher 07

Cluster Analysis of the Everyday Teacher Creativity Survey

The descriptive and psychometric information led to several clustering analyses to find initial patterns among teachers. To best understand how the group separates into clusters, a

hierarchical cluster analysis in RStudio using Ward's Method was used to determine the clusters. This method is known to be useful for continuous data sets, like the CFTIndex and BPNSFS, by using the sum of squared differences between the centroids of the clusters. The centroid is calculated as the average of all data points in the cluster. This method tends to result in groups with relatively equal variances but can be sensitive to outliers. The dendrogram in Figure 6 illustrates the cluster solution. It is clear that two large clusters are formed, however, the solution also appears to form 6 smaller clusters before pairing off most of the teachers.

Figure 6. Cluster Diagram – Ward's Method

teachers
hclust (*, "ward.D2")
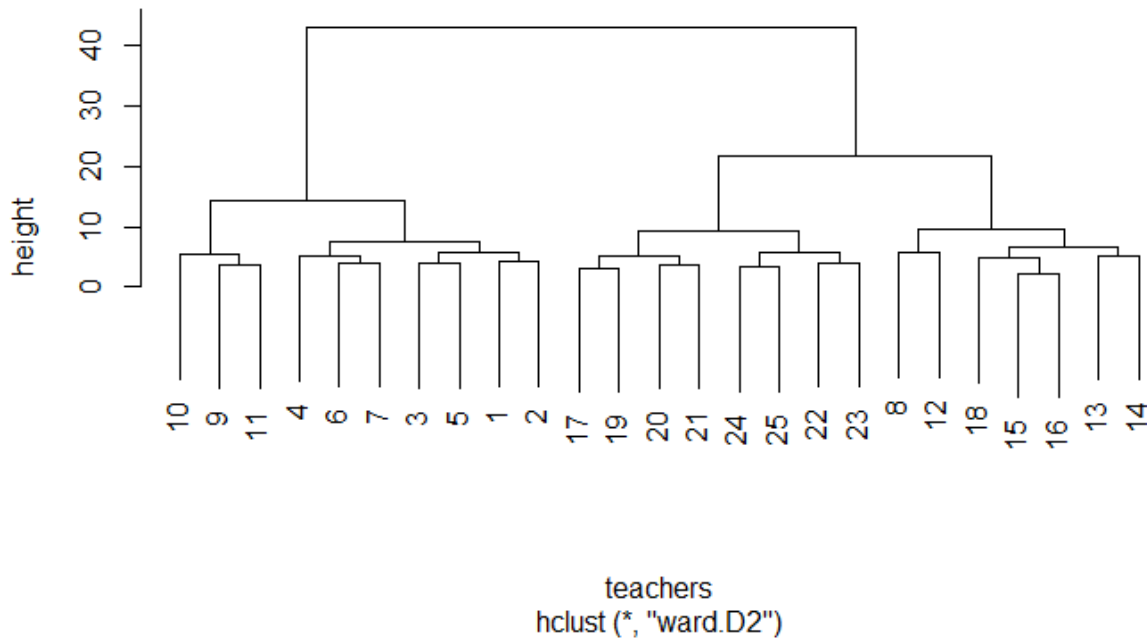
Then, using that information K-means analysis were generated. Both hclust() and kmeans() functions for the traditional clustering solutions are located in the STATS R package. In each of the analyses, squared Euclidean distances were used to test for similarity.

Phase Two Analysis

Yin's (2016) Five Phase Cycle for analyzing data was the framework for qualitative data analysis section the research project. The phases of the cycle include: 1) compiling the data, 2)

disassembling data, 3) reassembling data, 4) interpreting, and 5) concluding (2016, p. 185).

Figure 7 illustrates the entire cycle.

Figure 7. Five Phases of Analysis and Their Interactions
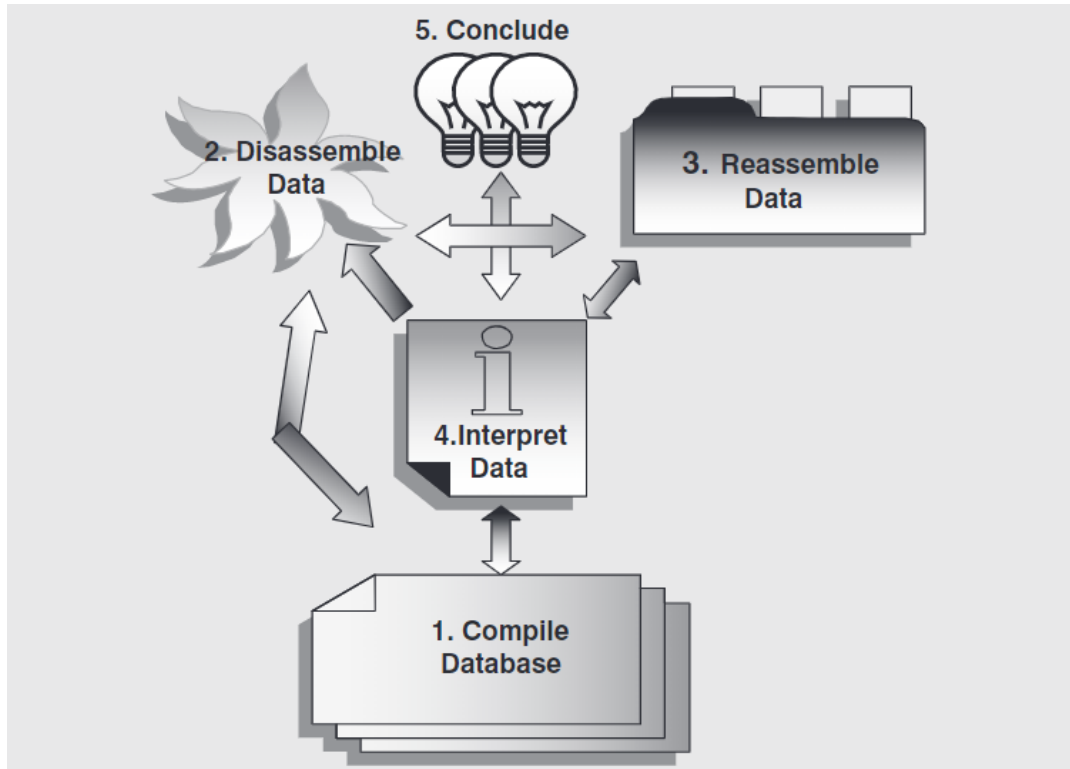
Note. From "Qualitative Research From Start to Finish," by Robert K. Yin, 2016, The Guilford

Press, p.186

Yin's positivistic epistemological stance toward case study research (Yazan, 2015) may

appear antithetical to a research project on creativity. This framework, however, provided a

structure that allows for improvisation (Sawyer, 2011), an idea that is often associated with

creativity. Two-way arrows between the phases allowed the researcher to go between phases,

repeatedly, as needed. Yin (2009) also argues against distinctions between qualitative and

quantitative case study methods believing that both research orientations are vital to developing

the most comprehensive case study. As this research project also uses quantitative and qualitative data, the Five Phase Cycle allowed for consistency in data analysis methods.

The first phase of the cycle compiled the data into a database. All qualitative data was securely stored in an online encrypted storage system (e.g., OneDrive). Each teacher has a folder where all data is labeled and organized. This data included an image of the co-constructed visualization between myself and the teacher, an image of the Creativity radar diagram, an image of the Motivation radar diagram, and a cleaned transcript of the interview.

At first, the transcript data was reviewed and collapsed into a summary for each teacher. These summaries allowed me to describe the teacher's journey up to this interview and highlight the important themes that immediately stood out during the interview.

The next phase of the analysis cycle disassembled the individual transcript data by coding the teacher's responses based on the contextual factors that emerged as they were discussing their survey results. As I listened to each interview, I recalled the categories from the previous interview, adding to that list with each new interview. By the end of the interviews the list of categories for contextual factors included: student diversity, curriculum and standards, testing and accountability, time constraints, my classroom community culture (students and parents), my team community culture, my administration community culture, and professional learning opportunities. The second level analysis went through the data again, this time coding for the layers of reflection from Korthagen and Vassalos' Onion Model (Chapter II, Figure 2). Analytic memos (Yin, 2016) were written throughout the project so as not to lose any ideas or insights that may later prove to be relevant or vital to the final conclusions.

Phases 2, 3 and 4 of the Yin's cycle allow for the researcher to interpret, reassemble, and disassemble the data as often as needed. Patterns were identified using a deductive approach,

44

mapping the teacher's stories onto the nine creativity behaviors, three motivational factors, and

contextual factors from the conceptual model. Ultimately, the data analysis process led to

explanation building (conclusions) of the contextual factors emerging from teachers'

understandings of fostering a creative classroom ecology. These cases formed the initial findings

for qualitative RQ4: What contextual factors emerge that help explain pattern(s) and

relationship(s) between creativity-supporting teacher behaviors and intrinsic motivation factors

for fostering a creative classroom ecology?

Integration of Phases One and Two

The final phase of analysis integrated the data from the individual cases into two cases

based on the overlap of categories, themes, and survey results among two groups of teachers.

Using all of the individual teachers' data sources, the data was again disassembled, reassembled,

and interpreted to reach the most comprehensive answer to the overarching research question:

When teachers' creativity-supporting behaviors and intrinsic motivation factors are explored

through a sociocultural perspective, what profile(s) emerge for fostering a creative classroom

ecology? Cluster summaries were written to describe the ways these two clusters foster creative

classroom ecologies.

Strategies to Minimize Validity Threats in Mixed Methods Research Designs

To minimize validity threats in this CS+MMR research design several strategies were

considered. First, I reported on the considerations of all possibilities for the quantitative results,

including results that are both statistically significant and non-significant. While conducting the

interviews, questions that probed into surprising and contradictory quantitative results were

designed. Ideally, specific teachers should have been purposefully identified for the interview as

sources for targeted explanations of emerging patterns. Instead, I was restricted to the eight

teachers who were willing and able to participate in an interview. When describing the bounds of the cases (individual and cluster), I used richly descriptive summaries to provide the clearest picture of the sociocultural context reported by teachers. To illustrate the integration of the survey data and the interview data, I created a joint visual display to accompany the written cases. The joint display was made for each teacher as well as the cluster cases.

CHAPTER IV: RESULTS

This chapter organizes and summarizes the results of data collection in order of the phases of the project. I begin with the results from the Everyday Teacher Creativity Survey (ETC; N=25), followed by the survey results for the teachers who participated in the follow up interview (N=8). Results from the interviews are then presented as individual teacher summaries, followed by descriptions of the emerging contextual themes, before ending the chapter with the integrated results from the survey and the interview.

Phase One

The Everyday Teacher Creativity Survey consisted of three sections: the descriptive teacher characteristics, the Basic Psychological Needs Satisfaction and Frustration Scale (BPNSFS), and the Creativity Fostering Teacher Behaviors Index (CFTIndex.) Each set of questions was analyzed separately, then simultaneously for a joint analysis, and then finally integrated with the qualitative results. The analysis of teacher characteristics came first, followed by the BPNSFS, then the CFTIndex, and lastly the joint analysis.

Descriptive Teacher Characteristics – Full Teacher Sample

The sample of teachers (N=25) consists of predominantly female (88%) teachers who taught in a middle school (92%) during the school year that data was collected. Frequency counts of the descriptive teaching characteristics questions were calculated to provide a broad overview of the demographics of the sample and to ensure that the target population criteria had been met. Appendix D has an attributes matrix of all 25 teachers. The teaching characteristics consisted of current grade level, current content area, and areas of recognition, awards, and license status.

Current Grade Level

The target population consisted of teachers who taught middle school during the academic school years of 2018-2019 to 2022-2023. None of the teachers in the sample appear to have switched to teaching at the high school level; however, 2 teachers had transferred to positions in elementary schools (grades K-5) at the beginning of the current school year. The majority of teachers in grades 6, 7, and 8 are relatively equal in representation; however, 8th grade had eight teachers that responded (32%), 6th grade teachers had seven (28%), and 7th grade had five teachers (20%).

Current Content Area.

Of the 25 teachers, the two largest groups were six teachers who taught only ELA (24%) and five teachers who taught ELA & SS (20%). "Only SS", "only Math", and "only SC" each had four (16%). Only one teacher taught both MA & SC and one specified that they only taught Academically Gifted (AG) students. One teacher indicated that while they taught ELA, they spent time as the interim Assistant Principal. Since being an administrator is not a content area, but rather a set of additional duties, this teacher was coded for teaching ELA only.

Recognition/Status.

In this sample, nine teachers (36%) indicated that did not have any of the recognitions (TOY, M.Ed/MAT or PhD) or license status levels (NBPTC, Provisional or Emergency status). Ten teachers (40%) during their career have won Teacher of the Year at the local (school), district, or state level, eight teachers (32%) have master's degrees in gifted education or an arts-based field, and one (4%) holds a Ph.D. Two teachers (8%) hold National Board Professional Teaching Certificates and two teachers (8%) indicated that they had provisional or emergency status on their license.

Since this research project is currently not interested in the statistical differences between the characteristics listed above and the overall scores on the survey, this information was collected to ensure that the teachers were middle school educators, teaching subjects that were not considered arts-based. Their grade level(s), content area(s), recognitions/statuses were excluded from the quantitative analysis. However, this data were used as descriptors during the qualitative phase and were considered in the final integrated phase of data analysis.

Descriptive Teacher Characteristics – The Eight

The eight teachers who participated in the follow-up interview all identify as female (100%) and teach in a middle school (100%). Four of the teachers were in 6th grade (50%), two teachers in 8th grade (25%), one teacher in 7th grade (12.5%), and one teacher in both 7th and 8th grade (12.5%). All content areas were represented: two science, two math, one social studies, two ELA, and one ELA & social studies. Two teachers (25%) indicated that they do not have any recognitions or license status levels, five teachers (62.5%) indicated one recognition, and one teacher (12.5%) indicated two recognitions. Everyone in this group had continuing licenses without pending provisions or emergency status. Table 9 is a matrix of their characteristics.

Table 9. Teacher Characteristics Matrix – The Eight

	Grade Level(s)			Content Area(s)					Recognition(s)/License Status				
	6	7	8	ELA	SS	MA	SC	Other	TOY	NBPTC	Master's	PhD	ES
Gail			X			X							
Diana	X			X	X						X		
Carolyn		X	X		X				X				
Elena			X	X							X		
Heather	X			X					X				
Amy	X						X		X		X		
Brittany		X				X							
Fiona	X						X		X				

Note. N=8.

RQ1: Patterns in the BPNSFS Subscales and Total Scores Results

To describe the satisfaction levels of the basic psychological needs factors experienced by the teachers (N=25), sum scores for each subscale and a Motivation total score were calculated (see Table 10). The minimum total score possible is 24 and the maximum total score possible is 120. For the full teacher sample, the mean of the Motivation total score was 99.1 with total scores ranging between 79 and 115. Similarly, the minimum score on a single subscale is 8 and the highest possible score on a subscale is 40. Relatedness had the highest ranging scores (28 – 40) with the highest mean (M = 35.7) and lowest variance (SD = 3.5). Competence had a mean close to Relatedness (M = 34.6), the largest variance (SD = 4.6), and the widest range of scores (24 – 40). Autonomy had the lowest range of scores (22 – 37), the lowest mean (M = 28.8), and a variance similar to the Competence subscale (SD= 4.5).

Table 10. BPNSFS Subscales and Total Score – Full Teacher Sample

Subscale	*M*	*SD*	Range	Skewness	Kurtosis
Autonomy	28.8	4.5	22-37	0.4	-1.1
Relatedness	35.7	3.5	28-40	-0.9	-0.1
Competence	34.6	4.6	24-40	-0.5	-0.8
Total Score	99.1	9.4	79-115	-0.3	-0.9

Note. N=25.

For the interview group (N=8), the means of the subscales and the total score are similar to the entire teacher sample (N=25; see Table 11). The mean of the total score was slightly less (M = 94.25) and with a range slightly smaller than the teacher sample (79 – 112). Relatedness had the smallest range of scores (28 – 38) with the highest mean (M = 34.5). Competence had a mean close to Relatedness (M = 32.4), and a wider range of scores (24 – 40). Autonomy had the lowest mean (M = 28.8) with wide range of scores (22 – 37).

Table 11. BPNSFS Subscales and Total Score – The Eight

Subscale	*M*	*SD*	Range	Skewness	Kurtosis
Autonomy	27.4	5.2	22-37	1.0	0.1
Relatedness	34.5	3.7	28-40	-1.1	-0.2
Competence	32.4	5.7	24-40	-0.2	-1.2
Total Score	94.3	10.4	79-115	0.3	0.0

Note. N=8

For Brittany, Elena, Fiona, Gail and Heather, the pattern of highest mean to lowest mean mimicked the full teacher sample; their highest mean was relatedness, followed by competence, followed by autonomy. The remaining three each have their own pattern of highest to lowest: Carolyn had competence, relatedness, and then autonomy; Diana had autonomy, relatedness, and then competence; and Amy had competence, autonomy, and then relatedness. Figure 8 illustrates these patterns for the eight teachers. The full teacher sample radar diagrams are located in Appendix E.

Figure 8. BPNSFS Radar Diagrams Grid – The Eight
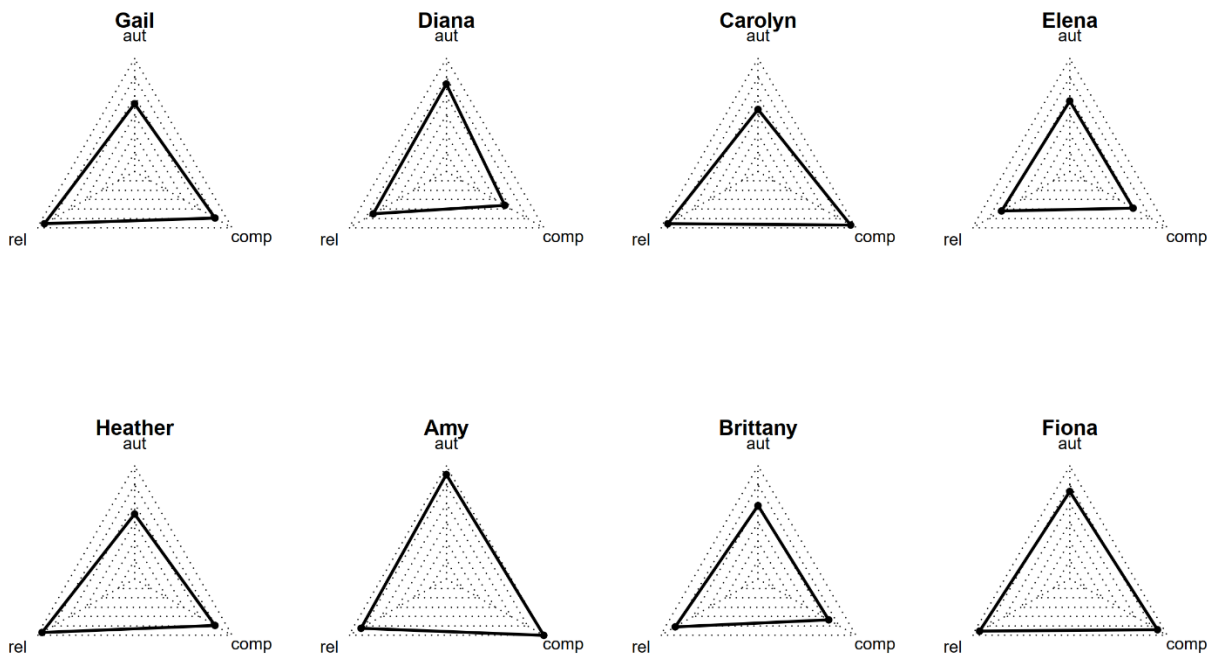
Amy is the only teacher who had relatedness as the lowest score. And while Amy has one of the widest triangles (indicating higher scores on all three subscales), you can see that the other teachers' triangles pull toward relatedness. Gail, Heather, and Brittany's triangles pull that direction most vividly.

RQ2: Patterns in the CFTIndex Subscales and Total Scores Results

To describe the creativity fostering behaviors of the full teacher sample (N = 25), sum scores for each of the nine subscales and a Creativity total score were calculated (see Table 12). The minimum total score possible is 45 and the maximum total score possible is 270. For the full teacher sample, the mean of the Creativity total score was 206.2 with a range of scores from 147 to 242. The minimum possible score on each subscale is 5 and the maximum possible score is 30. The highest score of 30 was obtained for three of the nine subscales: Frustration (M = 23.6, SD = 2.8), Integration (M = 25.3, SD = 2.5), and Opportunity (M = 23.8, SD = 3.5). Independence (M = 20.6, SD = 2.9) had the lowest high score of 25, Integration had the highest low score of 20, and Evaluation (M = 21.2, SD = 3.6) had the lowest low score of 11. The least amount of variance occurred within the Integration subscale. The greatest amount of variance occurred within the Evaluation subscale.

Table 12. CFTIndex Subscales and Total Score – Full Teacher Sample

Subscale	*M*	*SD*	Range	Skewness	Kurtosis
Evaluation	21.2	3.6	11-28	-0.6	1.0
Flexibility	22.6	2.7	17-27	0.1	-0.9
Frustration	23.6	2.8	18-30	0.1	-0.5
Independence	20.6	2.9	14-25	-0.5	-0.7
Integration	25.3	2.5	20-30	0.0	-0.7
Judgment	21.0	3.0	13-27	-0.6	0.4
Motivation	23.9	3.1	16-29	-0.4	-0.4
Opportunity	23.8	3.5	17-30	0.0	-1.2
Question	24.1	2.7	19-28	-0.1	-1.0
Total Score	206.2	21.4	147-242	-0.5	0.3

Across the 25 teachers, the subscale of integration has the highest mean (M = 25.3) and it is never the lowest scoring subscale for any teacher. Independence has the lowest mean (M=20.6) and it is never the highest subscale for any teacher. Independence is always falling in the lower subscale scores.

Looking at the interview group (N=8), their subscale scores mimic the patterns mentioned above (see Table 12). The highest mean (M=25.8) was also for integration, and it is still never the lowest scoring subscale for any teacher. Independence also has the lowest mean (M=20.6) mimics the mean of the full teacher sample. Evaluation, integration, judgment, and question all have means higher than the full teacher sample. Frustration, motivation, and opportunity all have means slightly lower than the full teacher sample. Flexibility is also the exact same mean (M=22.6) for the eight as it is the full teacher sample.

Table 13. CFTIndex Subscales and Total Score – The Eight

Subscale	*M*	*SD*	Range	Skewness	Kurtosis
Evaluation	22.5	2.8	19-27	0.6	-0.6
Flexibility	22.6	2.1	20-27	1.2	2.1
Frustration	23.3	2.4	20-27	-0.1	-0.3
Independence	20.6	3.2	16-25	0.0	-1.3
Integration	25.8	2.1	23-30	1.0	1.8
Judgment	21.4	2.2	18-25	0.0	0.1
Motivation	23.1	2.5	20-27	0.4	-1.3
Opportunity	23.6	2.5	21-28	0.7	-0.5
Question	24.2	3.4	19-28	-0.2	-1.6
Total Score	207.1	16	147-242	1.0	2.0

Brittany, Elena, Diana, and Gail have Integration as their highest scoring subscale. For Fiona and Carolyn, Question was the highest subscale score. Amy scored highest on Motivation, while Heather scored highest on Evaluation. None of the teachers from the interviews had more

than one highest scoring subscale (e.g., T2 had two highest scores for Integration and Question, both with a score of 23). However, the lowest scoring subscale was often shared with more than one subscale. Figure 9 illustrates these patterns for the eight teachers. The full teacher sample radar diagrams are located in Appendix F.

Figure 9. CFTIndex Radar Diagrams Grid – The Eight
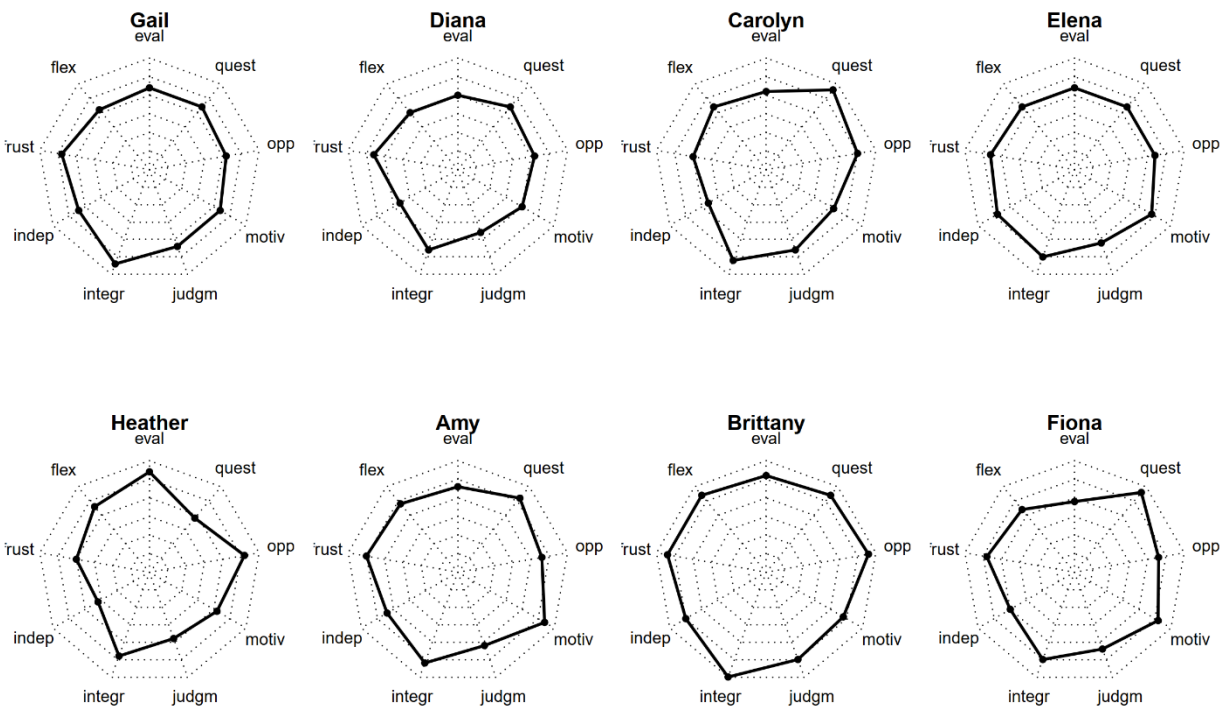
At first glance, the diagrams push outward to a point at Integration ("integr" on the figure), some more dramatically than others.

Total Score Scatterplot

Once descriptive statistics were considered, the total scores for Creativity and Motivation were plotted as a scatterplot to initially visualize the full teacher sample. Figure 10 shows the results of plotting Creativity versus Motivation. Inserting the mean scores as dashed lines, a 2 x 2 grid is formed that categorizes the participants as high/low in Creativity and high/low in Motivation. The teachers hover in a group that scatters towards the right side of the graph with

54

the exception of one teacher (T10). It appears that something unique is happening there.

However, this could be a result of having vastly different scales for each axis. At this point in the

analysis, the scores were standardized to see if the raw sum scores impacted the scatterplot.

Figure 10. Scatterplot of Creativity ~ Motivation Total Raw Scores
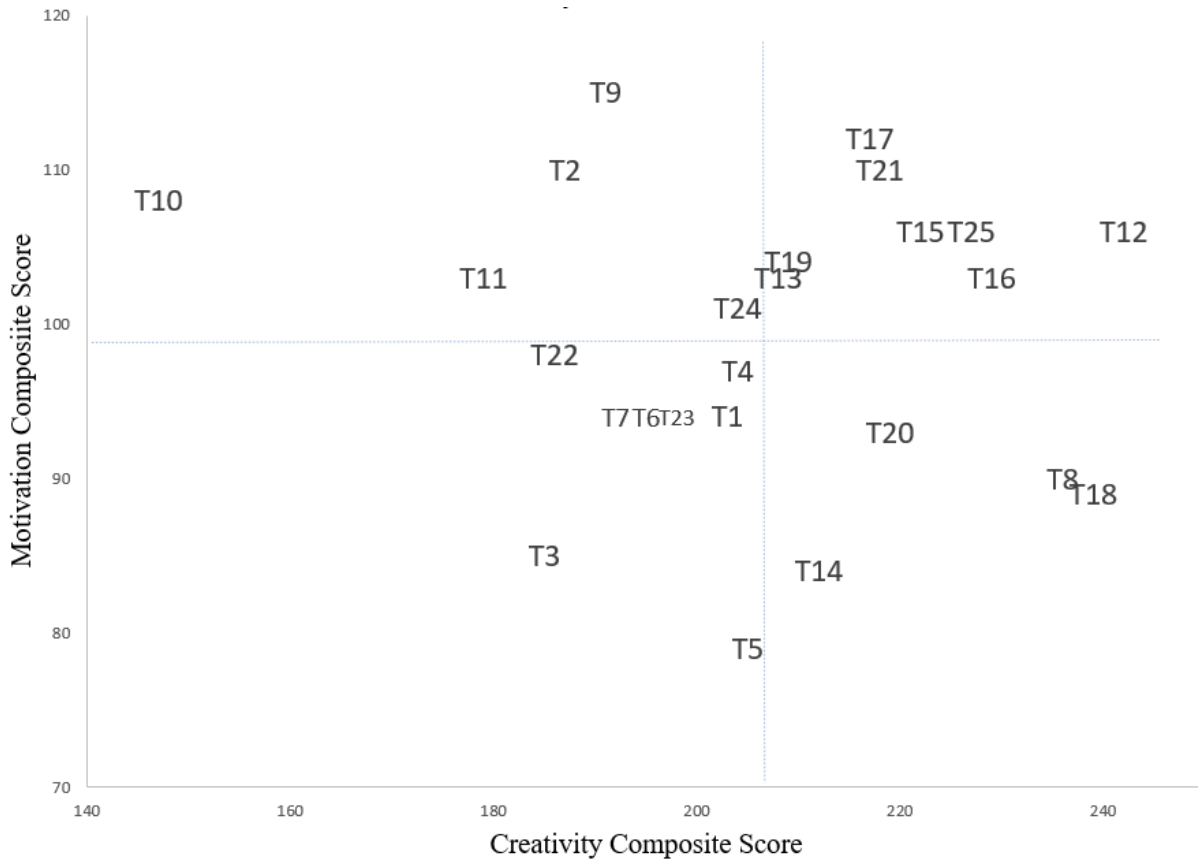
A second plot was created with standardized scores (see Figure 11). It appears that there

is not a significant difference between the two. Teacher 10 sits slightly away from the group,

however, their score on Motivation is still within one SD of the mean for the sample. For ease of

interpretation, the standardized scores were used throughout the remaining statistical analyses.

Figure 11. Scatterplot of Creativity ~ Motivation Total Standardized Scores
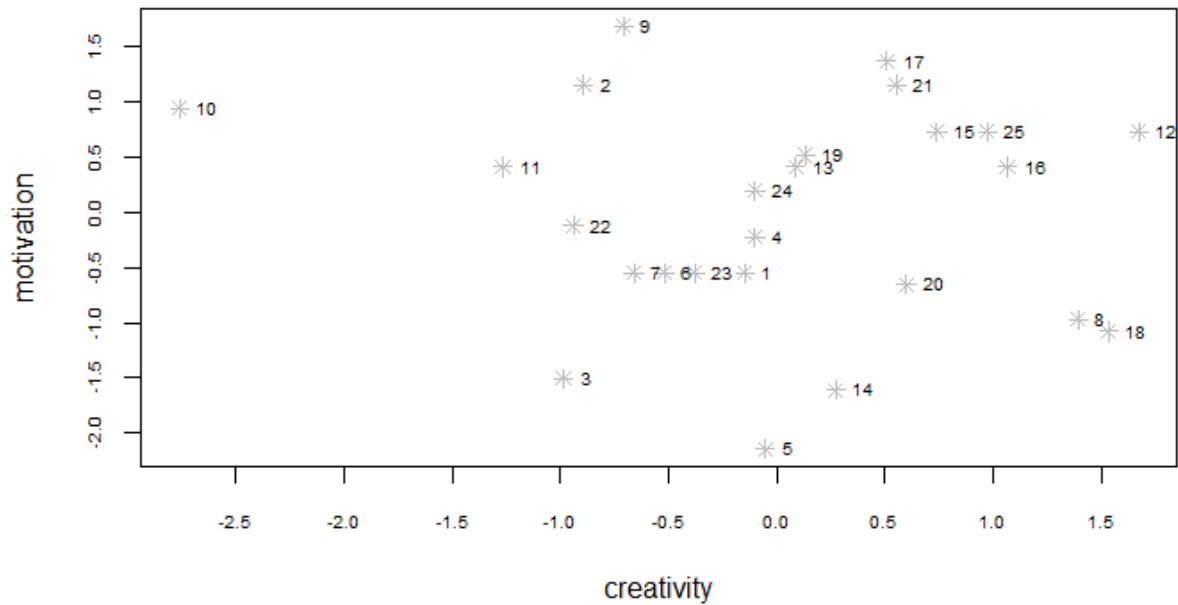
RQ3: Patterns between the BPNSFS and the CFTIndex Results

Using the information gathered from the hierarchical clustering (see Chapter III, Figure 6), a K-means cluster analysis was performed to see what patterns occur between the standardized subscales for creativity and motivation. A model fitting 6 clusters ("the Fit6 model") was calculated using the default method of Euclidean dissimilarity. After comparing the clusters by teacher membership and by the cluster means, the Fit6 model provided similar information to the hierarchical cluster dendrogram. This is not surprising given that both the K-means and hierarchical cluster analyses used methods that included Euclidean distances to calculate the proximity between data points and cluster centroids.

The K-means solution also contained an identifiable set of cluster means to consider when thinking about patterns in the Everyday Teacher Creativity Survey results. Table 14 organizes and summarizes the information by cluster, membership in the cluster, and the

subscale means for both the BPNSFS and the CFTIndex which are measured in standard

deviations from the standardized mean.

Table 14. K-means Cluster Analysis

cluster	N	ev	fx	fr	id	it	ju	mv	op	qu	aut	rel	com
1	2	1.48	1.62	0.67	1.00	1.27	1.33	0.98	1.34	1.29	0.05	0.24	-0.46
2	4	0.28	0.52	0.49	-0.03	0.68	0.26	0.58	0.77	0.35	-0.35	-0.13	0.40
3	5	0.16	0.30	1.07	0.62	0.60	0.34	0.85	0.39	0.57	0.31	0.09	0.16
4	4	-0.14	0.06	-0.14	-0.12	-0.31	0.18	-0.06	-0.17	-0.13	-0.01	-0.13	0.24
5	3	-1.38	-1.08	-1.31	-0.67	-1.42	-1.63	-1.46	-1.39	-0.91	0.87	0.77	0.65
6	7	-0.03	-0.54	-0.59	-0.36	-0.39	-0.18	-0.57	-0.41	-0.51	-0.40	-0.32	-0.63

Note. Cluster 1: 8, 12; Cluster 2: 13, 14, 15, 16; Cluster 3: 17, 18, 19, 20, 21; Cluster 4:

22, 23, 24, 25; Cluster 5: 9, 10, 11; Cluster 6: 1, 2, 3, 4, 5, 6, 7

Cluster 1

This cluster contains two teachers: Teachers 8 and 12. On the scatterplot (see figure XX)

these teachers are located at the far right of the plot. This indicated that they scored among the

highest on the CFTIndex. They straddle the mean for motivation however, suggesting that

Teacher 12 is more motivated than Teacher 8. The cluster means by subscale confirm that

relationship. Eight out of nine subscales on the CFTIndex are approximately equal to or greater

than 1 *SD* above the mean. Only the subscale Frustration falls clearly within 1 *SD* of the mean.

All three subscales on BPNSFS are less than ±0.5 SD from the mean. This cluster appears to

score high in creativity but average in motivation.

Cluster 2

Teachers 13, 14, 15, and 16 comprise the second cluster. On the scatterplot these teachers

are located near the center, but still within the right half of the plot. This indicates that they

scored better than average on the CFTIndex. Three teachers were slightly above the mean for

motivation, while the fourth was among the lowest scoring teachers for motivation. Across all

nine subscales of the CFTIndex and all three subscales of the BPNSFS, this cluster scored within ±1 SD. Independence, Autonomy and Relatedness all fell below the mean, while the rest fell above the mean. This cluster appears to score just above the average for creativity, but just below for motivation.

Cluster 3

This cluster contains five teachers: Teachers 17, 18, 19, 20, and 21. On the scatterplot these teacher hover in the top right corner, except for Teacher 18 who is in the lower right corner. These teachers all scored above the mean on the CFTIndex and the BPNSFS, again, except for Teacher 18. Their motivation score is among the lowest, but their creativity score is among the highest of the entire sample. The cluster means of this group are entirely positive. All subscales are within 1 SD of the mean except for Frustration which is just slightly higher (SD = 1.07). Given that the analysis used proximity to centroids in the cluster, it is apparent that Teacher 18 balances out the other teachers in the cluster. It is interesting to note that in other cluster solutions, Teacher 18 is often paired with Teachers 8 and 12 (Cluster 1 from this solution set). This cluster appears to score just above average for both creativity and motivation.

Cluster 4

Teachers 22, 23, 24, and 25 comprise the fourth cluster. This is the first cluster where teachers are located on the left side of the scatterplot. Teacher 25 is the only teacher in this cluster located on the right side of the scatterplot. This suggests that the scores for creativity are lower than Clusters 1, 2, and 3. The cluster means from Table XX confirm that observation. Every subscale mean falls less than ±0.5 SD from the mean for both the CFTIndex and the BPNSFS. Only two creativity subscales means are positive (Flexibility and Judgment) and only

one motivation subscale is positive (Competence). This cluster appears to score zigzag just above and just below the creativity and motivation averages.

Cluster 5

This cluster contains three teachers: Teachers 9, 10, and 11. On the scatterplot these teachers are located in the top left corner. This indicates that they scored high in motivation, but low in creativity. The subscale scores confirm this observation. All subscale means for the CFTIndex are negative and seven located more than 1 SD from the mean. Question (SD = -0.91) and Independence (SD = -0.67) are negative but less than 1 SD. The motivation subscales all fall closer to 1 SD and are all positive. It appears that this cluster scores higher than average in motivation, indeed, the highest motivation subscale scores of the sample, but also scored lowest in creativity.

Cluster 6

This is the largest cluster, containing 7 teachers from the sample: Teachers 1, 2, 3, 4, 5, 6, and 7. On the scatterplot these teachers hover predominantly in the middle to lower left side of the plot, except for Teacher 2 who is in the middle to upper left side. This suggests that the scores for creativity and motivation are lower than the other clusters. The subscale means confirm this observation. Every subscale score falls within 1 SD below the mean for the CFTIndex and the BPNSFS. It appears that this cluster scores just below average for both creativity and motivation.

Phase Two

This section of the findings chapter organizes and summarizes the data collected through the follow up interviews with eight teachers. First, a narrative summary of each participant is

given, followed by key contextual factors that surfaced when teachers reflected on their individual scores.

Amy's Summary – "See your future-selves"

Amy has been teaching for 15 years after spending 20 years in the corporate world. She left her corporate job because she felt unfulfilled, so she started volunteering at her daughter's school. Amy noticed a shortage of substitute teachers and decided to become one. She quickly fell in love with teaching when she accepted her first long-term substitute position. After two more long-term positions, Amy decided to become a lateral entry teacher. She recalled that these experiences solidified her passion for teaching which fueled her to very quickly complete the requirements for full licensure and she has been teaching ever since.

Amy believes that all children can learn. She believes it so strongly that she actively seeks out her own learning opportunities. She routinely attends workshops and internship experiences during the summer, so that she can bring back new knowledge and excitement to her classroom. In doing so, Amy models what independent learning can look like for her students. Her core belief in the potential of every student motivates Amy to ensure that all children have the chance to learn science under her guidance. "All children can learn and it's up to me to help them understand [science]."

To create a socially integrative learning environment, Amy emphasizes engineering activities that allow students to explore content together and learn through making mistakes. She encourages students to offer suggestions and take part in creating rubrics. It is important to Amy that to ensure that student's unique strengths and perspectives are considered. She also fosters a sense of independence in students, ensuring they feel safe and unthreatened while exploring and learning in her classroom.

As a testament to her passion for lifelong learning, Amy shared that she has "an astronaut wall" and a collection of pictures showcasing various summer learning experiences she participated in since becoming a teacher. These experiences range from meeting each of astronauts up on her wall to "working with giraffes and rhinos out in San Diego."

Amy's student-centered approach is how she embraces the diverse needs of her students. "The way we have science in our district, I have pre K readers all the way up to grade nine readers in a single sixth grade classroom. And I have to take into account my kids that are learning the language, kids who have learning disabilities, kids that are deaf or hard of hearing, kids that are visually impaired that may be using braille – I have all of that in my classes. So I look for scientists with disabilities, who are deaf and hard of hearing or visually impaired. I seek out people that have, you know, gone into science that also may have a disability. Students need to see their future selves."

Additionally, the Amy embraces the theme of inclusive education, ensuring every student, regardless of background or ability, is given equal opportunities to participate in and contribute to the learning process. Her classroom fosters an environment where students feel respected, valued, and supported, allowing them to engage in learning through cooperation and group learning strategies.

Brittany's Summary – "Your voice matters"

Brittany began teaching 16 years ago after completing an education program at a local university. During those 16 years she taught 6th, 7th, and 8th grade mathematics. For the first time in her career, she is moving to a new school next year, still in the same district, and she is excited for a change.

Brittany shared the importance of student voice and actively working towards ensuring that all students' voices are heard in her classroom. She believes in the significance of even the smallest contributions from students. Brittany is a huge advocate for the Mathematical Language Routines (MLRs) in her teaching, which are a set of discourse moves designed to facilitate and foster mathematical conversations. She uses them daily because they provide valuable insights into student understanding and the routines encourage student engagement. This dedication to having students heard is an example of allowing students freedom to express themselves in the social context of math class. "I have really worked to push for everybody's voices heard. It doesn't matter how small what you're gonna say is, you need to say it (referring to her students.) You're developing [communication] skills. They don't know how to talk to each other. They don't know how to collaborate and that is an important job skill."

But Brittany also shared her experiences with implementing a mandated scripted curriculum. She acknowledged the initial challenges faced in the first year but attributed the subsequent improvement to her growing understanding of the curriculum's framework. "I think it's very uncomfortable for teachers, especially for those who have been there a while to get them into this [using a scripted curriculum]. And I was one of them. It was very hard for me to give up that control. But once I got a couple of years into it, and I had the standardized testing data to show this works and scores grew, then why would I not continue this?" This scripted curriculum is designed for students to master the basics so they can use those basic skills later on – in the same course and in subsequent courses. Brittany's commitment to the scripted curriculum spotlights that the condition of motivation can be fostered while using a mandated program or scripted curriculum.

Carolyn's Summary – "The art of debate"

Carolyn began teaching in California in 1980. She took a break from teaching while her children were young but returned when her kids reached school age. At that time, she was teaching middle school in Arizona. After moving locally, she initially worked as a long-term substitute while waiting for their teaching credentials to be processed. In 2010, Carolyn applied for and secured a position at her current school, where she has been teaching ever since.

As a social studies teacher, Carolyn expressed frustration with a lack of tolerance for differing viewpoints in society today and the challenges that emerge especially when teaching sensitive and controversial topics. Carolyn feels strongly about her role in teaching students about their civic responsibility, which includes the art of debate. "We have to listen to all sides. We have to. You don't have to agree with them, but you have to be respectful and listen to all sides. It's the only way we're going to learn tolerance. If we don't learn to have these discussions as we are growing up, then when you get involved in your civic duties as an adult you won't have the ability to have a mature debate with someone." This frustration speaks to how difficult it can be for teachers to foster the condition of judgment in their classrooms.

Carolyn also mentioned that she is increasingly allowing her students to decide what aspects of a topic they want to explore further in the hopes of bolstering their sense of autonomy and fostering the condition of Independence. However, due to time constraints in teaching a year-long curriculum within one semester, she expressed the challenge of finding a balance between covering required content and allowing for more student-directed learning. And, if students are left to choose topics of their own interest, Carolyn feels uneasy about what topics they may dive into. "There would have to be support for whatever or wherever their interests

take them in their learning. And I don't do well with that. I know that about me. I'm more comfortable when I know I'm in control of the design of whatever the assignment is."

The last of Carolyn's stories are tied to the influence of administration and her own sense of motivation. She highlighted the theme of school leadership and its impact on the teaching and learning environment. Specifically, she sheds light on the contrasting leadership styles of different principals and the influence they have on her sense of autonomy, staff morale, and student behavior management. "I think I have been through three principals [at my current school]. I had the most autonomy with the first one. I felt she felt I was competent and so she was hands off. This year, [principal #3] is the complete opposite. She started off very negative about the school to people like myself and Elena and [another colleague] who have been there forever and part of building this school. From the very first staff meeting, everything that had to change and that we just weren't doing things right." Carolyn goes on to talk about how important it is to her that she has effective and supportive leadership inorder for her to create a positive educational environment.

Diana's Summary – "Let's not let this happen to another kid"

Diana begins by describing her own difficult academic journey. She admits to being a less than stellar student, neglecting all schoolwork, focusing solely on sports as a coping mechanism for the challenges she faced at home. "When you get such positivity surrounding sports, but then negativity around academics, and you're supported in sports, but not in academics, what decision am I going to make? I'm going to choose where I'm supported." Diana prioritized athletics over academics until she found herself without an athletic scholarship for college because of her poor academic performance. Ultimately, Diana did attended a college that saw her potential and supported her in every way possible. Leaving her small-town community

and moving eight hours away to college provided her a fresh start. "And when I got there [to college], I realized everything I had done, and there was nobody I could have blamed except myself. So I said, 'You can do this. Let's go into education. Let's not let this happen to another kid.'"

Diana's personal journey into teaching is the foundation for her pedagogy. She highlighted her approach of incorporating social studies into her english language arts (ELA) classes and vice versa. "I can throw a piece from either into class and then relate it back and then keep going back and forth." Diana finds value in relating the two subjects to each other and creating interdisciplinary connections that enhance students' understanding and engagement. Transferring knowledge from one content to another is how Diana fosters the condition of Opportunity in her classroom.

Collaborative group work (the condition of Integration) is another significant aspect of her teaching. She emphasized the importance of active, interactive classrooms where students work together in groups, fostering collaboration and deeper learning experiences. However, this takes on a different shape in each class period allowing for the condition of Flexibility. Diana acknowledged that each class is unique and requires different teaching approaches. "They way I teach in this class is completely different than the way I do it in that class." She recognizes the importance of differentiated instruction, adapting her methods to meet the specific needs and abilities of the students. "Leaving students out there to have that productive struggle piece, sometimes it's there with certain lessons and sometimes it's not." Knowing that students need to learn to cope with frustration in ways that best suit them touches on both the condition of Flexibility and Frustration.

While reflecting on her teaching practice, Diana also expressed self-doubt about her competence and the continuous pursuit of improvement. Despite her commitment and love of teaching, she questions her teaching skills and sometimes wonders if she knows what she's doing. She linked these feelings to personal experiences, "I think we, the teachers who are committed and want to do the work because we love the work, often doubt our competence in the work. But I'm sure it has a lot do with the environment I grew up in. I never believed I was good enough at sports, but always wanting to please my coach and do better."

In terms of classroom structure, Diana grapples with the challenge of fostering the condition of independence to her students while also maintaining control and guiding them back on track when necessary. She acknowledged that giving students the freedom to explore and learn from their mistakes is valuable, but Diana also recognized the difficulties of regaining focus and redirecting the lesson. She believes in creating a safe environment where students feel comfortable taking risks and trying new things. By building trust and supporting students, Diana aims to foster an inclusive and supportive classroom atmosphere that provides a structure for independent work.

Diana's teaching practice revolves around integrating subjects, promoting collaborative group work, differentiating instruction, fostering a safe environment, and finding a balance between structure and independence. She constantly reflects on her competence and actively seeks opportunities for professional growth. Despite facing challenges and self-doubt, Diana's dedication to creating meaningful learning experiences for her students remains a driving force in their journey as an educator.

Elena's Summary – "It's not about me; It's about them"

Elena arrived here in 2001 having just graduated from a teacher education program in New York and has proudly finished her 22nd year of teaching. She spent the first five years at an urban emergent middle school. Coming from a rural setting with little diversity, she recalled how unprepared she was for the cultural challenges she encountered in her first teaching placement. However, she smiled broadly as she recalled the supportive colleagues that mentored her through those initial and difficult years. "Luckily, I was on a great team that was really helpful [during] the first few years. Teaching got better because I figured out who I was and what I wanted, with the support of great teammates, and it was very much a family atmosphere." This sense of relatedness has always been a crucial part of Elena's teaching.

After five successful, albeit challenging, years of teaching Elena had an opportunity to switch to a new school and immediately felt an even stronger sense of belonging when she walked through the door. "When I got there, I felt a different kind of home and I have been there ever since. This is the 17th year of being in one place, which us unheard of these days, and I am a veteran teacher now [giggling] which is hilarious [to me]."

Throughout Elena's tenure at her current school, she worked with multiple principals. Each time she felt she had to adapt to an ever-changing wide range of expectations. "I felt the different dynamics of each principal, and what they want, and figuring out how to play *that* game, all while still maintaining what I know works best in my classroom, because I feel passionate about this school."

Elena went on to reflect on her evolving understanding of creativity in education. Initially, she associated creativity with traditional artistic expressions, but over time, she realized that creativity encompasses more than just art. She also noted that when she was a beginning

teacher, she believed that only certain students could "be creative" in the traditional sense. "[My first school] was a community [where] not a lot of students had mastered the basics. Their achievement levels were all over the place as far as reading, writing, and basic knowledge. So it was hard to think that it was possible they could do creative things. Because they couldn't do basic things. And that took me a long time to kick out of my system." Motivation to learn the basics is a key condition to creativity, but so is Opportunity. This moment illustrates how deeply the conditions are connected; Motivation to learn the basics should encourage teachers to provide opportunity to use those skills in variety of creative ways. But for Elena, the conditions contradicted each other.

Then, Elena described her current creative process as taking existing assignments and finding ways to improve or add elements to them, while still meeting the objectives. "[In the beginning], my mind would have immediately gone to "ooh, it's a project and they get to choose what colors they use. Now, I [look at] the intensions [of the assignment] and I think, let me rework it so that this, this, and this are tied together. I like to look at other teachers' creative plans first, get a spark, and go okay, let me do something different with it."

Elena also acknowledged her own tendencies towards judgment and high expectations, recognizing that she can be overly critical. She has learned to ask more questions while teaching (fostering Question), seek different perspectives for students, and avoid imposing her opinions on students to quickly (fostering Judgment). "It has taken a lot of time and experience to figure out that I am not the 'Sage on the Stage.' Occasionally I find there will be times where I will tell my story, tell my experience. But I have to remember to leave room for them." Elena went on to highlight the importance of allowing students to bring their own perspectives and experiences into the learning process. "I really tried to remember that it's not about me and to leave room for

68

them to bring in their experiences. It's about them [her students] and how they see things differently."

Fiona's Summary – "You're teaching me, too"

Fiona worked for a large private corporation in engineering for about 20 years. Due to a merger, her department in research and development (R&D) was laid off. At the time, she had a two-year-old daughter and found it difficult to continue taking engineering jobs that required a lot of travel. It was Fiona's husband who suggested considering a career in teaching, which, in his mind had a more favorable work schedule. Since Fiona knew she liked kids and science, she decided to go through an alternative licensure program. She completed her education classes in one summer, which allowed her to enter teaching as a lateral entry candidate. Fast forward 17 years and Fiona still loves being a teacher.

Fiona's expressed a dissatisfaction with the evaluation-driven nature of her science classes and wished for more freedom to incorporate project-based and inquiry-based learning. She feels that the emphasis on tests and the pressure to adhere to a pacing guide hinder her ability to provide a more engaging learning experience. "But I would like to have more projects or inquiry-based things going on. I just don't feel like I have the time to do that." Fiona feels constrained by her district mandated pacing guides and pressured to cover content within a specific timeframe. "The pacing guide is a huge pressure. Thankfully, our administrators for us untested subjects, they're like, 'you're doing great, just keep doing what you're doing'."

Structured notetaking, guided questioning techniques, and fostering independent thinking are the hallmarks of Fiona's pedagogy. She believes that sixth-grade students often doubt their own knowledge. As such, her students often struggle to remain engaged in class. "So, I think my role is to help [students] to realize that, wait a minute, you can think through this or use your

notes to find the answer." Fiona aims to foster the condition of Independence through experiences that guide students to find answers independently with their study guides/notes. Fiona provides structured and detailed notes to ensure students are exposed to science content, while trying to avoid immediately giving answers to questions. She guides students to arrive at answers on their own by offering additional supporting questions. "I just try not to give them the answer immediately but let them come around to their [own] answers. [Students] always have to give an answer, and if they don't have an answer, I try to come up with another question to guide them to their own answer. I'm hoping my questions guide them to realize that if they think about it, they can come up with an answer." Here Fiona's goal of fostering Independence is linked to fostering the conditions of Motivation and Questions. She tries to maintain a balance between direct instruction (notetaking on the basic skills and concepts) and fostering Independence (through motivation and questioning), but admitted to feeling less comfortable with allowing students to work on collaborative tasks.

The stories Fiona shared offer insight into the tensions between time constrained pacing guides and the flexibility needed for inquiry-based projects. Balancing direct instruction with opportunities for independent thinking continues to be a pedagogical strength, as does her love of learning.

Gail's Summary – "I'm here for you"

Gail knew she wanted to be a teacher from a young age. She would play "school" with her teddy bears and later involved her sister in pretend teaching sessions. Throughout her own schooling, Gail paid close attention to her teachers and excelled as a student. Her first teaching job required that she move from her home in Pennsylvania to here where she taught fourth grade. In those first few years, she realized her math block was becoming longer than the other subjects,

making her realize how much she loved teaching math. Since her current school did not have any openings in the upper grades, she looked elsewhere and eventually secured a position as a middle school Mathematics teacher.

Gail is very passionate about teaching Mathematics and is a strong supporter of her district's mandated scripted curriculum. While she had reservations about using it at first, over the last five years she has discovered the value of their curriculum. "Is it perfect? Absolutely not. There are pieces missing from even our basic [mandated] standards. However, what it's trying to get the kids to do [building critical thinking skills], they need to do more and more." This scripted curriculum is built to solidify conceptual knowledge and aligns with fostering the condition of Motivation to teach the basics very well. In addition, Gail has read numerous practitioner books about thinking mathematically and has a set of 3-ring binders she calls her "unit bibles" where she keeps all her materials and notes for each unit of the scripted curriculum. By seeking out additional information, Gail is modeling the condition of Independence for her students.

Believing in the power of collaboration and communication, Gail actively encourages students to work in groups as a way to foster the condition of Integration. Her students sit at desks in clusters of 3 or 4 scattered through her room. "I do a lot of groups. Even now as we're moving into review [for state testing] they're in groups."

Teaching students to understand the social and emotional aspects of learning is also important to Gail. She strives to help her students develop coping skills, drawing from her own experience of lacking such skills at times. "[When it comes to fostering the condition of frustration], I handle a lot more [of the emotions] from the kids than some of my coworkers. But I am more emotional. I'm also someone who, if I get frustrated, I know the tears are coming. I

can feel them, and I can't always control them and that doesn't do well in professional situations, because they come out when I don't want them to. So, I try to help my kids cope with emotions better. Because I feel I didn't learn many coping skills when I was in school."

Gail also touched on her introverted nature and occasional feelings of doubt around the depth of friendships at work, however, she named colleagues in the current school who are "lifelines, like I would be lost without [named all three.] Those are my three ladies. They make this [working in the current school] okay."

Heather's Summary – "Just be a nice human being"

Heather is a veteran teacher who has taught for a total of 28 years, with 21 of those years in elementary school, specifically in upper elementary, grades 3 - 5. The last seven have been in the current school teaching sixth grade English Language Arts (ELA). She began her teaching career by substitute teaching in the school where they did their student teaching. That experience is where she learned to be creative with her discipline because they knew her as a student teacher and struggled to see her as anything more than a teacher in training. She found the job at her current school when her husband was offered a job locally.

Heather spoke at length about her own frustration at the lack of willingness to work independently among students. "I don't find my current kids want to do this. They don't want [independence.]" Heather focuses on teaching basic knowledge (fostering the condition of Motivation) through social and group contexts (fostering Integration.) She mentions using mnemonic devices and incorporating starter activities to support learning of basic facts. "[Reading an item from the survey] 'Learning the basic knowledge/skills well is emphasized in my class', I do emphasize this. With my 6th graders I have a poster on my cupboard doors with a

sentence that I used when I taught second grade: Ten rats tripped on fuzz. It's all the short vowel sounds. It's so stupid everyone remembers it."

However, she also expressed concern for unrealistic goals for reading growth within a school year and the apathy students exhibit when they take standardized grade-level assessments. "I can't expect them to go from the bottom step to the top step. I can't expect a third-grade reader to pass the sixth grade reading mandated assessment. We established they're a third grade reader when they walked in my room. But you're still gonna take a sixth grade reading test. So are they motivated? No, because they know they aren't gonna do well on that test." Here the struggle to foster Frustration is most evident for Heather.

Relatedness with students and colleagues is also important to Heather. With respect to her colleagues she said, "In this building, I feel very confident in my relationships with other adults. Do I like them all? No, don't have to. But *this* is my place." Within the school community, "I definitely do not feel excluded from the group [of colleagues in her building]. Sometimes though, I still feel like I'm a new middle school teacher because I taught in elementary for so long. But last year when I [mentored] two lateral entry teachers I got a whole new perspective. They looked at me like I was so far above them [making a guttural sound like she was revered by them], and I'm like, no, no, no, no, no! I am in the trenches with you. I am no better. Yes, I was trained as a teacher. Yes, I have lots of experience. But I am no better at this than you."

With students, Heather strives to foster the condition of Frustration any chance she gets. Recalling a story about an incident where something spilled during breakfast time in her classroom she said, "It's okay, you screwed up. No big deal. I'm not gonna scream and holler at you. Whereas I know other people [in this building] that would be like [she made a wide-eyed

astonished-how-dare-you-make-a-mistake face].” She believes that her role as an educator is dependent on personal relationships and her commitment to "just being a nice human being."

RQ4: Themes within the Contextual Factors

During the interview, most teachers were eager to talk with me about their survey scores and what they believed were the reasons for their scores. In their conversation, contextual factors emerged that provided additional insight into what the teachers were understanding about fostering a creative classroom ecology. The two most common factors mentioned included; mandated curriculum and standards and the community culture including my classroom, my teammates, my administration up through district personnel, and my students' parents.

Fiona linked Relatedness with the required curriculum and standards explaining that, "I think kids need to understand why their learning what they're learning and it needs to apply to their world, and our world [the adults] and their ability to function in it." Elena spoke of a similar connection when she explained how Relatedness and the required curriculum is part of her teaching style, "I use a lot of my personal embarrassing stories because I want them to see how it relates to me. Then I leave room for it to be about them."

For Heather, the conditions of Independence and Frustration are linked with the curriculum and standards she teaches. Specifically, the current students refuse to work independently whenever the scripted lessons specify independence. Similarly, the lessons that push Heather's students to try something new and risk failing (even in collaborative groups) lead to the same outcome: students refusing to work and just shutting down.

"I don't stop questioning and I don't just ask for answers." Even though Gail is not the biggest supporter of her mandated curriculum, she believes it is what fuels her ability to foster the condition for Questions. The techniques in the curriculum have inspired her to make

questioning more purposeful. Instead of Gail asking, "What questions do you have?" Gail has started saying, "Ask me two questions." By turning this around, Gail's students experience having their questions heard and taken seriously while trying to figure out what two questions to ask that are most relevant to their own learning.

Brittany realized that the culture of the classroom, specifically the relationships between students and teacher, was connected the condition of fostering Evaluation. Brittany discovered that her math students struggle with citing evidence in Reading class. So she reframed "How did you get that answer?" in her math class to, "What's your evidence from that graph that tells you your answer?" By finding evidence that supports their answer, Brittany and her students are working together on strengths and weaknesses from other classes and figuring out if they are right or wrong. Similarly, Amy spoke at length about using rubrics for all student work. "There are [tasks] that I will create rubrics for and then there are others that I will solicit input for, because that way, they know how they're going to be held accountable." By soliciting student input into the rubric, Amy has motivated students to check their own work against this rubric, while learning to appreciate the work they have completed.

According to Diana, competence is linked to the community as a whole because for her, her competence satisfaction is always being influenced by her community. "The lesson I'm teaching that day, how I'm feeling, what's going on in the building, all of those things. I feel that varies for everyone. Because if you put me out on a coaching field, this is going to be way different. But even then, I doubt myself anyways."

Carolyn's thoughts about the subscales and contextual factors all boiled down to stating the conditions that she believed she wasn't any good at: Evaluation, Flexibility, Frustration, and Judgment. She started with, "I feel like I'm in the classroom because that's my gift. I'm in the

right place. I'm doing what I am supposed to be doing." And then, proceeds to call out all of her lowest subscale scores, "So I feel good about that. But I'm not very flexible. Evaluation is one of my professional goals last year and I don't do it very well. Judgment is something that I need to improve on, and I wish I was better at [Frustration], but I'm not." Earlier in the interview Carolyn spoke of feeling less autonomous this year than in previous years linking that low satisfaction with the current administration.

<center>**Integrating Phase One and Phase Two**</center>

When the survey results are integrated with the interview summaries and key contextual factors, two very interesting results emerge: (1) the pattern of the teachers from the interview group with respect to their cluster group, and (2) the one subscale that was discussed by all eight teachers in the interview group.

Recalling that there were 6 clusters defined by the analyses (see Chapter 4, Table 14), the eight teachers in the interview group came entirely from two of the six clusters. Table 15 illustrates the pattern of teachers. Amy, Brittany and Fiona are all members of cluster 3, while Carolyn, Diana, Elena, Gail, and Heather are all members of cluster 6. Cluster 3 is characterized by subscales results that are within ~ 1 SD *above* the standardized mean. Cluster 6 is characterized by subscales results that are within ~1 SD *below* the standardized mean. With Amy, Brittany, and Fiona hovering just above, while Carolyn, Diana, Elena, Gail, and Heather hover just below, this group of eight represent the middle of the full teacher sample, effectively capturing the notion of being average everyday middle school teachers.

Table 15. K-means Cluster Analysis – The Eight

cluster	ev	fx	fr	id	it	ju	mv	op	qu	aut	rel	com
1	1.48	1.62	0.67	1.00	1.27	1.33	0.98	1.34	1.29	0.05	0.24	-0.46
2	0.28	0.52	0.49	-0.03	0.68	0.26	0.58	0.77	0.35	-0.35	-0.13	0.40

Amy, Brittany, and Fiona in Cluster 3

<center>76</center>

3	0.16	0.30	1.07	0.62	0.60	0.34	0.85	0.39	0.57	0.31	0.09	0.16
4	-0.14	0.06	-0.14	-0.12	-0.31	0.18	-0.06	-0.17	-0.13	-0.01	-0.13	0.24
5	-1.38	-1.08	-1.31	-0.67	-1.42	-1.63	-1.46	-1.39	-0.91	0.87	0.77	0.65

Carolyn, Diana, Elena, Gail, and Heather in Cluster 6

6	-0.03	-0.54	-0.59	-0.36	-0.39	-0.18	-0.57	-0.41	-0.51	-0.40	-0.32	-0.63

Note. N=25. The number of teachers in each cluster was removed for this table. Clusters 1, 2, 4, and 5 have been greyed out for emphasis.

When the scores from Cluster 3 are combined with the stories and descriptions from the interviews of Amy, Brittany and Fiona, a profile emerged called, "the struggle is worth it." The horizontal bars illustrate how far above the mean the cluster averaged on each of the subscales. Key contextual factors voiced by this cluster are sprinkled throughout the figure with icons to help visualize the profile. This profile has a more satisfied sense of intrinsic motivation as they speak to the student-centered strategies that routinely use in their daily work. These strategies are grounded in the nine conditions for fostering creative classroom ecologies. Figure 12 summarizes the first integrated profile.

Figure 12. Integrated Profile A

The teachers in this cluster described how

the struggle is worth it

Your questions and answers are worth listening to! And if I don't understand your answer, I withhold judgment, ask you to look up other ways to explain it and give you time to reformulate a response. *I learn from them every day!* Every day they are teaching me too.

By using the curriculum, I give every kid an opprotunity to have a say in class. It doesn't matter how less than skillful you think you are, *you have the opporunity to contribute to the conversation by speaking the math you see.*

I want you to be able to understand that science is everywhere. That scientists learn from their mistakes. That is what engineering is all about! *We work in class like engineers because it gives you the freedom to make mistakes* and learn from them in the safety of the classroom.

It is hard work to put the routines and procedures in place, but when I do, and the light bulb goes off for my students, I think, 'YES! This is why I know I'm in the right place, doing the job I was meant to do.

The collective contextual factors voiced by these teachers describe a **more satisfied sense of intrinsic motivation** because they speak directly to the **student-centered strategies** they routinely use in their daily work

Integrated Profile A represents teachers who believe that their daily work is a struggle that is worth their time, effort, and energy. "It *is* hard work to put the routines and procedures into place" but the outcome of that hard work validates their experience and motivates them to continue. They require their students to work in their classrooms as the scientists, mathematicians, historians, and writers do so they can learn from the mistakes and celebrate the success of their accomplishments.

When the scores from Cluster 6 are combined with the stories and descriptions from the interviews of Carolyn, Diana, Elena, Gail, and Heather, a second profile emerged called. "the struggle is real." The horizontal bars illustrate how far below the mean the cluster scored on each

subscale. Key contextual factors voiced by this cluster are placed on the figure in and around icons to help visualize the profile. This profile has a less satisfied sense of intrinsic motivation evidenced by the way they speak to a perceived lack of autonomy as well as limitation imposed upon their daily work. The nine conditions surface as important, but not quite obtainable, making the struggle to enact these conditions feel less than possible. Figure 13 summarizes the second integrated profile.

Integrated Profile B represents teachers who describe how the struggle to foster creativity is real and often more work than they feel capable of. "I can see how other teachers from other contents can do it, but not with my content" is a key theme to this cluster. This cluster also perceives many barriers or limitations that prohibit them from fostering a creative classroom. Testing and accountability measures are a huge obstacle. "I don't have the freedom to do more project-based or inquiry-based tasks" because of the myriad of standardized tests (local, state, and national) that are scheduled and mandatory for their content.

Figure 13. Integrated Profile B

The teachers in this cluster described how

the struggle is real

My classes are driven by state testing and local accountability benchmark tests. *I don't have the freedom to do more project-based, inquiry based tasks.* And that same test that drives my instruction, judges me and determines whether I am good enough.

If I let them go out and explore a topic of their own choosing, if I give them that inch, they take a mile, and *getting them back is hard.*

I know I need to do better with with these conditions. I can see how other teachers from other contents can do it, but *not with my content.*

com		
rel		
aut		
qu		
op		
mv		
ju		
it		
id		
fr		
fx		
ev		

-1.00   0.00   1.00

I know that I am not flexible, and that change is hard for me. I don't have the *flexibility* from my administration to develop an idea for the next lesson. That *doesn't happen here.* Pacing guides say today is Unit 3, week 1, day 4. Period.

The collective contextual factors voiced by these teachers describe **a less satisfied sense of intrinsic motivation** because they speak directly to a perceived lack of autonomy and **limitations** in their daily work.

The most striking contextual factor that emerged is autonomy. It is striking because the way that teachers speak of autonomy is divided by what cluster they fall in, with one exception. The cluster of teachers grouped within Integrated Profile A, never spoke directly of autonomy, but rather demonstrated their higher level of autonomy satisfaction in the stories they told during the interview. Innovative and collaborative approaches, learning from mistakes, adapting curricular mandates to meet their students needs, integrating subject areas, and forging connections between content and student lived experiences are at the heart of their more satisfied sense of motivation. Their sense of autonomy is why "the struggle is worth it" when it comes to fostering a creative classroom ecology.

The opposite occurred for the group of teachers within Integrated Profile B. This group spoke directly to their lack of autonomy in their current teaching environment illustrated by the stories they told. In their stories, these teachers explain that this year they feel less autonomous that previous years. Pressure from parents, increased control by administration, scripted and mandated curriculum, and an increase in apathetic student behaviors stand out as key reasons why this group of teachers feels less autonomous. For them "the struggle is real" continues to define a less satisfied sense of motivation for fostering a creative classroom ecology.

There is one exception to this pattern. Diana has scores from the survey that squarely place her in Integrated Profile B. However, Diana's stories never once express a lack of autonomy. She expressed her own autonomy through her passion to increase student autonomy. Her approaches to teaching and learning are in sync with the student-centered approaches of the group of teachers in Integrated Profile A.

CHAPTER V: DISCUSSION AND FUTURE RESEARCH

Discussion of Research Questions

This study examined the creativity fostering teacher behaviors and intrinsic motivation factors of eight middle school teachers. By interviewing teachers about their survey results, richly descriptive profiles were created to help further explain the results from everyday teachers.

RQ1: What pattern(s) of intrinsic motivation factors occur among teachers for fostering a creative classroom ecology?

In the overarching analysis of the 25 participants, it was not surprising to find that these teachers scored the highest on Relatedness, followed closely by Competence, with Autonomy coming in third. The middle school model is solidly built on the notion of being part of a team. Teaching Teams are most commonly comprised of two to four educators, paired/grouped by the content that they teach. Students belong to the team, and teachers feel a sense of ownership of the students on their team. In middle schools with a strong team philosophy, the first several weeks of school are dedicated time for creating a community where students are seen and heard.

Middle school teachers gravitate to the subject(s) they love the most and while they site reasons for why they are not good at certain aspects, they are generally knowledgeable about their content and knowledgeable about the developmental stages of this age group (10 – 14 year olds).

RQ2: What pattern(s) of creativity-supporting behaviors occur among teachers for fostering a creative classroom ecology?

The full teacher sample had the highest overall mean for the condition of Integration. This condition is about using social settings to integrate cooperation and collaboration into the classroom. Group work and collaborative learning tasks are hallmarks of many pedagogies used

in successful middle schools and the educator preparation programs that license middle grades teachers.

RQ3: What patterns(s) between creativity supporting behaviors and motivation factors emerge among teachers for fostering a creative classroom ecology?

The cluster analysis revealed 6 clusters of teachers based on their responses to the Everyday Teacher Creativity Survey. Each cluster had unique characteristics with respect to a total creativity score and a total motivation score. While previous research focused on the highly creative scoring people, this research was interested in teachers who were not in the top scoring groups. As the eight teachers were interviewed, it was astonishing to me to discover that these 8 fell in the two clusters that straddle the mean, effectively making them the teachers who are average, everyday teachers. Listening to their stories and giving voice to their survey results

Cluster 3 had entirely positive means for every subscale all within 1 SD above the mean. This cluster included Amy, Brittany, Fiona and two more teachers from the full teacher sample. Cluster 6 had entirely negative means for every subscale that were all within 1 SD below the mean. This cluster included Carolyn, Diana, Elena, Gail, Heather, and two more teachers from the full teacher sample.

RQ4: What contextual factors emerge within teacher narratives that help to explain the pattern(s) found related to fostering a creative classroom ecology?

The most intriguing contextual factor that emerged from the interviews is how autonomy was discussed by all teachers. For Diana, Amy, Brittany and Fiona, autonomy is represented in the example these teachers discussed. In other words, these four teachers do not mention the word autonomy in our conversation, but rather demonstrate their sense of autonomy in the stories they choose to tell. Fiona has to use the state-provided practice test questions with her students

83

on a weekly basis. Once they go over the question and have the correct answer, Fiona, with the help of her students, turns each question around into science statements for their journals. This turn of the task wouldn't be possible if Fiona was frustrated with her level of autonomy. For Brittany, her autonomy satisfaction as the key contextual factor comes through as she passionately speaks to how the Mathematical Language Routines can be immediately transferred to every other subject in middle school. Amy's sense of autonomy is evident in her endless stream of grants she's written and received while teaching at her school. While Diana speaks directly to the autonomy of her students and how her own autonomy fuels the autonomy of her students. Diana's scores on the survey clearly place her in Integrated Profile B ("the struggle is real") with the teachers who feel less autonomous. However, Diana's conversation and lived experiences are more in line with Integrated Profile A ("the struggle is worth it.")

The rest of the group Carolyn, Elena, Gail and Heather all explicitly state at some moment in the interview that they feel a lack of autonomy this school year. For this group, the lack of autonomy became the reason for the contextual factor to have a negative connotation. Carolyn and Elena teach in the same school and have parallel stories about how the administrators have depleted their sense of autonomy. Gail and Heather also teach in the same school and describe their lack of autonomy as directly related to the scripted curriculum they both teach.

Additional Insights

Two additional insights have led to more questions for this research to consider. The first is methodological, and the second is theoretical. These insights surfaced as additional questions worthy of new exploratory research because they pushed past the boundaries of this dissertation project.

A Methodological Question

While conducting the interviews, the second question asked, "Would you tell me why you agreed to be a participant?" I was curious as to why each teacher was willing to take the survey and give me ~45 minutes of their precious time. Overwhelmingly, the reason given has to do with it being me. The teachers I have known the shortest amount of time explained that I had been in their classroom to observe and support their student teacher or I had supported them as cooperating teachers through the student teaching semester, so it felt good to support me in this research. Others who have known me longer, knew that I had knowledge about creativity and innovation in middle school environments and the wanted to the opportunity to learn more. No matter the reason, it tied back to the notion that it was me who asked them to participate.

At first, I was simply flattered. It was the second question in the interview after listening to their stories about how they came to their current teaching position. But as more of them said answered this way and were followed up with open and honest conversation about their lived experience with creativity, it made me wonder about the role of relatedness satisfaction as a key component to the methods of this research. Could it be vital to participants to have that sense of relatedness at the qualitative stage of the mixed methods design? If so, how can I replicate this project with teachers who are strangers to me and still uncover meaningful results?

Another methodological insight surfaced because I believe that teachers are instinctively mixed methodologists. Teachers are constantly explaining, exploring, and converging vast amounts of qualitative and quantitative data from their classroom ecology. Teachers analyze (un)knowingly these data pieces as the reflect on their lessons, as they grade assignments, as they build classroom community and a sense of belonging. I found that during this dissertation project, I was also involved in similar moment-to-moment analyses with the teachers who

participated. Even though this instrumental case study – mixed methods design was structured to be flexible, I struggled to fit this project into that structure neatly. This tension leads me to the following question: What would a mixed methodology research design that honors the structure of core mixed method designs but simultaneously allows for the complexity of "teacher as mixed methodologist" to be woven throughout the design be possible?

A Theoretical Question

Research connecting creativity with motivation and education has a strong history. Since all three can be argued as essential aspects of our humanity, it is unsurprising that they are investigated together. What is surprising, however, is that the door to a new conceptualization of creativity has cracked open from this research project. This new conceptualization ties the nine conditions for fostering a creative classroom ecology to the three basic psychological needs for intrinsic motivation. Most specifically, the connection between the conditions for fostering creativity and the need for relatedness satisfaction appears to open a path for teachers to define creativity, learn about its complexity, and debunk the myth that creativity is situated only in traditional arts-based environments.

The eight teachers who did not self-identify as highly creative by traditional measures saw a new *educational* definition of creativity because of the relatedness they experienced during this project. The teachers' sense of relatedness to me as a colleague and educator allowed their stories and lived experiences to be validated as creative during the interview process. At the same time, the nine conditions are words they are already familiar with (e.g., evaluation, motivation, questions) but had never considered as a connected group under the umbrella of creativity. Their initial familiarity with the nine conditions increased their sense of relatedness satisfaction, allowing for a new definition of creativity to emerge.

The ties between relatedness satisfaction and conditions for fostering creativity need further explanation, exploration, and convergence. This leads to another question: Could a new theory of creativity that ties familiar (known) conditions for creativity to basic psychological needs push the landscape of creativity into the environment of the everyday teacher's classroom? Could this new theory expand teachers' understanding that creativity is so much more than being artistic?

Application

A wise professor once said in class, "What is the point of research in education if it isn't immediately applicable to teachers?" I couldn't agree more. The implications from this research project are only just beginning to take shape. Most importantly however, there do appear to be immediate uses, applications if you will, for this research at every stage of the teacher continuum.

Preservice Teacher Development

Learning to become a teacher isn't an easy task. But if we train teachers from the beginning on ways to choose the pedagogical path of fostering creative classroom ecologies, then we have a chance to provide preservice teachers sufficient practice in these behaviors/skills that will help them balance the landscape of scripted curricula, pacing guides, and standardized testing with the joys of creative teaching and learning.

Using the Everyday Teacher Creativity Survey with those who are learning to teach, also opens up the time and space to discover how the basic psychological needs can sustain or deplete their intrinsic motivation for teaching. Having the time to dig deep into these topics should strengthen the preservice teacher's ability to transition to a masterful teacher.

Inservice Teacher Development

These creativity conditions can be the jumping off points for professional learning opportunities, especially for teachers who are not new to the profession. The teachers in the interview group understood the importance of being a lifelong learner, demonstrated in part by their willingness to participate in this project. They are committed to new knowledge, new skills, and new ideas, especially when the development opportunity promotes the success of their students. If professional learning opportunities can be created that targets experienced teachers with creativity fostering conditions that align to so many tenets of middle school philosophy, we have an opportunity to tap into the wealth of knowledge they possess while giving them new knowledge to chew on.

The same training can and must hold true for lecturers and professors of all rank at the higher education level. If we are to infuse creativity fostering teacher behaviors into our educational system, it should be present in among the teachers in our Birth to K learning centers all the way through to our coursework in doctoral granting institutions.

Teacher Educators

We have the most possibilities for effecting change around creating teachers that foster creative classroom ecologies. Teacher Educators work with both preservice and in-service BK – 16 teachers and teacher candidates. We have the networking abilities to see what our colleagues are doing and work together, across departments and disciplines, to infuse these creativity behaviors in all the work we do.

<center>**Assumptions, Delimitations, and Limitations**</center>

The research project is shaped by assumptions, delimitations and limitations that should be identified. For example, in this study, I assumed that the teachers offered truthful responses to

<center>88</center>

the survey questionnaires and the individual interview questions. I also assumed that teachers who agree to participate in this study will self-identify as everyday teachers. Lastly, I assumed that all teachers will not withhold information or provide misleading responses. It was therefore essential for me to inquiry deeply into the teachers' perspectives to assure that their responses are consistent, and to work to create a trusting relationship with the teachers to encourage a safety that supports such transparency.

The research delimitations create a bounded case for this study. One delimitation is the decision to use only core content Middle School Teachers from the list of On-Site Teacher Educators (a.k.a., Cooperating Teachers) already in my possession from the last four academic years. This recruitment list was narrowed to only include the school districts most frequently used by the Middle Grades Program. Additionally, the delimitation of time for the surveys to be completed and individual interview time, generated cases specific to the characteristics of creativity in each teacher's classroom and is therefore not exhaustive. Lastly, centering the teacher at the core of her creative classroom ecology created a framework that is specific and narrow in focus.

There are limitations in this study that must also be addressed. As stated earlier, this study uses an instrumental case study – mixed methods research design which includes a sequential process for collecting and analyzing quantitative and qualitative data. The sample size for this study (quantitative N=25; qualitative N=8) prohibits any form of generalizability, given well-established quantitative standards for statistical analyses. However, since this study employs a mixed methods design embedded in a case study framework, sample sizes are often unique and determined by the purpose, objectives, research questions, and overall study design (Merriam & Tisdell, 2016). Therefore, since this study is not intending to generalize findings but

rather to deeply examine and compare individual cases within a larger defined case, the small sample size of teachers is acceptable (Creswell, 2013; Yin, 2012)

Another limitation of this study is that the data is collected by only one emerging researcher. Since I am the only researcher who collected and analyzed the data at each phase of the study, it is possible that data was unintentionally excluded or biases left unchecked. To address this concern, I examined my positionality carefully to raise my awareness of and therefore protect against my own biases driving the interpretations.

Lastly, the CS-MMR design was selected to strengthen the existing limitations of quantitative and qualitative methods when they are used in isolation. The integration and interpretation of the collected and analyzed data for the creation of a collective case and individual cases attempt to address limitations further.

Future Research

As this line of research moves forward, it is important to continue to hear from the average everyday teacher, specifically, the voices, experiences, and perceptions of the teachers who do not score in the top percentiles for creativity or motivation. Hearing from teachers similar to the eight who fell within one standard deviation of the mean, both above and below, should continue to provide insights into daily creativity and fostering creative classrooms. With these teachers as the focal point, there are many directions in which research with this focus can be further developed: Scaling the project out, scaling the project up, drilling down into the survey data and considerations for longitudinal and ethnographic work.

Scaling the Project Out

What would this data look like if the research had been done with several middle school teams? Could the ETC be used by a team of middle school teachers, a single elementary school

grade level, or a high school department, to think three dimensionally about where their score as individuals fit together as a group. This could lead to tremendous discussion and insight that shares the responsibility of building creativity fostering classroom ecologies. It could also lead to insight into collective efficacy and agentic creativity.

Scaling the Project Up

What if an entire school considered the same and wanted to build connections between their classes/courses that fostered these nine behaviors while working on building higher levels of basic rel/comp/aut needs satisfaction? Then, using the 9 question CFTIndex, students could anonymously answer the survey questions with respect to the most recent unit in their classes. Administration could also use the 9 question CFTIndex as part of their walk-through or observation tools, post-observation conferences can include this data as talking points – behaviors that teachers can use to strengthen their work and allow for creativity to grow in their classes.

Drilling Down into the Conditions for Fostering Creativity

Even though each of the nine conditions are not complicated or overtly creative, they do require time for the teacher to reflect on what these nine conditions mean in the context of their classroom. Planned Frustration in a 4th grade DL math classroom would look – feel – sound different than Frustration in a HS AP Statistics class or Freshman English. A set of practice briefs should be developed that teachers can pick up, read, think about how they can incorporate this into their next lesson, and then try it.

Longitudinal or Ethnographic Projects

I believe these conditions should be incorporated into the skills and standards we teach to during an educator preparation program. These nine are simply good practice. If we could train

teachers while they are still under our care and then provide professional learning opportunities throughout their career, we have a chance of infusing creativity fostering behaviors directly into the mandated standards – no matter what they are. If we could follow a group of initially licensed teachers for the first 5 years, I believe we could see some interesting data that positions the teachers as expert for the beginning and could track the contextual factors along the way.

Conclusion

This project has presented thoughtful evidence to suggest that everyday middle school teachers are fostering creative classroom ecologies in non-arts-based classrooms. The teachers in this study provided examples of contextual factors and heart-warming personal stories that offer explanations for why and how creativity is being fostered in traditional middle school classrooms. Two integrated profiles were created that illustrated the key factors from the findings. While answers to the research questions are presented, many more questions have emerged as a result. In closing, it is hoped that this research provides teachers of all levels (preservice candidates to masterful veterans) a starting place for fostering their creative classroom ecologies, alone or on a team, at middle school or any level.

REFERENCES

Abdulla, A. M., & Cramond, B. (2017). After six decades of systematic study of creativity: What do teachers need to know about what it is and how it is measured? *Roeper Review*, *39*(1), 9–23. https://doi.org/10.1080/02783193.2016.1247398

Amabile, T. (1982). Social psychology of creativity: A consensual assessment technique. *Journal of Personality and Social Psychology*, *43*(5), 997–1013. https://doi.org/10.1037/0022-3514.43.5.997

Amabile, T. (1983). The social psychology of creativity: A componential conceptualization. *Journal of Personality and Social Psychology*, *45*(2), 357–376. https://doi.org/10.1037/0022-3514.45.2.357

Amabile, T. (1996). *Creativity in context*. Westview Press. http://catdir.loc.gov/catdir/enhancements/fy0830/96011298-b.html

Baer, J. (2013). Teaching for Creativity: Domains and Divergent Thinking, Intrinsic Motivation, and Evaluation. In M. B. Gregerson, J. C. Kaufman, & H. T. Snyder (Eds.), *Teaching Creatively and Teaching Creativity* (pp. 175–181). Springer New York. https://doi.org/10.1007/978-1-4614-5185-3_13

Barron, F. (1955). The disposition toward originality. *The Journal of Abnormal and Social Psychology*, *51*(3), 478–485. https://doi.org/10.1037/h0048073

Bereczki, E. O., & Kárpáti, A. (2018). Teachers' beliefs about creativity and its nurture: A systematic review of the recent research literature. *Educational Research Review*, *23*, 25–56. https://doi.org/10.1016/j.edurev.2017.10.003

Carson, S. H., Peterson, J. B., & Higgins, D. M. (2005). Reliability, validity, and factor structure of the creative achievement questionnaire. *Creativity Research Journal*, *17*(1), 37–50. https://doi.org/10.1207/s15326934crj1701_4

Cayirdag, N. (2017). Creativity fostering teaching: Impact of creative self-efficacy and teacher efficacy. *Educational Sciences: Theory & Practice*, *17*(6), 1959–1975. https://doi.org/10.12738/estp.2017.6.0437

Clapp, E. P. (2017). *Participatory creativity: Introducing access and equity to the creative classroom*. Routeledge.

Cook, L., & Kamaloden, V. (2020). Combining mixed methods and case study research (mm+csr) to give mixed methods case student designs. *Caribbean Journal of MIxed Methods Research*, *1*(1), 47–76.

Cropley, A. J. (2004). *Creativity in education & learning: A guide for teachers and educators*. Routeledge.

Csikszentmihalyi, M. (1988). Society, culture, and person: A systems view of creativity. In Sternberg, Robert J. (Ed.), *The Nature of Creativity* (pp. 325–339). Cambridge University Press.

Dai, D. Y. (2015). A jeffersonian vision of nurturing talent and creativity: Toward a more equitable and productive gifted education. *Asia Pacific Education Review; Dordrecht*, *16*(2), 269–279. http://dx.doi.org.libproxy.uncg.edu/10.1007/s12564-015-9364-y

de Jesus, S. N., snjesus@ualg. pt, Rus, C. L., Lens, W., & Imaginário, S. (2013). Intrinsic Motivation and Creativity Related to Product: A Meta-analysis of the Studies Published Between 1990–2010. *Creativity Research Journal*, *25*(1), 80–84. https://doi.org/10.1080/10400419.2013.752235

Diakidoy, I.-A. N., & Kanari, E. (1999). Student teachers' beliefs about creativity. *British Educational Research Journal*, *25*(2), 225.

Flint, L. J. (2014). How creativity came to reside in the land of the gifted (and how to move it into a new neighborhood). *Knowledge Quest*, *42*(5), 64–69.

Glăveanu, V. P. (2013). Rewriting the language of creativity: The five A's framework. *Review of General Psychology*, *17*(1), 69–81.

Glăveanu, V. P. (2015). On units of analysis and creativity theory: Towards a "molecular" perspective. *Journal for the Theory of Social Behavior*, *45*(3), 311–330. https://doi.org/10.1111/jtsb.12069

Glăveanu, V. P. (2018). Educating which creativity? *Thinking Skills and Creativity*, *27*, 25–32. https://doi.org/10.1016/j.tsc.2017.11.006

Glăveanu, V. P., & Kaufman, J. C. (2019). Creativity: A historical perspective. In J. C. Kaufman & R. J. Sternberg (Eds.), *The Cambridge Handbook of Creativity* (2nd ed., pp. 9–26). Cambridge University Press. https://doi.org/10.1017/9781316979839.003

Gruber, H. E. (1988). The evolving systems approach to creative work. *Creativity Research Journal*, *1*(1), 27–51. https://doi.org/10.1080/10400418809534285

Guetterman, T. C., & Fetters, M. D. (2018). Two methodological approaches to the integration of mixed methods and case study designs: A systematic review. *American Behavioral Scientist*, *62*(7), 900–918. https://doi.org/10.1177/0002764218772641

Guilford, J. P. (1984). Varieties of divergent production. *The Journal of Creative Behavior*, *18*(1), 1–10. https://doi.org/10.1002/j.2162-6057.1984.tb00984.x

Hennessey, B. A., & Amabile, T. M. (2010). Creativity. *Annual Review of Psychology*, *61*(1), 569–598. https://doi.org/10.1146/annurev.psych.093008.100416

Henriksen, D. (2016). The seven transdisciplinary habits of mind of creative teachers: An

    exploratory study of award winning teachers. *Thinking Skills and Creativity*, *22*, 212–

    232. https://doi.org/10.1016/j.tsc.2016.10.007

Hewitt, K. K., Carlone, H., Faircloth, B. S., Gonzalez, L. M., Ye He, & Vetter, A. (2020). What

    We Choose to Remember: Imagined Shared Narratives of Education During COVID-19.

    Journal of Interdisciplinary Studies in Education, *9*(2), 365–369.

    https://doi.org/10.32674/jise.v9i2.2400

Jeffrey, B., & Craft, A. (2004). Teaching creatively and teaching for creativity: Distinctions and

    relationships. *Educational Studies*, *30*(1), 77–87.

    https://doi.org/10.1080/0305569032000159750

Kampylis, P., Berki, E., & Saariluoma, P. (2009). In-service and prospective teachers’

    conceptions of creativity. *Thinking Skills and Creativity*, *4*(1), 15–29.

Karp, A. (2010). Teachers of the mathematically gifted tell about themselves and their

    profession. *Roeper Review*, *32*(4), 272–280.

Kaufman, J. C., & Beghetto, R. A. (2009). Beyond big and little: The four c model of creativity.

    Review of General Psychology, *13*(1), 1–12. https://doi.org/10.1037/a0013688

King, L. A., Walker, L. M., & Broyles, S. J. (1996). Creativity and the five-factor model.

    Journal of Research in Personality, *30*(2), 189–203.

    https://doi.org/10.1006/jrpe.1996.0013

Klijn, M., & Tomic, W. (2010). A review of creativity within organizations from a psychological

    perspective. *The Journal of Management Development*, *29*(4), 322–343.

    http://dx.doi.org.libproxy.uncg.edu/10.1108/02621711011039141

Korthagen, F., & Vasalos, A. (2005). Levels in reflection: Core reflection as a means to enhance professional growth. *Teachers and Teaching*, *11*(1), 47–71. https://doi.org/10.1080/1354060042000337093

Langer, E., Hatem, M., Joss, J., & Howell, M. (1989). Conditional teaching and mindful learning. *Creativity Research Journal*, *2*(3), 139–150. https://doi.org/10.1080/10400418909534311

Luria, S. R., O'Brien, R. L., & Kaufman, J. C. (2016). Creativity in gifted identification: Increasing accuracy and diversity. *Annals of the New York Academy of Sciences*, *1377*(1), 44–52. https://doi.org/10.1111/nyas.13136

Mednick, S. A., & Mednick, M. T. (1962). A theory and test of creative thought. In G. Nielson (Ed.), *Proceedings of the XIV International Congress of Applied Psychology, Industrial and business psychology* (Vol. 5, pp. 40–47). https://web-p-ebscohost-com.libproxy.uncg.edu/ehost/detail/detail?vid=7&sid=f0eac6f7-30b8-4410-9bcf-b9407d8f916e%40redis&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#AN=1963-04120-002&db=psyh

Milner, H. R. (2012). But What is Urban Education? *Urban Education*, *47*(3), 556–561. https://doi.org/10.1177/0042085912447516

Niu, W., & Sternberg, R. J. (2006). The philosophical roots of Western and Eastern conceptions of creativity. *Journal of Theoretical and Philosophical Psychology*, *26*, 18–38. https://doi.org/10.1037/h0091265

Reeve, J., Ryan, R. M., & Deci, E. L. (2018). Sociocultural influences on student motivation as viewed through the lens of self-determination theory. In G. A. D. Liem & D. M. McInerney (Eds.), *Big Theories Revisited 2* (Vol. 12, pp. 15–40). Information Age

Publishing.

http://web.b.ebscohost.com/ehost/ebookviewer/ebook/bmxlYmtfXzE4MTI2MzZfX0FO0

?sid=6468ba20-f839-47f2-b0d6-

25d6b0cf226a@sessionmgr102&vid=0&format=EB&lpid=lp_15&rid=0

Renzulli, J. (2005). The three-ring conception of giftedness; a developmental model for creative

productivity. In R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of Giftedness* (pp.

246–279). Cambridge University Press.

http://ebookcentral.proquest.com/lib/uncg/detail.action?docID=258496

Rhodes, M. (1961). An analysis of creativity. *The Phi Delta Kappan*, *42*(7), 305–310. JSTOR.

Roth, G., Assor, A., Kanat-Maymon, Y., & Kaplan, H. (2007). Autonomous motivation for

teaching: How self-determined teaching may lead to self-determined learning. *Journal of

Educational Psychology*, *99*(4), 761–774. https://doi.org/10.1037/0022-0663.99.4.761

Runco, M. A. (2009). Parsimonious creativity and it's measurement. *Can Creativity Be

Measured?*, 417–429. https://doi.org/10.2760/11878

Runco, M. A., & Jaeger, G. J. (2012). The standard definition of creativity. *Creativity Research

Journal*, *24*(1), 92–96. https://doi.org/10.1080/10400419.2012.650092

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic

motivation, social development, and well-being. *American Psychologist*, *55*(1), 68–78.

https://doi.org/10.1037/0003-066X.55.1.68

Sarouphim, K. M. (2004). Discover in middle school: Identifying gifted minority students.

Journal of Secondary Gifted Education, *15*(2), 61–69.

Saunders Wickes, K. N., & Ward, T. B. (2006). Measuring gifted adolescents' implicit theories

>of creativity. *Roeper Review*, *28*(3), 131–139.

>https://doi.org/10.1080/02783190609554352

Sawyer, K. (2015). A call to action: The challenges of creative teaching and learning. *Teachers*

>*College Record*, *117*(10), 1–34.

Sawyer, R. K. (2012). *Explaining creativity: The science of human innovation* (2nd ed.). Oxford

>University Press. http://site.ebrary.com/id/10531071

Schaefer, C. E. (1968). The Barron-Welsh Art Scale as a predictor of adolescent creativity.

>*Perceptual and Motor Skills*, *27*(3, Pt. 2), 1099–1102. https://doi-

>org.libproxy.uncg.edu/10.2466/pms.1968.27.3f.1099

Schunk, D. H., Meece, J. L., & Pintrich, P. R. (2014). *Motivation in education: Theory, research,*

>*and applications* (4th ed.). Pearson.

Shweder, R. A., & Sullivan, M. A. (1993). Cultural psychology: Who needs it? *Annual Review of*

>*Psychology*, *44*, 497. https://doi.org/10.1146/annurev.ps.44.020193.002433

Simonton, D. K. (1999). *Origins of genius: Darwinian perspectives on creativity*. Oxford

>University Press.

Soh, K. (2000). Indexing creativity fostering teacher behavior: A preliminary validation study.

>*The Journal of Creative Behavior*, *34*(2), 118–134. https://doi.org/10.1002/j.2162-

>6057.2000.tb01205.x

Soh, K. (2015). Creativity fostering teacher behavior around the world: Annotations of studies

>using the CFTIndex. *Cogent Education*, *2*(1), 1034494.

>https://doi.org/10.1080/2331186X.2015.1034494

Soh, K. (2017). Fostering student creativity through teacher behaviors. *Thinking Skills and Creativity*, *23*, 58–66. https://doi.org/10.1016/j.tsc.2016.11.002

Stein, M. I. (1953). Creativity and culture. *The Journal of Psychology*, *36*(2), 311–322. https://doi.org/10.1080/00223980.1953.9712897

Sternberg, R. J. (1988). *The nature of creativity: Contemporary psychological perspectives*. Cambridge University Press. http://catdir.loc.gov/catdir/enhancements/fy1009/87020928-t.html

Stetsenko, A. (2018). Agentive creativity in all of us: An egalitarian perspective from a transformative activist stance. In M. C. Connery, V. P. John-Steiner, & A. Marjanovic-Shane (Eds.), *Vygotsky and creativity* (pp. 41–57). Peter Lang.

Thys, E., Sabbe, B., & De Hert, M. (2014). The assessment of creativity in creativity/psychopathology research – a systematic review. *Cognitive Neuropsychiatry*, *19*(4), 359–377. https://doi.org/10.1080/13546805.2013.877384

Torrance, E. P. (1966). *The torrance tests of creative thinking: Technical-norms manual* (research). Personnel Press.

Trousas, C. A. (2009). *Teacher artistry and the not-so-still life of arts-centered school reform* [Dissertation, University of Denver]. https://www.proquest.com/docview/304878820/abstract/C7309706231E482CPQ/1

View, J. L., Hanley, M. S., Stribling, S., & DeMulder, E. (2012). The journey from trepidation to theory: P-12 teacher researchers and creativity. *LEARNing Landscapes*, *6*(1), Article 1. https://doi.org/10.36510/learnland.v6i1.595

Yager, R. E. (1989). Development of student creative skills: A quest for successful science

education. *Creativity Research Journal*, *2*(3), 196–203.

https://doi.org/10.1080/10400418909534315

Zimmerman, E. (2009). Reconceptualizing the role of creativity in art education theory and

practice. *Studies in Art Education*, *50*(4), 382–399.

https://doi.org/10.1080/00393541.2009.11518783

Table A16. BPNSFS Survey Items

Q#	Category	Question *Not true at all 1 – 2 – 3 – 4 – 5 Completely true*
1	AutSat	I feel a sense of choice and freedom in the things I undertake.
7	AutSat	I feel that my decisions reflect what I really want.
13	AutSat	I feel my choices express who I really am.
19	AutSat	I feel I have been doing what really interests me.
2	AutFru	Most of the things I do feel like "I have to".
8	AutFru	I feel forced to do many things I wouldn't choose to do.
14	AutFru	I feel pressured to do too many things.
20	AutFru	My daily activities feel like a change of obligations.
3	RelSat	I feel that the people I care about also care about me.
9	RelSat	I feel connected with people who care for me, and for whom I care.
15	RelSat	I feel close and connected with other people who are important to me.
21	RelSat	I experience a warm feeling with the people I spend time with.
4	RelFru	I feel excluded from the group I want to belong to.
10	RelFru	I feel that people who are important to me are cold and distant towards me.
16	RelFru	I have the impression that people I spend time with dislike me.
22	RelFru	I feel the relationships I have are just superficial.
5	CompSat	I feel confident that I can do things well.
11	CompSat	I feel capable at what I do.
17	CompSat	I feel competent to achieve my goals.
23	CompSat	I feel I can successfully complete difficult tasks.
6	CompFru	I have serious doubts about whether I can do things well.
12	CompFru	I feel disappointed with many of my performances.
18	CompFru	I feel insecure about my abilities.
24	CompFru	I feel like a failure because of the mistakes I make.

Note. Adapted from "Manual of the Basic Psychological Needs Satisfaction and Frustration

Scale (BPNSFS)," by J. Van der Kaap-Deeder, B. Soenens, R. M. Ryan, M. Vansteenkiste, 2020,

Ghent University, Belgium.

APPENDIX B: CFTINDEX SURVEY ITEMS

Table B17. CFTIndex Survey Items

Q#	Condition Category	Condition Statement *Never 1 – 2 – 3 – 4 – 5 – 6 Always*
1	Independence	I encourage students to show me what they have learned on their own.
10	Independence	I teach my students the basics and leave them to find our more for themselves.
19	Independence	I leave questions for my students to find out for themselves.
28	Independence	I teach students the basics and leave room for individual learning.
37	Independence	I leave open-ended questions for my students to find the answers for themselves.
2	Integration	In my class, students have opportunities to share ideas and views.
11	Integration	Students in my class have opportunities to do group work regularly.
20	Integration	Students in my class are encouraged to contribute to the lesson with their ideas and suggestions.
29	Integration	I encourage students to ask questions and make suggestions in my class.
38	Integration	Students in my class are expected to work in groups collaboratively.
3	Motivation	Learning the basic knowledge/skills well is emphasized in my class.
12	Motivation	I emphasize the importance of mastering the essential knowledge and skills.
21	Motivation	My students know that I expect them to learn the basic knowledge and skills well.
30	Motivation	Moving from one topic to the next quickly is not my main concern in class.
39	Motivation	Covering the syllabus [mandated standards] is not more important to me than making sure the students learn the basics well.
4	Judgment	When my students have some ideas, I get them to explore further the material before I take a stand.
13	Judgment	When my students suggest something, I follow it up with questions to make them think further.
22	Judgment	I do not give my view immediately on students' ideas, whether I agree or disagree with them.
31	Judgment	I comment on students' ideas only after they have been more thoroughly explored.
40	Judgment	I encourage students to do things differently although doing this takes up more time.
5	Flexibility	In my class, I probe students' ideas to encourage thinking.
14	Flexibility	I encourage my students to ask questions freely even if they appear irrelevant.
23	Flexibility	I encourage my students to think in different directions even if some of the ideas may not work.
32	Flexibility	I like my students to make time to think in different ways.
41	Flexibility	I allow my students to deviate from what they are told to do.
6	Evaluation	I expect my students to check their own work instead of waiting for me to correct them.
15	Evaluation	I provide opportunities for my students to share their strong and weak points with the class.
24	Evaluation	My students know that I expect them to check their own work before I do.
33	Evaluation	In my class, students have opportunities to judge for themselves whether they are right or wrong.
42	Evaluation	I allow my students to show one another their own work before submission.

7	Question	I follow up on my students' suggestions so that they know I take them seriously.
16	Question	When my students have questions to ask, I listen to them carefully.
25	Question	My students know I do not dismiss their suggestions lightly.
34	Question	I listen to my students' suggestions even if they are not practical or useful.
43	Question	I listen patiently when my students ask questions that may sound silly.
8	Opportunities	I encourage my students to try out what they have learned from me in different situations.
17	Opportunities	When my students put what they have learned into different uses, I appreciate them.
26	Opportunities	My students are encouraged to do different things with what they have learned in class.
35	Opportunities	I don't mind my students trying out their own ideas and deviating from what I have shown them.
44	Opportunities	Students are allowed to go beyond what I teach them within my subject.
9	Frustration	My students who are frustrated can come to me for emotional support.
18	Frustration	I help students who experience failure to cope with it so that they regain their confidence.
27	Frustration	I help my students to draw lessons from their failure
36	Frustration	I encourage students who have frustration to take it as part of the learning process.
45	Frustration	I encourage students who experience failure to find other possible solutions.

Note. Adapted from "Creativity Fostering Teacher Behavior Around the World: Annotations of studies using the CFTIndex" by K. Soh, 2015, Cogent Education, 2: 1034494 (http://dx.doi.org/10.1080/2331186X.2015.1034494). Copyright 2015 by a Creative Commons Attribution (CC-BY) 4.0 license.

APPENDIX C: INTERVIEW PROTOCOL

Opening Script: Thank you for agreeing to participate in this interview. The purpose of my study is to uncover the supportive behaviors and motivational factors middle school teachers experience every day in their classrooms to foster a creative classroom ecology. You were selected for the interview process because of your knowledge and perspective of teaching and learning in a middle school. With your permission, I'd like to record our conversation, but your participation and responses will be completely confidential. The recording will help me be able to focus on you during the interview and allow me to review your responses after our meeting. Do I have your permission to record our interview? This interview will last approximately 60 minutes. Some questions will be about your background in education and other will be about your experiences in your classroom. When recalling experiences in your classroom, please do not use students' real names. Please use a pseudonym or simply refer to them as "my student". This is to protect the student's anonymity in the data collection process. You may choose not to answer any questions or to stop at any time if you feel uncomfortable. Thank you again for taking the time to participate in this interview. Do you have any questions for me before we begin?	
	Interview Questions
Demographic Questions	Tell me a little bit about your previous and current work in education? Would you tell me why you agreed to be a participant?
Interview Task	**Elicitation Task using Data Visualization:** I am very excited to show you the results of the survey you took. Your data has been turned into a radar diagram where each line represents your sum score on each the 9 different conditions conducive for fostering creativity. In alphabetical order, the conditions are evaluation, flexibility, frustration, independence, integration, judgement, motivation, opportunities, and questions. Again, let me give you a minute to look at this diagram. (Pause briefly) - What do you notice or wonder about the sum scores for the 9 conditions? Any surprises or confirmations? - You scored high/low on _____ condition. What made you answer the question that way? What are you doing in your classes that made you answer that way? Now, we are going to look at your sum score on the motivation survey you took. Here is your score on three basic and universal psychological needs: autonomy (how free you feel to make choices), competence (how skilled in your content or pedagogy you feel) and relatedness (how much you feel that you belong) within the context of your work at your school. Together these basic psychological needs interconnect and influence your sense of motivation. Take a minute to look at your scores. (Pause briefly) <ol start="3"> - What do you notice or wonder about your sense of motivation? Any surprises or confirmations?

Sociocultural Layers	Now comes the fun… We want to consider how/where these behaviors fit with sociocultural elements that make up the complex nature of classrooms. At the heart of this diagram are your core qualities. Radiating out from there are the following levels: your mission, identity, beliefs, competencies, behaviors, and environment.
	
	All of the survey results I've shown you are manipulable (on cards) so that we can talk together about where you think your results overlap, support, explain, explore, etc., fostering a creative classroom ecology for you. What I'd like you to do is place the cards anywhere that makes sense to you as we connect your teaching experiences with the scores from the survey. I also have markers and pens for you to draw or add to the map in any way you see fit.
	
	(Now let the participant talk out loud about what is in front of them.)
	
	Additional probing questions (if appropriate) while the participant talks aloud:
	    4. *What factors do you encounter in your in classroom that made you place _____ (a card) right there?*
	    5. *What behaviors do you do the most? The least? What factors support those behaviors? Hinder them?*
	    6. *What skills related to your content are you competent in? Is that why you placed _____ with _____?*

Creative Classroom	Look at this amazing visual you've created! Using what you've just learned about yourself from this map,
	    7. What do you believe about fostering a creative classroom ecology?
	    8. How do you describe yourself in your creative classroom ecology?
	    9. What inspires you to foster a creative classroom ecology?
	    10. What is your ideal vision of a creative classroom ecology?

Wrap-up and Closing Script
    11. Are there any questions I should have asked but didn't? Is there anything else you would like to say? Anything else I need to know?
    12. Do you have any questions for me?
I will make a pdf of this diagram and send it to you. In that email I have two follow-up questions relating to our conversation today. Feel free to answer the questions whenever it is convenient for you.

Thank you again for participating in the interview. If you need to contact me for any reason or if you decide that you do not want your information to be used in the study, here are my email address (jklingle@uncg.edu) and phone number (336.254.7791). Please feel free to contact me at any time.

Table D18. Teacher Characteristics Matrix - Full Teacher Sample

	Grade Level(s)				Content Area(s)					Recognition(s)				
	K5	6	7	8	ELA	SS	MA	SC	Other	TOY	NBPTC	Master's	PhD	ES
T1				X			X							
T2				X				X						X
T3		X			X	X						X		
T4			X	X		X				X				
T5				X	X							X		
T6		X			X					X				
T7				X		X								
T8	X								X	X		X		
T9			X		X						X			
T10				X	X	X				X		X		X
T11			X		X	X								
T12			X	X	X				X	X	X	X	X	
T13	X				X									
T14			X				X			X				
T15		X					X	X				X		
T16			X		X	X				X				
T17		X						X		X		X		
T18			X				X							
T19		X						X		X				
T20		X			X	X								
T21			X			X				X				
T22			X		X							X		
T23			X	X				X						
T24		X					X							
T25				X				X						
total	2	7	8[a]	11[a]	11[b]	9[b]	5[c]	5[c]	2	10	2	8	1	2

Note. N = 25 (Female = 22, Male = 3). Teacher 8 indicated teaching an Academically

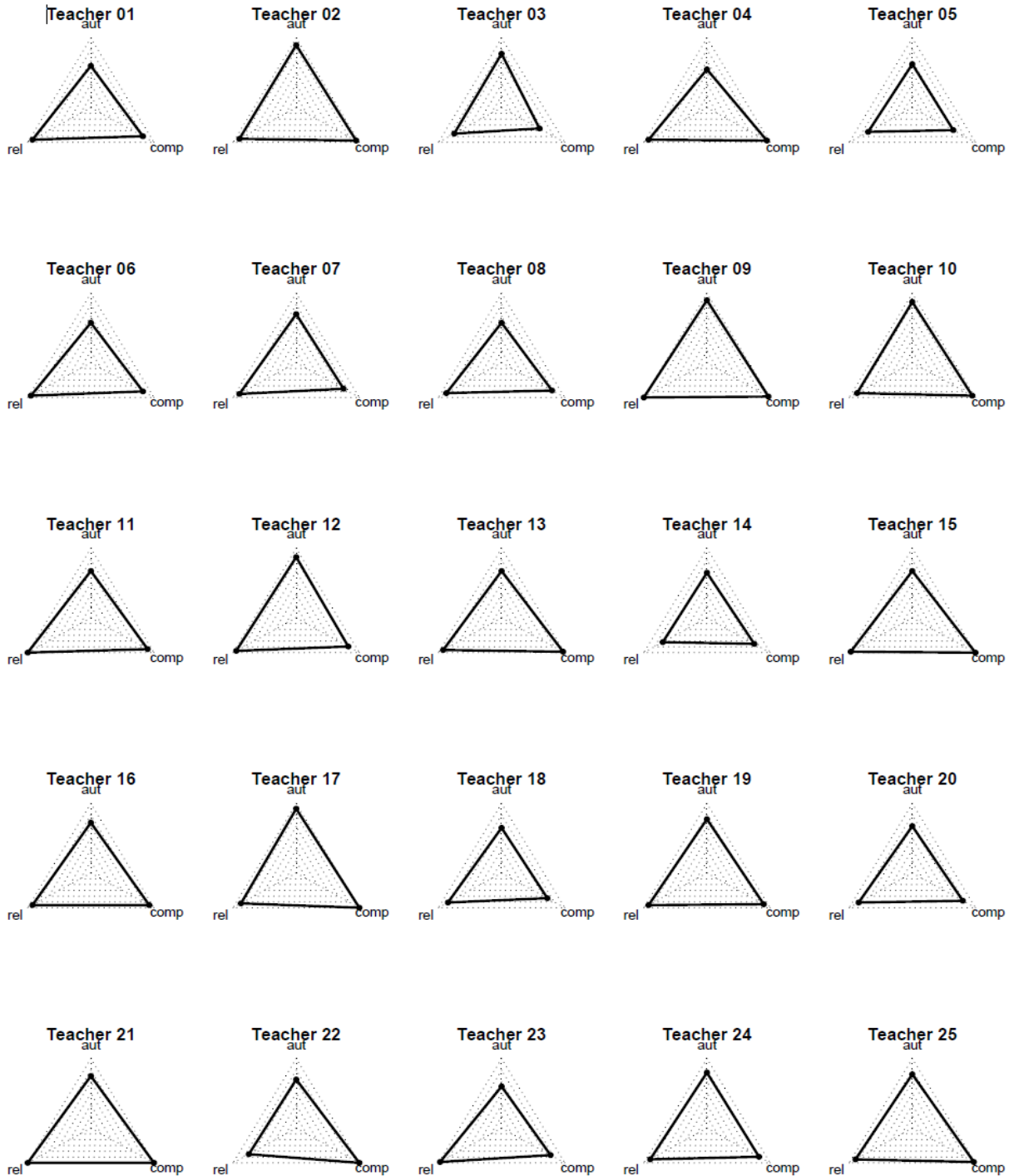Gifted Course. Teacher 12 indicated additional duties as interim assistant principal.

[a]Three teachers indicated that they currently teach both 7th and 8th grade.

[b]Five teachers indicated that they currently teach both ELA and SS

[c]One teacher indicated that they currently teach MA and SC.

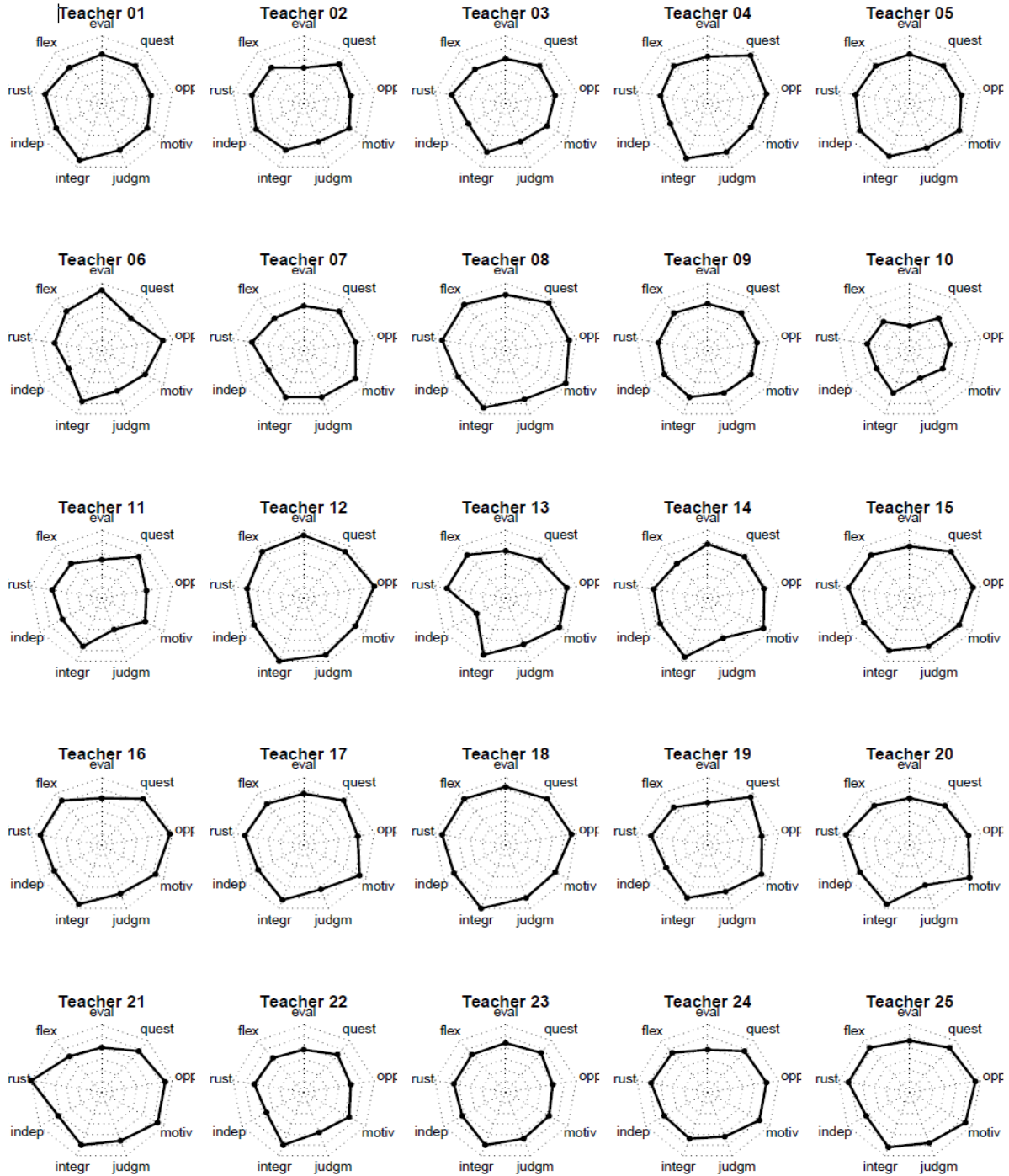**Figure E14. BPNSFS Radar Diagram Grid – Full Teacher Sample**

Figure F15. CFTIndex Radar Diagrams Grid – Full Teacher Sample

ⓘSpartan

Jennifer Lingle <jklingle@uncg.edu>

IRB-FY23-185 - Initial: Initial - Exempt
1 message

do-not-reply@cayuse.com <do-not-reply@cayuse.com>   Thu, Mar 2, 2023 at 3:29 PM
To: bsfaircl@uncg.edu, jklingle@uncg.edu
Cc: ori@uncg.edu

UNC GREENSBORO

March 2, 2023

Jennifer Lingle
Beverly Faircloth
Teacher Education and Higher Education

Re: Exempt - IRB-FY23-185 - Everyday teacher creativity: A mixed methods case study of teacher's profiles for fostering a creative classroom ecology

Dear Jennifer Lingle:

UNCG Institutional Review Board has rendered the decision below for Everyday teacher creativity: A mixed methods case study of teacher's profiles for fostering a creative classroom ecology.

Decision: Exempt

Approval: March 2, 2023
Expiration: December 8, 2023

Selected Category: Exempt 2(ii)

This submission has been reviewed by the IRB and was determined to be exempt according to the regulatory category cited above under 45 CFR 46.101(b).

Investigator's Responsibilities

- *IMPORTANT: If your study is funded*, your funds will not be released by the Contract & Grant Accounting (CGA) office until documentation of IRB approval is confirmed. Please link your Cayuse Human Ethics record to your Cayuse SP record so that the CGA office can confirm approval. Instructions for linking an application can be found on the Cayuse Human Ethics resource page. If your Ramses record has not been migrated to Cayuse SP, you may also forward this approval letter to the Contract & Grant Accounting Director, Bill Walters (wdwalter@uncg.edu).
- Please be aware that valid human subjects training and signed statements of confidentiality for all members of research team need to be kept on file with the lead investigator. Please note that you will also need to remain in compliance with the university "Access To and Retention of Research Data" Policy which can be found at http://policy.uncg.edu/university-policies/research_data/.
- Please utilize the the consent form/information sheet with the most recent version date when enrolling participants.
- Please be aware that any changes to your protocol must be reviewed by the IRB prior to being implemented.
- *If your study is funded*, please note that it is the responsibility of the Principal Investigator to link your IRB application to your Cayuse SP record.

Sincerely,

UNCG Institutional Review Board

APPENDIX H: APPROVED RECRUITMENT EMAIL

recruitment email (initial attempt) sent 3/13/2023
Email subject line: Invitation to Participate in Everyday Teacher Creativity Research Project at UNCG

Dear UNCG Middle Grades Program Cooperating Teacher,

As you know, I am working on the requirements for a Doctor of Philosophy in Educational Studies degree at UNC Greensboro. The focal point of my studies has been teacher creativity, creative classroom spaces, and creative learning. I would like to invite you to participate in my dissertation research study: ***Everyday Teacher Creativity***. In this study, I want to explore creativity-supporting behaviors and motivational factors middle school teachers experience every day in their classrooms.

You are eligible to participate because you have served as a cooperating teacher in the past five academic years with the UNC Greensboro Middle Grades Program. I would like to tell you more about this opportunity, and I want you to be well-informed so that you can decide whether to consent to participate.

Teachers who volunteer to participate in this study are being asked to consider two tasks:
- First, I am asking for participants to complete an **online survey** about creativity in traditional classroom environments. It will take 15 – 20 minutes to complete. <u>To encourage a timely response and return rate, each participant who completes the survey by</u> **April 2, 2023,** <u>which is three weeks from the date of this letter, will have their name entered into a</u> **raffle for a $50 Amazon gift card**. Beginning today, March 13, 2023**, the survey will be available online for three weeks**. The winning participant will be notified on April 4, 2023.
- Second, you will be asked if you would like to take part in **follow-up activities** (interview and focus group, each lasting ~60 min) at a date and time of your preference and availability. Participation in the follow-up interview is not required even if you choose to participate in the online survey.
- Participation in all activities associated with this research project will **total ~2.5 hours** (spread out over several weeks) of your time.

I will do everything possible to ensure that all data collected in this study (survey responses, audio recordings/transcripts of interviews, and focus groups) is kept confidential. Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of internet access. Please be sure to close your browser finished so no one will be able to see what you have been doing.

All identifying information regarding the school district, school name, and the participants' names will be given pseudonyms to protect their identities in the data collection, during data analysis processes, and for publication results. Unless required by law, only the study team (myself and my advisor) can look at the data. I am required to keep participants' personal

information confidential. The survey results, individual interview recordings and transcripts, focus group discussion recording and transcript, all follow-up activities, and researcher notes, when in paper form, will be stored in a locked filing cabinet in the principal investigator's office and when in an electronic form will be stored in a password-protected encrypted online storage folder through the study team's UNC Greensboro Box accounts. Because your voice will be potentially identifiable by anyone who hears the recording, your confidentiality for things you say on the recording cannot be guaranteed, although the researcher will try to limit access to the recording as described in this section.

Nothing bad will happen to you because of this study. Sometimes the questions we ask might seem strange and make you feel uncomfortable because it is your personal opinion, or it might be something negative about your class(es), school, or district. If anything bothers you or you are uncomfortable with some of the questions, you just need to let us know, and we will stop or do whatever we can to make you feel better.

We do not know if you will be helped by participating in this research study. However, this research may provide insight for teachers and teacher educators into the creativity-supporting behaviors and motivational factors that middle school teachers (un)knowingly use to foster a creative classroom environment. You will receive no payment for taking the time to be in this study.

You do not have to be part of this project. It is up to you. Choosing not to participate or withdrawing from the study will in no way affect your relationship with UNC Greensboro or the Middle Grades Program. You can even say yes now but change your mind later. All you have to do is tell me. I will not be mad at you if you change your mind.

By clicking on the survey link below, you are agreeing that you have read the content, or it has been read to you, and you fully understand the contents of this document, you are at least 18 years old, and are agreeing to participate in this study as described by Jennifer Haddad Lingle.

Should you have questions at any time during this research study, you can contact me at jklingle@uncg.edu or (336) 254-7791. You can reach my faculty advisor, Dr. Beverly Faircloth, at bsfaircl@uncg.edu or (919) 219-9264. This study has been approved by the UNC Greensboro Institutional Review Board, and the project number is FY23-185.

Sincerely,

Jennifer Haddad Lingle

Jennifer Haddad Lingle

[Qualtrics Survey Link]