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Pre-kindergarten and Kindergarten Teachers' Perceptions of the Student Growth Portfolio Model in Tennessee

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by

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ABSTRACT

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The focus of this quantitative study was to discover perceptions of pre-K and kindergarten teachers within public schools in Tennessee regarding the appropriateness of the student growth portfolio model. This study explored teachers' perceptions of the appropriateness of the math standards, English language arts standards, and the scoring guide included within the SGPM. A quantitative survey was used to understand pre-K and kindergarten teachers' perceptions of the appropriateness of the 2017-2018 student growth portfolio model. There were 16 pre-K teachers and 51 kindergarten teachers who participated in the survey. Single sample t-tests were used to analyze responses. Research indicated that pre-K teachers do perceive the counting and cardinality and measurement and data standards as appropriate for measuring student growth. There was not enough statistical data to infer that pre-K teachers perceive the geometry standards or ELA standards as appropriate for measuring student growth. The research found that kindergarten teachers do not perceive the math or the ELA narrative standards as appropriate for measuring kindergarten student growth. There was not enough statistical evidence to infer that kindergarten teachers perceive the ELA informative standards as appropriate for measuring student growth. The research indicated that pre-K and kindergarten teachers do not perceive the scoring guides for math and ELA as appropriate for measuring student growth. Through comparison of the survey results and development in early childhood it can be concluded that the

standards included within the student growth portfolio model are appropriate; however, the scoring guides need to be revised to align with the standards for pre-K and kindergarten.

DEDICATION

This work is dedicated to my supportive family and friends. This achievement would have been impossible without them.

To my husband Scott and our two daughters Bella-Kate (5-years old) and Christa (10-years old). Scott, you have been my rock through this journey and my motivator to keep pushing towards the finish line. Thank you for helping me grow and being the loving husband and father that you are. Christa, your accomplishments have exceeded our expectations and continue to do so daily. You are so smart and such a wonderful big sister. Watching you achieve so much makes me so proud; and while I do not want to speed up time, I cannot wait to see the woman you become. Bella-Kate, you are our little fearless fighter who has demonstrated more strength and bravery imaginable in your five years. You are full of happiness and joy.

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TABLE OF CONTENTS

Page

ABSTRACT....2
DEDICATION....4
ACKNOWLEDGEMENTS....5
LIST OF TABLES....8
LIST OF FIGURES....9
Chapter
1. INTRODUCTION....11
Purpose of the Study....12
Research Questions....12
Significance of the Study....14
Definitions of Terms....15
Delimitations....16
Limitations....17
Overview of the Study....17
2. LITERATURE REVIEW....18
Early Childhood and Theoretical Framework....18
John Dewey....18
Erik Erikson....19
Jean Piaget....21
Lev Vygotsky....23
Ralph Tyler....24
Cognitive Development....26
Development in Mathematics....28
Language and Literacy Development....30
Assessments in Early Childhood....33
Portfolio Assessments....38
History of Portfolio Assessments....38
Portfolio as an Alternate Assessment....39

Advantages of Portfolio Assessments....41
Disadvantages of Portfolio Assessments....42
The Student Growth Portfolio Model in Tennessee....43
Teachers' Roles and Responsibilities....44
The Portfolio Scoring Process....54
Chapter Summary....57
3. RESEARCH METHODOLOGY....61
Research Questions and Null Hypotheses....61
Sample....65
Instrumentation....66
Data Collection....68
Data Analysis....69
4. ANALYSIS AND PRESENTATION OF DATA....70
Analysis of Demographic Data....70
Analysis of Research Questions....76
Chapter Summary....92
5. SUMMARY, CONCLUSIONS, AND IMPLICATIONS....94
Discussion and Conclusions....94
Implications for Practice....100
Implications for Further Research....102
Chapter Summary....103
REFERENCES....106
APPENDIX: Survey....111
Vita....132

LIST OF TABLES

Table Page

1. Stratification of Questions from Pre-K Survey....67
2. Stratification of Questions from Kindergarten Survey....68
3. Participants Grade Levels....71
4. Pre-K Participants Years of Teaching Experience....72
5. Kindergarten Participants Years of Teaching Experience....72
6. Pre-K Participants' Schools' Last Reported Composite Score....73
7. Kindergarten Participants' Schools' Last Reported Composite Score....74
8. Salary Compensation Based on LOE for Pre-K Teachers....75
9.Salary Compensation Based on LOE for Kindergarten Teachers....75

LIST OF FIGURES

Figure Page

1. Stages of Psychosocial Development for Early Childhood Aged Children 19
2. Piaget's Stages of Cognitive Development for Early Childhood Aged Children.....22
3. Framework for Alternative Assessment Models.....36
4. Pre-K and Kindergarten Math Domains and Collection Expectations 48
5. Pre-K and Kindergarten ELA Domains and Collection Expectations.....54
6. Framework for One Portfolio Collection.....54
7. Pre-K Mathematics Scoring Guide for Standard Number PK.CC.2 from the Counting and Cardinality Domain 55
8. Student Growth Indicator for Pre-K and Kindergarten Student Growth Portfolio Models 57
9. Teacher Effectiveness Indicator.....57
10. Distribution of Results for Pre-K Teachers' Perceptions of the Counting and Cardinality Standards 77
11. Distribution of Results for Pre-K Teachers' Perceptions of the Measurement and Data Standards.....78
12. Distribution of Results for Pre-K Teachers' Perceptions of the Geometry Standards.....80
13. Distribution of Results for Pre-K Teachers' Perceptions of the ELA Narrative Standard Groupings.....81
14. Distribution of Results for Pre-K Teachers' Perceptions of the ELA Informative Standard Groupings.....83
15. Distribution of Results for Pre-K Teachers' Perceptions of the Scoring Guide 84
16. Distribution of Results for Kindergarten Teachers' Perceptions of the Counting and Cardinality Standards 86
17. Distribution of Results for Kindergarten Teachers' Perceptions of the Operations and Algebraic Thinking Standards 87
18. Distribution of Results for Kindergarten Teachers' Perceptions of the ELA Narrative Standard Groupings.....89
19. Distribution of Results for Kindergarten Teachers' Perceptions of the

ELA Informative Standard Groupings.....90
20. Distribution of Results for Kindergarten Teachers' Perceptions of the Scoring Guide 92

CHAPTER 1

INTRODUCTION

The student growth portfolio model (SGPM) was first introduced in Tennessee schools during the 2011-2012 school year as a teacher evaluation method in the area of fine arts. Following the initial fine arts pilot, the portfolio model was expanded to world languages in 2012-2013 and physical education in 2013-2014. The pre-kindergarten (pre-K) and kindergarten portfolio model was piloted in 2014-2015, and first grade was piloted in 2015-2016 (TDOE, 2017). In the spring of 2016, the Tennessee General Assembly passed legislation requiring districts who receive state funding for Voluntary Pre-K (VPK) to use the SGPM to evaluate pre-K and kindergarten teachers (T.C.A.§§ 49-6-103-49-6-110). Teachers in nontested grades and subject areas, such as pre-K and kindergarten, are provided the opportunity to receive individual growth scores through the submission of a portfolio. Portfolio scores make up the 35% student growth component of pre-K and kindergarten teachers' *level of effectiveness* (LOE). An LOE is a combination of the qualitative data, student growth data, and student achievement data combined to create a scale score (score range) between 100 and 500 (TEAM, 2017). The portfolio is a reflective process that becomes valuable in the professional learning of teachers, and it was reported that observation scores were slightly higher for teachers who used a portfolio compared to teachers who did not (Stone & Walker, 2017). Following the data report on the SGPM released by the Tennessee Department of Education (TDOE) in January 2017, revisions were made within the model and released to districts in July 2017. Beginning August 2017, as result of the Pre-K Quality Act (T.C.A.§§ 49-6-103-49-6-110), all pre-K and kindergarten teachers were required to implement the SGPM. Past research surrounding the Tennessee portfolio model has focused only on teachers' perceptions of the portfolio as an evaluation of their effectiveness. No

attention has been given to the appropriateness of the portfolio model as it relates to pre-K and kindergarten students.

Purpose of the Study

The purpose of this quantitative study was to discover perceptions of pre-K and kindergarten teachers within public schools in Tennessee regarding the appropriateness of the student growth portfolio model. This study explored teachers' perceptions of the appropriateness of the math standards, English language arts standards, and the scoring guide included within the SGPM.

Research Questions

This study was guided by the following research questions to facilitate discovery of the perceptions of pre-K and kindergarten teachers within public schools in Tennessee about the appropriateness of the SGPM.

Research Question 1

Do pre-K teachers in Tennessee public schools perceive the math standards included for the counting and cardinality domain within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent?

Research Question 2

Do pre-K teachers in Tennessee public schools perceive the math standards included for the measurement and data domain within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent?

Research Question 3

Do pre-K teachers in Tennessee public schools perceive the math standards included for the geometry domain within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent?

Research Question 4

Do pre-K teachers in Tennessee public schools perceive the English language arts narrative standard groupings included within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent?

Research Question 5

Do pre-K teachers in Tennessee public schools perceive the English language arts informative standard groupings included within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent?

Research Question 6

Do pre-K teachers in Tennessee public schools perceive the scoring guide for the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent?

Research Question 7

Do kindergarten teachers in Tennessee public schools perceive the math standards included for the counting and cardinality domain within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent?

Research Question 8

Do kindergarten teachers in Tennessee public schools perceive the math standards included for the operations and algebraic thinking domain within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent?

Research Question 9

Do kindergarten teachers in Tennessee public schools perceive the English language arts narrative standard groupings included within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent?

Research Question 10

Do kindergarten teachers in Tennessee public schools perceive the English language arts informative standard groupings included within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent?

Research Question 11

Do kindergarten teachers in Tennessee public schools perceive the scoring guide for the student growth portfolio model as appropriate for measuring the growth kindergarten students to a significant extent?

Significance of the Study

This study of the perceptions of pre-K and kindergarten teachers within public schools in Tennessee about the SGPM can provide essential understanding among school, district, and state leaders. By understanding pre-K and kindergarten teachers' perceptions of the SGPM, districts can better support teachers throughout the implementation of the model. This study could be

beneficial to school, district, and state leaders who have the responsibility of supporting teachers in implementing the model within their classrooms.

Definitions of Terms

This section serves as a reference for terms used throughout this dissertation that may require more understanding of selected vocabulary.

Domains: Larger groups of related standards. Standards from different domains may sometimes be closely related (www.corestandards.org). This research study includes the following domains: counting and cardinality, measurement and data, geometry, operations and algebraic thinking, reading foundations, reading literature, reading informational text, writing, word composition, and reading fluency.

*Early Learning Model (ELM):*A comprehensive plan to improve teaching and learning in pre-K and kindergarten in the state of Tennessee (TDOE, 2017, slide 4).

English Language Arts (ELA) standard groupings: The combination of foundational, reading, and writing standards available for selection by pre-K and kindergarten teachers as they develop their student growth portfolio (TDOE, 2017, p. 1).

Growth: Refers to academic progress made over a period of time, as measured from the beginning to the end of the defined period (www.edglossary.org).

Level of Overall Effectiveness (LOE): Qualitative data, student growth data and student achievement data are all combined to create a scale score (score range) between <200 and 500 (TEAM, 2017). The score range translates into the following LOE scores: <200 = *level 1*, 200-274.99 = *level 2*, 275-349.99 = *level 3*, 350-424.99 = *level* 4, and 425-500 = *level 5*.

Pre-K Quality Act: In 2016, the state legislature passed S.B. 1899 (H.B. 1485.) This bill, referred to as the Pre-K Quality Act (T.C.A.§§ 49-6-103-49-6-110), that pre-K prepares students for kindergarten by aligning pre-K and K-12 instruction and teacher evaluation based on the pre-K and kindergarten student growth portfolio models (TDOE, 2018).

Student growth portfolio model: produce authentic student growth measures unique to an individual teacher's students. Through video, audio, and pictures of student work, teachers capture student growth in real time (TDOE, 2018, slide 4).

Tennessee Educator Acceleration Model (TEAM): Through frequent observation, constructive feedback, student data, and professional development, TEAM is an evaluation model designed to support all educators in doing their best work to help every student learn and grow (TEAM, 2017).

Voluntary Pre-Kindergarten (VPK): Provides Tennessee's four-year-old children, with an emphasis on four-year-olds who are at-risk, an opportunity to develop school readiness skills (TDOE, 2018).

Delimitations

This study was delimited to 11 Tennessee public school districts' pre-K and kindergarten teachers; therefore, only these teachers' perceptions were represented. All participating schools received the link to the perceptions survey after the submission date for the SGPM. All teachers were asked to participate in the survey and given directions for completion by a specific deadline. All teachers within the 11 districts had access to the survey and could choose to participate or not. Therefore, results will not necessarily represent the perceptions of other teachers.

Limitations

By using survey results from only 11 Tennessee public school districts, the results may be specific to just the geographical area from which the data were collected. There may be various rates of participation since the completion of the survey was voluntary. Therefore, results will not necessarily generalize to other settings.

Overview of the Study

This quantitative research study is presented in five chapters. Chapter 1 contains an introduction, statement of the problem, 11 research questions, and the significance of the study. The definitions of key terms, delimitations, and limitations are also included in Chapter 1. Chapter 2 is a review of literature focused on research in early childhood with sub-headings that include: John Dewey, Erik Erikson, Jean Piaget, Lev Vygotsky, Ralph Tyler, cognitive development, development in mathematics, language and literacy development, and assessments in early childhood. The next section within Chapter 2 focuses on research around portfolios with sub-headings that include: history of the portfolio, portfolio as an alternate assessment, advantages of portfolio assessments, and disadvantages of portfolio assessments. The final section of Chapter 2 focuses on research regarding the SGPM in Tennessee with the following sub-headings included: teachers' roles and responsibilities for the portfolio and the portfolio scoring process. Chapter 3 provides an explanation of methodology and the data collection process. Chapter 4 includes data analysis and findings. Chapter 5 provides a summary and recommendations for further research.

CHAPTER 2

LITERATURE REVIEW

Early Childhood and Theoretical Framework

Early childhood education has been recognized as a crucial period of learning and development. Early learning opportunities enhance the capacity for children to learn and could also have an effect on their later elementary school performance (Burger, 2009). Learning is a complex cognitive process that occurs when there is a change in an individual's knowledge (Hoy & Miskel, 2013). Early childhood is a stage in development that is defined as those ages between birth and 8 years; pre-kindergarten (pre-K) and kindergarten-aged children refer to ages 3-6 years. There has been a significant amount of research done surrounding one question in early childhood education: *What is developmentally appropriate practice?* (Gullo, 1994; Losardo & Syverson, 2011). The study of how children learn is a complicated process; and it can be expected that there will always be gaps between any theory and how that theory is applied in real life (Mooney, 2013). Further, the gaps in theory and real life are part of growing and understanding of growth and development (Mooney, 2013). Theories can be "extremely useful when viewed as a framework to organize and give meaning to facts, to guide decisions, and to give direction for further action" (Losardo & Syverson, 2011, p. 3). John Dewey, Lev Vygotsky, Erik Erikson, Jean Piaget, and Ralph Tyler are theorists who have all contributed to early childhood education.

John Dewey

John Dewey, an American educator from the late 1800s, had significant amounts of influence on our thinking about education. Dewey was known as a progressive educator whose

theories focused on child-centered education that is active and interactive. Children are engaged when educators provide them with learning that is fun and exciting (Mooney, 2013). To be specific, hands-on activities such as dramatizing fairy tales, squeezing clay into animal shapes, hanging from a jungle gym, building castles, or getting messy with paint are far more useful teaching practices than paper and pencil activities in early childhood programs (Copple & Bredekamp, 2009). Dewey posited that teachers should use knowledge and experience to provide children appropriate tasks that nurture inquiry and disposition for learning. The path to quality education is to know the children well, build experiences on their past learning, be organized, and plan well. Dewey's positions became the ground work of developmentally appropriate practice (Mooney, 2011).

Erik Erikson

Erik Erikson came to the United States in 1933 where he studied the influence of culture and society on child development. Erikson's work showed early childhood educators how children develop the foundation for emotional and social development and mental health (Mooney, 2013). Through his research, Erikson established a theory of psychosocial development known as the *Eight Ages of Man*. Erikson described development for humans beginning at birth to old age and included the following stages: trust vs. mistrust for ages birth to 12 months; autonomy vs. shame and doubt for ages 1 to 3 years; initiative vs. guilt for ages 3 to 6 years; industry vs. inferiority for ages 6 to 11 years; identity vs. role for ages of adolescence; intimacy vs. isolation for ages of young adulthood; generativity vs. self-absorption for middle age; and integrity vs. despair for old age (Erikson, 1963). As previously stated, the developmental stages of early childhood have been defined as those from birth to 8 years of age, with pre-K and kindergarten being children ages 3 to 6 years. Figure 1 shows the stages of

psychosocial development in early childhood, and the expected developmental benchmarks, as described by Erikson.

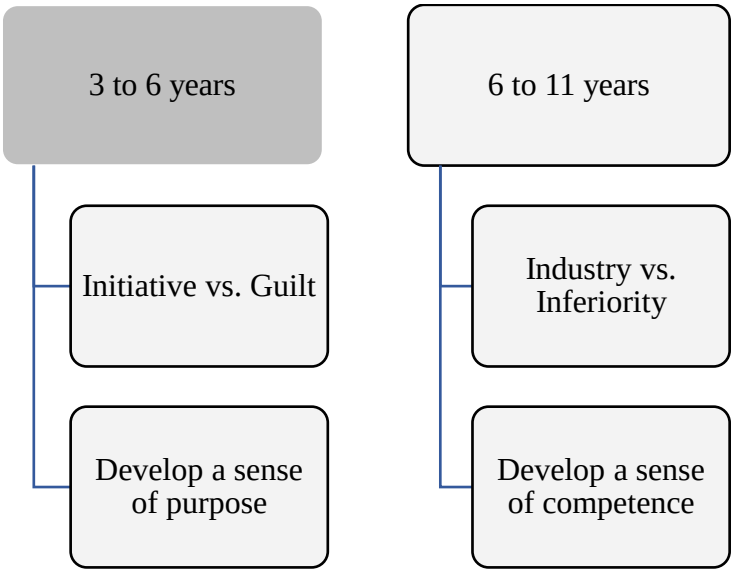

Figure 1. Stages of psychosocial development for early childhood aged children (Erikson, 1963, pp. 247-274; Mooney, 2014, pp. 56-72)

The years of early childhood are critical in the development of trust, autonomy, and initiative. The third stage of development in Erikson's *Eight Ages of Man* was initiative vs. guilt; and in this stage children were between the ages of 3 to 6 years. In the third stage of development children establish a sense of purpose by taking the initiative to complete new tasks. The fourth stage of development was industry vs. inferiority. In stage four children were between the ages of 6 to 11 years. Some children may reach stage four at the end of kindergarten where they develop a sense of success and failure (Mooney, 2013).

While there are additional stages of Erikson's *Eight Ages of Man*, the first three stages, and sometimes the fourth, fall within the development of early childhood (Erikson, 1963). It was Erikson's belief that at each stage of development a human must accomplish a certain task and

success in each stage affects the next stage; however, he did not feel that all would be lost if a child struggled during the first three stages of development (Erikson, 1963; Mooney, 2013). In fact, the first three stages could be referred to as "windows of opportunity," or developmental timetables. Children's development can be supported through Erikson's model by encouraging independence, focusing on gains instead of mistakes when children practice new skills, setting expectations that are in line with individual abilities, and focusing curriculum on real things and on doing (Mooney, 2013).

Jean Piaget

Jean Piaget was a psychologist who contributed ideas to education in the early 1900s. Piaget's work has influenced early childhood programs within the United States since the 1970s and overshadowed the ideas of other theorists in his time. Like Dewey, he also believed that a child learns only when curiosity is not fully satisfied (Mooney, 2013). Piaget studied the nature and beginning of knowledge; and through this he developed a model of cognitive stages for development. The stages of cognitive development for early childhood, as identified by Piaget, are presented in figure 2:

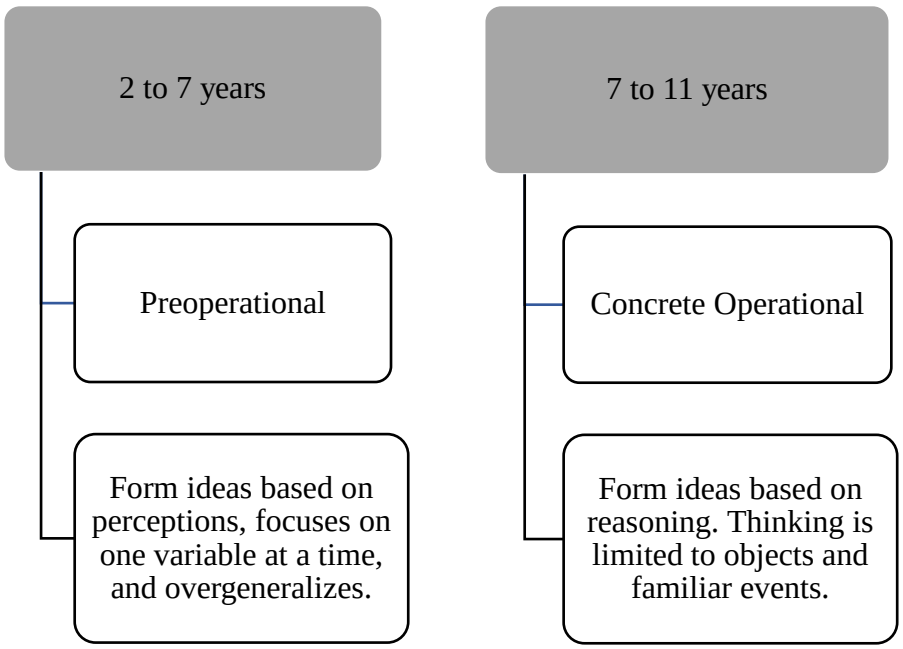

Figure 2. Piaget's Stages of Cognitive Development for early childhood aged children (Piaget, 1976)

Most psychologists centered research on *what* children know at certain developmental stages of their lives; but Piaget asked *how* children arrive at what they know. Piaget conducted a number of experiments to explore how children think. Through his research Piaget found similarities among children of certain ages, and the wrong answers they gave in response to questions as a result of the thought processes they were using. Piaget "believed that children all pass through the same stages when developing their thinking skills" and the "age at which children accomplish these stages of development can vary" (Mooney, 2013, p. 80). He felt that children create their own understanding of what is going on when they are doing the work themselves, rather than adults giving them explanations. Knowledge is constructed when the child gives meaning to the people, places, and things in his or her world. It was Piaget's conviction that children have a lot of difficulty if they are taught concepts for which they are not developmentally ready. In a classroom, Piaget's theories have been supported by providing large

blocks of time for free-play, giving children real-world experiences throughout the year, and planning open-ended activities and questions (Mooney, 2013). After conducting a study of children within early childhood settings across the United States and nine other countries, researchers found that when children are exposed to free-choice activities within a preprimary setting the outcome was significantly better language performance at age 7. Researchers also found that less time spent in whole class activities resulted in better age 7 cognitive performance (Montie, Xiang, & Schweinhart, 2006).

Lev Vygotsky

Lev Vygotsky was a secondary literature teacher in the early 1900s. Vygotsky had an interest in the relationship among cognitive development, language development, and learning. Through an extensive amount of research, and what became the cornerstone for the theories he developed, Vygotsky discovered that children at the same developmental level were able to learn with help and some were not. With a fresh perspective to child study, his research showed educators that social and cognitive development work together as building blocks. The ideas developed by Vygotsky were controversial due to his lack of training in psychology and development (Mooney, 2013). One of Vygotsky's most important concepts was the zone of proximal development (ZPD), and is defined as "the distance between the most difficult task a child can do alone and the most difficult task a child can do with help" (Mooney, 2013, p. 101). The term scaffolding, which was originated from Vygotsky's work, is used to describe the assistance or support a child receives when reaching a new concept or skill. Additionally, in order for teachers to scaffold learning for children they needed to be deep observers and use these observations to determine where children are in their learning and where they are capable of going. There was resistance from educators when scaffolding became an addition to early

childhood education, and pushing children to the next possible step became an expectation. Vygotsky's ZPD was far different from the practices implemented in classrooms that were based on Piaget's approach; in fact, there was large emphasis placed on not pushing preschoolers in the 1960's through the 1980's. As educators became more comfortable with the ideas of Vygotsky, and they began to scaffold children's learning, it was realized that ZPD did work (Mooney, 2013).

Ralph Tyler

Ralph Tyler, a South Dakota educator who began his career in 1921 is known as the father of the performance objective (Tyler, 2013). While Tyler did not consider himself an early childhood expert, his ideas could be described as having more impact on the daily practice of early childhood education than all other theorists (Gramling, 2015). It was Tyler who chaired the committee that led the development of the National Assessment of Educational Progress (NAEP). In his study that challenged the design of the high school curriculum Tyler developed what became known as the Tyler rationale (Tyler, 2013). Tyler (2013) established four fundamental questions that must be answered in developing curriculum and planning instruction:

1. What educational purposes should the school seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine whether these purposes are being attained (p. 1)?

Tyler presumed that it was the responsibility of schools to focus on gaps in the present development of students, and studies conducted to identify students' gaps and educational needs were crucial in identifying objectives. The gaps identified through studies were considered

"needs" and the focus of the studies was not limited to gaps in student knowledge. Therefore, in addition to his four processes, Tyler also presented a set of three factors that could be weighed against the processes: studies of the learner; studies of contemporary factors, learner interests, and life experiences; studies of contemporary life, and specialized knowledge (Tyler, 2013). Similar to earlier theories, Tyler suggested that an individual's learning experiences were determined by interactions within the environment. Similar to views of others, Tyler reported that learning takes place when students are active, and students are more apt to apply learning when there is relation between situations encountered in life and in which the learning took place (Tyler, 2013). Another one of Tyler's findings was learning conditions and the importance the conditions played when selecting objectives. Tyler (2013) indicated that:

> learnings which are consistent with each other, which are in a sense integrated and coherent, reinforce each other; whereas learnings which are compartmentalized or are inconsistent with each other require greater time and may actually interfere with each other in learning. (p. 41)

Tyler spent a great deal of his career in the field of assessment and evaluation. While the focus of his research was designed to improve curriculum, he also placed emphasis on how to evaluate the curriculum to know if the plans for learning produced the desired outcomes (Tyler, 2013). Tyler (2013) identified two important aspects of evaluation: the evaluation must appraise the behavior of students, and evaluation must involve more than a single appraisal at any one time. Instructional programs cannot be evaluated by testing students only at the end of the program; and Tyler asserted that students' proficiency must be determined before teaching so that growth can truly be measured after teaching (Tyler, 2013). With this in mind, Tyler advised that educational evaluation take place in the beginning of the school year, and again at the end,

so that the change can be measured. He also acknowledged that there are many educational objectives that cannot be measured with a paper and pencil test, and that the collection of items produced by students is a useful way of getting evidence. For example, collecting samples of students' writing or drawings provides evidence of abilities in those areas; however, Tyler did not feel that collecting evidence from every student was necessary, and if samples were properly chosen the results would properly represent the effectiveness of the program (Tyler, 2013).

Cognitive Development

Children in pre-K are usually aged 3 to 5 years, and those in kindergarten are aged 5 to 6 years. According to the American Academy of Pediatrics [AAP] (n.d.), at the age of three children will begin to pay close attention to their surroundings and ask questions that pertain to everything that happens around them. The AAP noted that children of this age may ask hundreds of questions per day such as "why do I have to wear my jacket?" or "why do I have to eat my dinner?". It is important for adults to answer questions simply and to the point so that children can understand. Most of the time children at this age will ask very abstract questions that may not have answers such as "why can't the fish talk to me?" or "why can't I fly like superheroes do?"; although sometimes difficult, it is very important to respond to these questions in a way that entices children to become more curious about the topic and to think more clearly. Children who are between the ages of 3 and 5 years will eventually be faced with learning challenges in which their reasoning will be one-sided, and they may be unable to solve problems that requires looking at more than one factor. At the age of 3 children begin to develop an awareness of time by understanding their daily routines, as well as by trying to understand the routines of others (AAP, n.d.).

At age 4 and 5, children begin to become interested in the basic concepts that are taught in school. Awareness of time at this age has expanded to children knowing that the day is divided into morning, afternoon, and night; that there are different seasons; and possibly some days of the week. Further, children at the age of 4 and 5 may comprehend the ideas of counting, identifying shapes, the alphabet, and size relationships. According to the AAP (n.d.), children should not be pushed to learn these concepts too early. There is no advantage to children learning these concepts earlier, and the pressure for them to perform now could result in resistance to learn when they get to school. Tyler stated that "the teacher must begin were the student is…and if the learning experience involves the kind of behavior which the student is not yet able to make, then it fails in its purpose" (Hlebowitsh & Tyler, 2013, p. 67). It is suggested that the best approach for educators and parents is to offer opportunities for children to learn by fostering their interests through books or introducing them to experiences that would promote learning in an engaging way (AAP, n.d.).

Copple and Bredekamp (2009) specified that the processes noted above takes several years to become well developed in children who are 3 to 5 years of age. The lengthy process of this development is partly due to their brains not yet maturing in some important ways, and the lack of experiences they have had using new skills. Over time, the new skills that children develop will become automatic, but only with practice and support. The support provided to children at this age should come in the form of cues, questioning, and modeling from adults and other children. As children become more automatic with certain skills, the amount of support should gradually be reduced. Copple and Bredekamp (2009) noted that "this kind of support, where the teacher helps only just enough and until the child succeeds, is called scaffolding" (p. 138).

One of the most important things that an educator can do to foster children's learning and intellectual development in pre-K-aged children, is to ensure plenty of time for sustained play. Skilled educators who allow time for guided play understand that children develop cognitive skills when they are engaged in intentional, yet imaginative, sociodramatic play (Copple & Bredekamp. 2009). Again, theorists Dewey and Piaget both affirmed that it is through structured play that children develop these cognitive skills. Some children who are not exposed to this type of play at home may need support from teachers in classrooms; to be specific, teachers may need to provide students with ideas for scenes and roles, provide props and dress-up clothes, and implement rules. Over time, the support provided to children will be less, and they will begin to internalize the skills as cognitive skills are developed (Copple & Bredekamp. 2009).

As children grow into kindergarteners at the ages of 5 and 6, they begin to demonstrate an awareness of part-whole relationships. This awareness becomes more apparent in following years as they begin to become motivated by stories and the connections between plot lines and characters' emotions. In addition, this awareness is also evident in mathematics and science; for example, a child may identify that there are five fish, and go on to identify that there are two blue fish and three yellow fish (Copple & Bredekamp, 2009). Children at this age begin to see things in multiple perspectives, unlike pre-K children who believe that others see things as they do. Changes in children's mental skills will continue to expand throughout middle childhood, but the most significant changes begin in kindergarten.

Development in Mathematics

The early childhood math curriculum needs to be engaging and consistent with children's developmental levels. Children should have multiple mathematical tools available to them when solving and discussing math problems such tools include pattern blocks, cubes, and counters.

Mathematical tools provide concrete models that help children express their ideas (Jung & Conderman, 2013). An extensive amount of time should be spent on problem solving and reasoning when promoting children's mathematical thinking. Talking with children about problems, patterns, and using mathematical vocabulary builds the foundation for future mathematical success; in fact, language has been proven to be a significant predictor of numeracy success (Purpura & Reid, 2015). Early numeracy skills that are important for later math achievement include: counting, number fluency, decomposing numbers, and early fact fluency (Geary, 2011). When children enter school, they do not have the skills to deliberately or logically solve problems; for this reason, a learning environment that encourages students to take risk and search for solutions will help develop problem-solving skills (Copple & Brenekamp, 2009). There should be time throughout the day for whole-group and small-group math instruction, as well as time for follow-up practice (Fuson, Clements, & Sarama, 2015). As children make the transition to kindergarten the math curriculum continues to develop their mathematical knowledge through daily encounters that encourage reasoning, problem solving, and communication. Chen, McCray, Adams, and Leow (2013) found that 87.6% of teachers reported that young children learn more about math through everyday experiences. It is important for children to relate their work with quantities and objects in the real world. Students benefit when they are provided opportunities to repeatedly count objects, recite number words, and put shapes together to create new shapes. Just as hearing a story multiple times is interesting to children, repeated exposure to math helps to build deeper understanding (Fuson et al., 2015). Children need a significant amount of support from teachers in order to strengthen their thinking in one math concept before moving to the next step; this is due to the research-based progression of mathematical topics (Copple & Brenekamp, 2009; Fuson et al., 2015).

Language and Literacy Development

Language is a critical aspect of learning across all areas of the curriculum; for example, students must be familiar with mathematical terminology as a foundation for understanding math concepts later. Research has found that early literacy skills are significantly related to numeracy skills (Davidse, Jong, & Bus, 2013; Pupura, Hume, Sims, & Lonigan, 2011; Purpura, Schmitt, Ganley, 2015). Although some children may gain an understanding of informal mathematical concepts, without a deep knowledge of mathematical vocabulary it is likely they will struggle when applying their knowledge within a formal mathematical context (Pupura et al., 2011). Equally, language development is crucial for reading comprehension (Copple & Bredekamp, 2009). If children do not develop adequate reading astuteness by mid-elementary school, the result is that they are likely to be handicapped from learning in other areas of the curriculum (Hattie, 2009). Children's abilities to use a full range of language skills is heavily shaped by the experiences within their environment. In order to promote oral language in children, teachers must expose children to sustained conversation with adults and other children. Copple and Bredekamp (2009) suggested that conversations be led by children, and given full attention by teachers, with responses that enhance the conversations. Knowledgeable teachers recognize the value in expanding children's vocabulary by integrating topics of intertest throughout instruction. Effective learning in reading, and the building of vocabulary, occurs when children's concrete experiences are connected to the learning (Tyler, 2013). In addition to oral language development, there are many other elements that are essential for promoting early literacy. Young children enjoy looking at books and being read to, and through this, they recognize that reading and writing help us do many things in life. Apfelbaum, Hazeltine, and McMurray (2013) found that exposure to text is important; and the variation among the texts that children

encounter may be a critical developmental factor of later outcomes. Frequent exposure to text, that begins before formal instruction, has a lasting impact on academic success and later reading proficiency (Mol & Bus, 2011). A teacher can foster this development by reading aloud to children in different settings, and asking them to make predictions to enhance their experiences (Copple & Bredekamp, 2009). The development of decoding skills, increased vocabulary and comprehension, and the learning of particular strategies and processes are all requirements of successful reading (Hattie, 2009).

Phonological awareness is described as noticing sounds of spoken language and having the ability to break down words into smaller units of sounds. The levels of phonological awareness include: syllable awareness, words can be divided into syllables; and onset-rime awareness, words can be divided at the intra-syllabic level (Gillon, 2018). Phonological awareness is a strong predictor of future reading success. When teachers use books that are rich in consistent language patterns, children gain phonological awareness. Phonemic awareness, which is a subset of phonological awareness, involves the smallest unit of sound. Gillion (2018) noted that phonemic awareness includes the following tasks: phoneme isolation, phoneme identification, phoneme categorization, phoneme blending, phoneme segmentation, and phoneme deletion. Children do not naturally gain phonemic awareness; instead, this knowledge is gained when teachers support it and provide assistance needed by each child. Strategies used to promote phonemic awareness are rhyming games, songs, finger plays, and clapping syllables of children's names (Copple & Bredekamp, 2009). Children as young as 4 and 5 years of age can be taught to segment and blend phonemes without first receiving syllable-level instruction; in fact, those children who received syllable-level instruction first, were apt to confuse syllables and phonemes when introduced to the initial levels of phonemic instruction over those who only received

phoneme-level instruction (Ukrainetz, Nuspl, Wilkerson, & Beddes, 2011). Once children have acquired phonological awareness, the next fundamental level for reading is to master the alphabetic principle; in short, understanding that there is a relationship between letters and sounds, and that spoken words are represented by letters (Copple & Bredekamp, 2009).

In pre-K, children are introduced to the alphabet in many contexts when the teacher provides exposure through environmental print. Examples of environmental print include: lists, sign-in charts, and labels placed on items throughout the classroom. As children become more aware of letters, they should be engaged in early writing that goes beyond drawings. In pre-K, early writing may be in the form of scribbles at first and eventually children will begin to produce letter-like forms. Overtime, children will begin to produce recognizable letters and begin to use developmental spelling—which is a child's first attempt to apply sounds with letters. At this stage of early writing children can become easily frustrated; and for this reason, it is important that the proper formation of written letters is not a priority (Copple & Bredekamp, 2009).

An extraordinary amount has been learned by the time children reach kindergarten; and even more so if they have had prior exposure to a language-rich environment. When children attend a pre-K program that provides quality literacy experiences they acquire some basic knowledge about print. In kindergarten, children learn letters by name and begin to connect letters with sounds; and gradually, they are able to move forward in mastering the alphabetic principle (Copple & Bredekamp, 2009). In addition to mastering the alphabetic principle, students begin to develop the knowledge that books have titles, authors, illustrators, and story structure. As children progress in their reading comprehension abilities, they also advance in writing. The primary purpose of reading and writing is the comprehension of ideas that are

expressed through a written medium and is a life-long developmental process (Gillon, 2018). Children who are engaged in writing learn about print and written words, and as a result, they will progressively learn to read and write. Children in kindergarten will eventually produce recognizable letters and words; and often tell stories by drawing with an incorporation of print to express ideas (Copple & Bredekamp, 2009).

Assessments in Early Childhood

Assessments are used by teachers so student understanding can be discovered, and it is the function rather than the form that reveals the information about students' learning (Redwick, 2017). For an assessment to be more accurate, and provide a fuller picture, it requires time, and it requires teachers to allow students to present themselves and become decision makers in the assessment process (Meier & Knoester, 2017). In pre-K and kindergarten classrooms assessments must address the goals in all developmental domains which include: physical development, social development, and emotional and cognitive development. In addition to the developmental domains, an assessment in pre-K should also assess the areas of physical education, language and literacy, mathematics, science, social competence, and creative arts (Copple & Bredecamp, 2009). There should be a well-organized plan for assessing children in the early childhood setting that is "complete, comprehensive, and well understood by administrators, teachers, and families" (Copple & Bredecamp, 2009, p. 248). Assessments should be conducted regularly throughout the year so learning outcomes can be adjusted for each student, and remain consistent with children's developmental and learning goals (Copple & Bredecamp, 2009; Hughes & Gullo, 2010). In an early childhood setting the teacher should look at what each child can do independently, as well as how they collaborate with peers and adults. Assessment is an ongoing process in pre-K and kindergarten, where teachers observe children

during daily activities, which also include play. Documentation from these observations can include written notes, photographs, audio recordings, and work samples (Copple & Bredecamp, 2009). Assessments in early childhood should not only be continuous but also comprehensive and integrated. A comprehensive assessment measures many aspects that include how children understand and apply what has been learned. When assessments are integrated then children are being assessed while engaged in the process of learning (Hughes & Gullo, 2010).

There are many purposes for assessment, but four common purposes have been identified in early childhood which include: planning and adapting the curriculum to meet the developmental and learning needs of each child, helping teachers and families monitor children's progress, evaluating and improving the effectiveness of programs, and identifying children with potential special needs (Copple & Bredecamp, 2009; Losardo & Syverson, 2011). Gullo (1994) stated that:

> There are vast numbers of children in early childhood programs who could be affected by assessment and evaluation. Whether the effect is positive or negative could ultimately be determined by the early childhood teacher's understanding of the process. Understanding the process of assessment and evaluation in early childhood involves understanding when and how to use assessment and evaluation; understanding how the child's development affects the process; and understanding the relationship between assessment, evaluation, and a curriculum that is developmentally appropriate for the child. (p.ix)

Before the early 1900s, educational practitioners relied on only two major types of assessments: norm referenced and criterion referenced. A norm-referenced assessment is used for diagnostic purposes, and works well when comparing performances of groups of children (Allington & Cunningham, 2002). Criterion-referenced assessments are used to measure

children's mastery of specific skills. Norm-referenced and criterion-referenced assessments did not provide enough information on specific suggestions for instruction (Losardo & Syverson, 2011). The need for a direct link between assessment and instruction led to the development of curriculum-based assessment (CBA) in the late 1990s. A CBA is a type of criterion-referenced assessment used to measure functional skills that can serve to establish educational goals and objectives (Losardo & Syverson, 2011). Through a 4-month study of curriculum in kindergarten classrooms, Yoon (2015) focused on several aspects of assessments. One focus in particular surrounded replacing authentic assessment with mandated universal screeners and benchmark tests. To accomplish the tasks of administering these assessments Yoon found that teachers sacrificed instructional time to pull students individually for testing. Teachers who participated in the study did not view the assessments as being tied to their instruction; instead, they viewed them as activities they were expected to accomplish for others.

Pyle and DeLuca (2013) provided an in-depth examination of the assessment approaches used by teachers in kindergarten classrooms; and through this study they found that the accountability movement does standardize achievement expectations and mandates, but does not standardize teacher pedagogy. Teachers must leverage their pedagogical autonomy to proclaim their individual stances on curriculum while continuing to meet mandates. Gullo (1994) discussed alternate assessments and defines them as being options for assessment that are not focused on strict adherence to standard tests and measurement paradigm. Losardo and Syverson (2011) identify three models of assessment that can be used as alternative measures in early childhood. These models include: embedded approaches, authentic approaches, and mediated approaches. Embedded approaches can be implemented when children are observed in their natural setting; this type of assessment approach provides children with opportunities to perform

skills across the domains of development using different materials, within different environments, and with different people. Mediated approaches provide information on children's response to instruction and mastery of the language of instruction; and it guides teachers in making decisions on how to assess. The authentic approach to assessments includes documentation of children's abilities through completion of real-life tasks that occurs naturally and without stress on the student (Martin, 2014). This type of model is based on the assumption that behavior must be observed in a real-life context. The focus of an authentic assessment to is to determine "how and why instructional procedures work—or do not work—to achieve "authentic" changes in learning and development" (Losardo & Syverson, 2011, p. 46). The types of assessment identified by Losardo and Syverson (2011) can be easily integrated in early childhood settings and across everyday activities. Through observations these assessments can be used to measure children's abilities by measuring changes in performance. The framework for these approaches are illustrated in Figure 3 and includes the types of assessments that fall within each model:

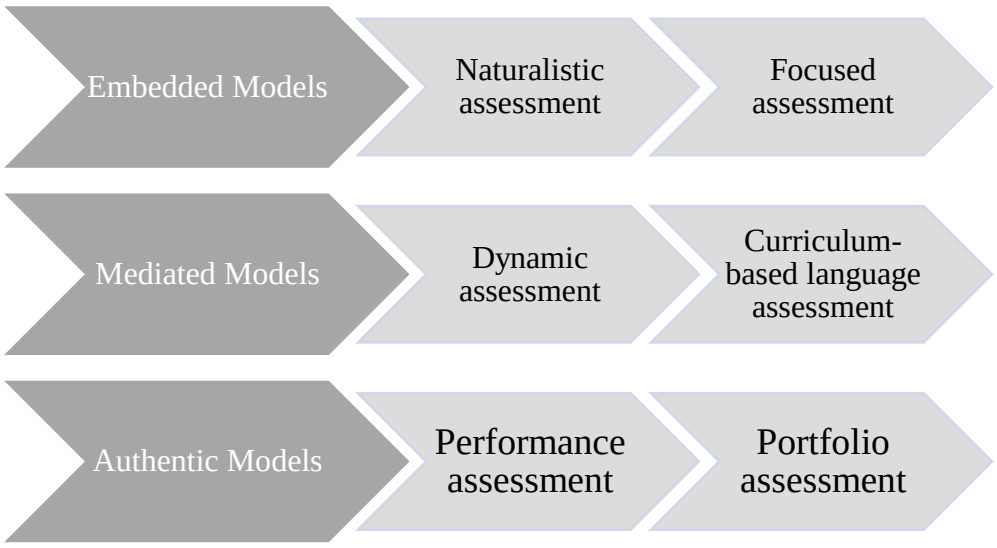

Figure 3. Framework for alternative assessment models (Losardo & Syverson, 2011, p. 46)

Embedded Models. The types of assessments that fall within the embedded model are naturalistic and focused. A naturalistic assessment grows from the naturalistic approach to teaching where opportunities for children to perform skills across domains of development occur naturally, and can be embedded in the routines of early childhood settings. With this type of assessment teachers observe children during play and allow the children to take the lead. Adult structured interactions that provoke specific behaviors to be observed is a focused assessment. Teachers may use non-formal methods to document the behaviors and skills that are observed within the early childhood setting which can include anecdotal notes and checklists.

Mediated Model. The next model is the mediated model which includes dynamic and curriculum-based language assessments. Dynamic assessments measure performance by indicating what the child has learned in addition to what the child is capable of learning. The information documented through dynamic assessments are collected by teachers when they are interactive with children rather than just questioning and documenting responses. Losardo and Syverson (2011) go on to describe how an observer may document the cognitive and metacognitive process through the use of a dynamic assessment:

> the examiner may look at the child's attention to the task, how a child explores and manipulates materials, the kinds of explanations given for responses, the ability to notice mistakes and correct them, and whether a child can seek out help. (p. 146)

The last assessment in this framework of the models is a curriculum-based language assessment. This type of assessment is used to identify and analyze the potential gaps between context's linguistic demands and children's linguistic competence. Losardo and Syverson (2011) cautioned that there is a lack of information for educators on how to apply curriculum-based language assessments within classrooms; and few models of this type of assessment have been

described in literature. While there are not many models for this assessment, curriculum-based language assessment can be used to identify areas in a curriculum that are in need of improvement. When these areas of improvement are identified within a curriculum it can be used to determine if the difficulty is related to children's linguistic competence relative to the language used within the curriculum (Losardo & Syverson, 2011). While maintaining academic standards in early childhood, developmental appropriate teaching should not be sacrificed; further, using an appropriate assessment can lead to joyful learning and teaching (Hughes & Gullo, 2010).

Authentic Models. The final model is the authentic model, and it includes performance and portfolio assessments. Displaying children's work in classrooms provide a reflection of children's participation in activities; in addition to creating a welcoming environment, the work displayed can be used as a way to assess children's abilities. When behaviors and projects are used to make judgements for assessment purposes it is identified as a performance assessment. Performance assessments are used as a way to provide students the opportunity to demonstrate and apply knowledge. Portfolio assessments focus on the importance of assessment based on the comprehensive picture of children's performances across environments and their involvement in the evaluation process. A portfolio assessment is a performance assessment that is used as a way to document children's functioning in authentic tasks that are part of their daily routines.

Portfolio Assessments

History of portfolio assessments. Early childhood education programs prospered in the 1970s and 1980s as a result of the theories and philosophies of cognitive developmentalists (Tyler, 2012). Effective assessments in early childhood have been the focus of a great deal of research over the last two decades; however, the amount of research on portfolios seems to

fluctuate. More studies on portfolios can be found in the earlier part of the last quarter century, with a decrease of research in the last 10 years. Experiments in the 1980s and 90s used portfolios as an authentic assessment within schools across the country for writing workshops (Renwick, 2017). As portfolios became an effective authentic assessment, evaluators looked for common measurements by which portfolios could be judged or compared, which led to the portfolio being reworked to accommodate a quantitative system (Hebert, 2001). After failed attempts to standardize portfolio assessments, there was a shift in research that focused more on standardized tests. In the early 1990s the Tyler Rationale, as previously discussed, became the focus of politicians and administrators; and soon the development of the No Child Left Behind (NCLB) law of 2001 became a focus of schools within the United States. The decrease in research on portfolio assessments could be attributed to the authorization of the NCLB law. The NCLB law required uniform standards to be established for all public schools; and test scores became the most common methods for identify schools as failing (No Child Left Behind [NCLB], 2001; Spring, 2011). The NCLB law was not intended to measure pre-K and kindergarten academic performance, and Gramling (2015) argued that "to impose learning standards on early childhood education, one would have to somehow translate the complex processes occurring in the developing brain from birth through five into a set of subjects the child learns at school" (p. 21). With the national reform of public schools, more focus was placed on standardized testing rather than on performance based portfolio assessments.

Portfolio as an alternate assessment. Alternate assessments focus on methods with consistent goals that incorporate classroom work, enhance both students' and teachers' participation in the assessment process, and attempt to meet some accountability concerns of school districts (Gullo,1994). The best method to enhance students' potential is through the use

of alternative assessments (Nasri, Roslan, Sekuan, Bakar & Puteh, 2010). Specific skill levels can be measured in an alternate assessment as opposed to scores provided by paper and pencil tests (Nasri et al., 2010). Portfolio-based assessments are used as an alternative to standardized testing and considered an acceptable assessment that evaluates student growth through daily activities (Engel & Gronlund, 2001). Portfolios also provide holistic views of children's understanding (Martin, 2014). The goal of a portfolio assessment is to show evidence of students' improvement in the learning process, which is just as important as the product produced by students (Birgin & Baki, 2007). Data collected from a portfolio assessment must be used to guide the instructional planning process (Lynch & Struewing, 2001). Students at all levels see assessment as something that educators do to them when reviewing their classwork (Renwick, 2017; Sweet, 1993); but through portfolios the student is a participant, rather than the object of the assessment (Meyer, Paulson, & Paulson, 1991). While the approaches taken in the process of portfolio assessments differ, there are commonalities supported by research; particularly, portfolios are a collection of students' ongoing work over a period of time (Gronlund, 2001; Herbert, 2001; Kingore, 2008; MacDonald, 1997; Popham, 2012). A portfolio can include any product that provides evidence on children's developmental progress or their movement toward goals (Lynch & Struewing, 2001). Some examples of work that could be included in a portfolio include drawings, writing samples, audio, video, conference notes, checklists, photographs, and anecdotal records (Kingore, 2008; Lynch & Struewing, 2001; MacDonald, 1997). There are four types of portfolios: showcase, reflective, cumulative, and goal based (Smith, Brewer, & Heffner, 2003). A showcase or performance portfolio is a collection of students' best work, and it is important that this work is chosen by students rather than teachers (Popham, 2012; Redwick, 2017). The second type of portfolio is a reflective or process portfolio,

which demonstrates a specific domain of learning; for instance, numeracy can be documented in this type of portfolio through records of how high a child can count. When using this type of portfolio, the teacher determines the work to be included so students' learning on specific domains can be diagnosed (Birgin & Baki, 2007; Redwick, 2017). Cumulative or progress portfolios document students' work from a particular task, more than once, across a period of time (Redwick, 2017; Smith et al., 2003). Finally, a goal-based portfolio assesses pre-established objectives that can be documented through written records (Smith et al., 2003).

Advantages of portfolio assessments. Esliker (2010) revealed that portfolio assessments have a positive effect on reading development in preschool-aged students, and on the quality of instruction in reading. The researcher also observed that portfolio assessments provide open channels of communication between teacher and students. The greatest advantage of utilizing portfolios as an assessment in the classroom is that the relationship between teachers and students moves from a hierarchy to a partnership. Portfolios allow teachers to gather the qualitative information needed to provide effective feedback to students (Redwick, 2017). Gathering student work to include in a portfolio can be integrated into the curriculum, and unlike tests, they supplement instruction time (Sweet, 1993). Portfolio assessments help teachers understand the process of student learning and can contribute to quality teaching which is important for meeting the expectations for all students to develop higher-level thinking and content knowledge (Kim & Yazdian, 2014). Portfolios involve observing and recording the development of children from the time they enter the early elementary setting and how far they progressed at the end (Alacam & Olgan, 2015). A portfolio gives teachers and parents information about students' development in the learning process by providing an authentic assessment of achievement and comprehensive views of students' performances, as well as

providing feedback that guides students to become self-directed learners (Baki & Birgin, 2007; Popham, 2012). Portfolios can be used as a representation of students' developmental processes in all areas and facilitate conversations among teachers, students, and parents (Kim & Yazdian, 2014). Through the use of portfolio assessments, and actively involving children in the process, the self-assessment and self-efficacy of children can be improved (Alacam & Olgan, 2015). When children have the opportunity to analyze their own work and make decisions about the work included within the portfolio, they may develop greater decision-making skills and self-esteem (Lynch & Struewing, 2001). When students work is showcased and their journey is documented, the learning is "no longer merely an abstract outcome of the process; it becomes visible" (Redwick, 2017, p. 38).

Disadvantages of portfolio assessments. Despite the advantages of using portfolios as an alternate assessment within the classroom, there are also disadvantages. While portfolios have a positive effect on students' reading development within classrooms (Eslick, 2010) there is lack of evidence that supports the use of portfolios when implemented on a large scale (Haertal, 1999). Many teachers feel the need to structure and standardize portfolios to conform to the notion of gathering "one right answer". In the past it proved to be unrealistic when the qualitative nature of portfolios were reworked to accommodate a quantitative ideology. Portfolios cannot be considered a reliable or valid measure of one student's achievement to another (Herbert, 2001). Teachers have been faced with the challenge of finding time for effective portfolio implementation to understand individual student's strengths (Alacam & Olgan, 2015; Kim & Yazdian, 2014; Popham, 2012; Redwick, 2017). The documentation of student performance within a portfolio is not worth the time and effort without the commitment to serious reflection by the teacher ("Portfolios", 2012). Popham (2012) suggested that a portfolio assessment be used

only to measure three or four important skills that represent students' achievement of powerful cognitive skills. Organization and storage of student portfolios can also present challenges within crowded classrooms (Alacam & Olgan, 2015). More recently, the use of technology has aided in documenting portfolios digitally; however, without an extensive amount of planning, a digital portfolio implementation will not lead to ideal learning outcomes (Redwick, 2017). The purpose of a portfolio is to capture students' growth over a period of time, and for a portfolio assessment to be reliable it must have clear and measurable criteria that produce consistent results (Baki & Birgin, 2007; Brown, 1997; Herman & Winters, 1994). There is low reliability in gathering scores for portfolios, but this can be overcome through the use of rubrics when scoring student work (Baki & Birgin, 2007). Lynch and Struewing (2001) discussed the importance of not putting an extensive amount of focus on the product of the portfolio, and indicated that the real focus of teachers' efforts should be on the process and documenting children's developmental progress over time. Alacam and Olgan (2015) found that teachers have a lack of knowledge about portfolio types, and they implied that this could be a result of the lack of effective content within the assessment courses of undergraduate studies.

The Student Growth Portfolio Model in Tennessee

In 2016, the Tennessee Department of Education (TDOE) reported that too many children in Tennessee struggle to read, and as a result, no improvements in third through sixth grades English Language arts (ELA) have been made on state assessments. In fact, only one-third of Tennessee fourth graders were proficient in reading on the National Assessment of Educational Progress (NAEP). The TDOE's Office of Research and Strategy established a goal to have 75% of third graders proficient in reading by 2025 (TDOE, 2016). As part of the plan to improve early literacy in Tennessee schools the TDOE developed the Early Learning Model

(ELM). The Early Learning Model was designed as a comprehensive plan for improving teaching and learning in pre-K and kindergarten classrooms. The goal of ELM is to guarantee that all students show growth and thrive academically, socially, and emotionally to ensure success from pre-K through third grade. The framework for ELM is made up of the Voluntary Pre-K (VPK) program standards, pre-K portfolios, Kindergarten Early Inventory (KEI), and the kindergarten portfolios (ELM, 2016). The TDOE developed the pre-K and kindergarten Student Growth Portfolio Models as a way to collect information about teachers' effectiveness and provide them the support they need in their classrooms (TDOE, 2017). Through the development of the portfolios the TDOE (2016) provided descriptions of what students should do through implementation of the process: understand criteria for good work; apply these criteria to their work efforts and that of other students; increase critical thinking and self-reflection; examine how they succeeded, failed, or improved on a task; and set goals for future work. The intention of the portfolio is to be a natural collection of student work that is produced in the learning environment that encourages thinking, speaking, writing, reading, and problem solving (TDOE, 2017).

Teachers' roles and responsibilities. The student growth portfolio model is an assessment measure that consists of evidence collected by classroom teachers and is a reflection of student growth from two points in time. The evidence documented within the portfolio has been termed "collections" by the TDOE (2017). Teachers have the autonomy to choose the standards that are represented in their portfolios, as well as design the assessments that measure the standards. There have been specific standards pre-selected for teachers to choose from when developing their portfolios. For pre-K and kindergarten, teachers choose one standard under two different domains in math; these domains have also been pre-identified. In all, both pre-K and

kindergarten teachers develop and submit two math collections. Figure 4 shows the math domains and collection expectations for pre-K and kindergarten portfolio. The preselected 2017-2018 math standards for pre-K and kindergarten include:

Pre-kindergarten

Domain: Counting and Cardinality

- PK.CC.2 Verbally count forward in sequence from 1-30
- PK.CC.3 Understand the relationships between numerals, names of numbers and quantities up to 10 (includes subitizing—the ability to look at a quantity and say the quantity [1-4] quickly, just by looking).
- PK.CC.4a Use one to one correspondence to accurately count up to 10 objects in a scattered configuration.
- PK.CC.5 With guidance and support count to answer "how many?" questions about as many as 10 things arranged in a line or as many as 5 things in a scattered configuration; given a number from 1-10, count out that many objects.
- PK.CC.6 Use comparative language, such as *more/less than* or *equal to*, to compare and describe collections of objects by matching.

Domain: Measurement and Data

- PK.MD.1 Recognize the attributes of length, (how long, tall, short), area (how much it covers), weight (how heavy or light), volume or capacity (how much it holds) of everyday objects using appropriate vocabulary.
- PK.MD.3 Sort, categorize, and classify objects by more than one attribute.

Domain: Geometry

- PK.G.1 Identify relative positions of objects in space, and use appropriate language (e.g., *beside, inside, next to, close to, above, below, apart*).
- PK.G.2 Identify several basic shapes
- PK.G.4 With guidance and support, compare and contrast the attributes of two and three- dimensional shapes of different sizes and orientations, identifying shapes that are ____ and shapes that are not ____.
- PK.G.6 With guidance and support, create and name new shapes formed when putting two shapes together (i.e. two right triangles of the same size put together would make a rectangle).

Kindergarten

Domain: Counting and Cardinality

- K.CC.A.1 Count to 100 by ones, fives, and tens. Count backward from 10.
- K.CC.A.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
- K.CC.A.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20.
- K.CC.B.4a When counting objects, say the number names in the standard order, using the one-to-one correspondence.
- K.CC.B.4b Recognize that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.

- K.CC.B.4c Recognize that each successive number name refers to a quantity that is one greater.
- K.CC.B.5 Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangle array, a circle, or as many as 10 things in a
- K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.
- K.CC.C.7 Compare two given numbers up to 10, when written as numerals, using the terms *greater than, less than,* or *equal to.*

Domain: Operations and Algebraic Thinking

- K.OA.A.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting, out situations, verbal explanations, expressions, or equations.
- K.OA.A.2 Add and subtract within 10 to solve contextual problems using objects or drawings to represent the problem.
- K.OA.A.3 Decompose numbers less than or equal to 10 into added pairs in more than one way (e.g., 5 = 2 + 3 and 5 = 4 + 1) by using objects or drawings. Record each decomposition using a drawing or writing an equation.
- K.OA.A.4 Find the number that makes 10, when added to any given number, from 1 to 9 using objects or drawings. Record the answer using a drawing or writing an equation.
- K.OA.A.5 Fluently add and subtract within 10 using mental strategies (TDOE, 2017, pp. 5-13; TN-ELDs, 2012, pp. 22-25).

Pre-K Portfolio Collections for Math	Kindergarten Portfolio Collections for Math
• Counting and Cardinality • Geometry or Measurement and Data	• Counting and Cardinality • Operations and Algebraic Thinking

Figure 4. Pre-K and kindergarten math domains and collection expectations (TDOE, 2017, p. 3)

In addition to the two math collections, teachers must submit two ELA collections that measure three integrated standards from the foundational, reading, and writing strands. Through the development of the integrated groupings teachers will weave standards together to promote mastery of foundational skills which will lead to proficient reading and writing. Integration of the reading and writing standards were developed as a way to meet or exceed Tennessee's goal to have at least 75% of third graders reading on grade level by the year 2025. The integrated ELA standards have been pre-selected and are identified as ELA groupings. The options for the ELA groupings were identified by the TDOE through recommendations from pre-K and kindergarten teachers across different school districts in Tennessee. Pre-K and kindergarten teachers must select one grouping from the literature domain and one grouping from the informational domain, and document one written student artifact integrating the three standards within the groupings. In all, teachers are assessing six ELA standards in two ELA collections. Figure 5 shows the ELA domains and collection expectations for pre-K and kindergarten portfolio (TDOE, 2017). The 2017-2018 ELA standard groupings for pre-K and kindergarten portfolios are:

Pre-Kindergarten

Literature/Narrative Option 1

- RF.PK.1 Demonstrate understanding of basic features of print; distinguish between words and pictures [through representation].
- RL.PK.9 With guidance and support, relate the story to previously read stories, ideas in the themes, or personal life experiences.
- W.PK.3 With modeling and support, use a combination of drawing, dictating, and emergent writing to tell a real or imagined story indicating some order of the events.

Literature/Narrative Option 2

- RF.PK.1 Demonstrate understanding of basic features of print; distinguish between words and pictures [through representation].
- RL.PK.3 With guidance and support, identify major characters, settings, and events from a familiar story or nursery rhyme.
- W.PK.3 With modeling and support, use a combination of drawing, dictating, and emergent writing to tell a real or imagined story indicating some order of the events.

Literature/Narrative Option 3

- RF.PK.1 Demonstrate understanding of basic features of print; distinguish between words and pictures [through representation].
- RL.PK.2 With guidance and support, recall important facts to retell a familiar story in a sequence.
- W.PK.3 With modeling and support, use a combination of drawing, dictating, and emergent writing to tell a real or imagined story indicating some order of the events.

Informative/Expository Option A

- RF.PK.1 Demonstrate understanding of basic features of print; distinguish between words and pictures [through representation].
- RI.PK.3 With guidance and support, relate informational text to personal experience or other text.
- W.PK.2 With modeling and support, use a combination of drawing, dictating, and letters to explain information about a familiar topic or informational text.

Informative/Expository Option B

- RF.PK.1 Demonstrate understanding of basic features of print; distinguish between words and pictures [through representation].
- RI.PK.9 With guidance and support, explore and identify the similarities and differences between books on the same topic.
- W.PK.2 With modeling and support, use a combination of drawing, dictating, and letters to explain information about a familiar topic or informational text.

Informative/Expository Option C

- RF.PK.1 Demonstrate understanding of basic features of print; distinguish between words and pictures [through representation].
- RI.PK.2 With modeling and support, recall important age appropriate facts from informational text by engaging in meaningful discussions and activities.
- W.PK.2 With modeling and support, use a combination of drawing, dictating, and letter to explain information about a familiar topic or informational text.

Kindergarten

Literature/Narrative Option 1

- K.FL.WC.4 Know and apply grade-level phonics and word analysis skills when encoding words; write legibly.
- K.RL.IKI.9 With prompting and support, orally compare and contrast the adventures and experiences of characters in familiar stories.
- K.W.TTP.3 With prompting and support, use a combination of drawing, dictating, and/or writing to narrate a single event.

Literature/Narrative Option 2

- K.FL.WC.4 Know and apply grade-level phonics and word analysis skills when encoding words; write legibly.
- K.RL.KID.3 With prompting and support, orally identify characters, setting, and major events in a story.
- K.W.TTP.3 With prompting and support, use a combination of drawing, dictating, and or/writing to narrate a single event.

Literature/Narrative Option 3

- K.FL.WC.4 Know and apply grade-level phonics and word analysis skills when encoding words; write legibly
- K.RL.KID.2 With prompting and support, orally retell familiar stories, including key details.

- K.W.TTP.3 With prompting and support, use a combination of drawing, dictating, and/or writing to narrate a single event.

Informative/Expository Option A

- K.FL.WC.4 Know and apply grade-level phonics and word analysis skills when encoding words; write legibly.
- K.RI.IKI.9 With prompting and support, orally identify basic similarities and differences between two texts on the same topic.
- K.W.TTP.2 With prompting and support, use a combination of drawing, dictating, and/or writing to compose informative/explanatory texts.

Informative/Expository Option B

- K.FL.WC.4 Know and apply grade-level phonics and word analysis skills when encoding words; write legibly.
- K.RI.KID.3 With prompting and support, orally identify the connection between two individuals, events, ideas, or pieces of information in a text.
- K.W.TTP.2 With prompting and support, use a combination of drawing, dictating, and/or writing to compose informative/exploratory texts.

Informative/Expository Option C

- K.FL.WC.4 Know and apply grade-level phonics and word analysis skills when encoding words; write legibly.
- K.RI.KID.2 With prompting and support, orally identify the main topic and retell key details of a text.

- K.W.TTP.2 With prompting and support, use a combination of drawing, dictating, and/or writing to compose informative/explanatory texts. (TDOE, 2017, p. 5-6)

Pre-K Portfolio Collections for ELA	Kindergarten Portfolio Collections for ELA
• Literature/Narrative • Informational/Explanatory	• Literature/Narrative • Informational/Explanatory

Figure 5. Pre-K and kindergarten ELA domains and collection expectations (TDOE, 2017, p. 3)

Once teachers have selected the standards for assessing within the portfolio, they begin to collect evidence. Teachers must submit artifacts that show students proficiency for each ELA and math domain. The initial artifact collection is called point A, which is used as a pre-assessment to determine students' proficiency levels for the selected standards. Teachers will use point A to determine the proficiency levels of students and implement content-specific instructional strategies that will foster the most growth possible from each student. The final step in the process of collecting evidence is point B, or the post assessment. Teachers will collect evidence for point B in the same way evidence was collected for point A; and through comparison of point A and point B, the teachers will determine the amount of growth for each student. Artifacts that may be documented within the portfolio collections for point A and point B can include: videos that demonstrate student action or talk, audio recordings of student conversation or think aloud, photographs of student work, and videos of students performing tasks. The student growth portfolio model requires that teachers submit evidence for an emerging, proficient, and advanced student under each domain. The total number of collections required for the portfolio is four, within each collection there must be evidence for point A and

point B for three students (TDOE, 2017). Figure 6 shows a framework for one portfolio collection.

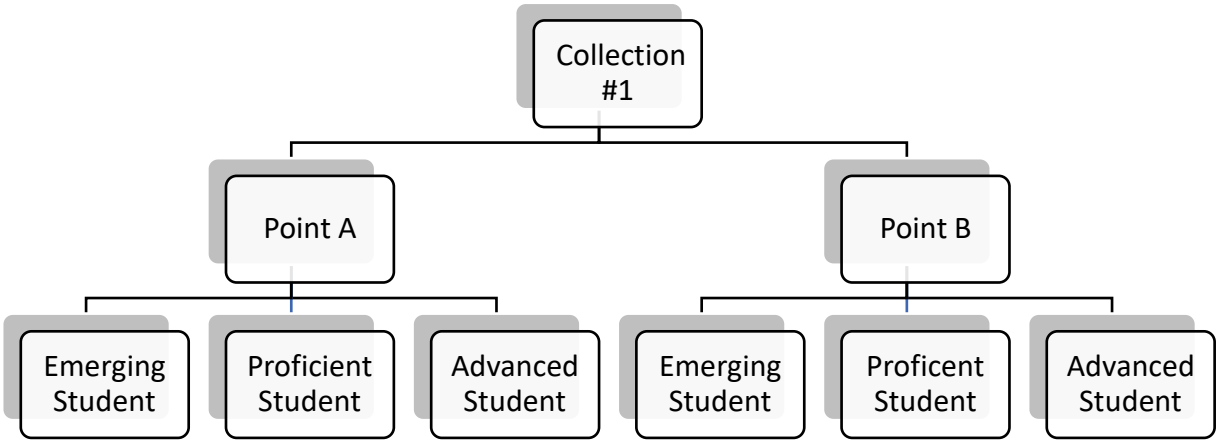

Figure 6. Framework for one portfolio collection (TDOE, 2017).

The portfolio scoring process. A consensus scoring methodology is used for determining the scores teachers receive for their portfolios. There are several steps to the scoring process within the Student Growth Portfolio Models for pre-K and kindergarten. This process includes the identification of student growth, a self-scoring process, a peer reviewer scoring process, and in some cases an executive reviewer scoring process. Student growth is identified using scoring guides that have been developed for the pre-K and kindergarten portfolio models. The portfolio scoring guides are defined by the TDOE as "standards-based tools that identify the criteria and descriptions for each standard present in the portfolio" (TDOE, 2017). The scoring guides are used when scoring student work at point A and point B within each collection submitted in the portfolio. Scoring guides are divided based on the domains that have been selected for math and ELA, with each standard listed under the domains. Each standard within the portfolio has been deconstructed and identified across seven steps or columns within the scoring guides. The columns are numerically identified from one to seven with column three

reflecting the expectations for the grade level. Students performing at grade level are considered proficient. Columns one and two are identified as below grade level; and typically, students falling within this proficiency level would be considered emerging. Columns four through seven are above the grade level standard; therefore, students performing at this level would be considered advanced (TDOE, 2017). Figure 6 provides an example of the scoring guide for pre-K standard PK.CC.2 verbally count forward in sequence from 1-30:

Standard	**1**	**2**	**3**	**4**	**5**	**6**	**7**
PK.CC.2	Does not verbally count forward in a sequence from 1-10.	Verbally counts forward in a sequence from 1-10.	Verbally counts forward in sequence from 1-3-0.	Verbally counts forward in sequence from 1-50.	Verbally count forward in sequence from 1-100.	Counts forward (3 numbers) beginning from a given number within the known sequence between 11 and 20 (instead of having to begin at 1).	Counts forward (3 numbers) beginning from a given number within the known sequence between 21 and 50 (instead of having to begin at 1).

Figure 7. Adapted from the pre-K mathematics scoring guide for standard number PK.CC.2 from the counting and cardinality domain (TDOE, 2017, p. 5).

In order to measure growth through the portfolio process a teacher must first identify where students' proficiency levels are for point A. Next, teachers will sort students based on their levels of performance based on the three differentiated groups previously discussed: emerging, proficient, and advanced. After differentiated teaching is done within the classroom, teachers collect point B evidence, and the students' proficiency levels are again identified. Growth is determined based on the difference in levels or columns a student progresses between

point A and point B. For example, when a student performs at column two for point A he or she would be considered emerging due to column two being below the grade level expectation for that standard. At point B the same student may perform at column four, which is above the grade level expectation for that standard. The growth for this student is determined by how many columns he or she moved between point A and point B on the scoring guide, which is two (TDOE, 2017).

Once teachers have determined the levels of growth for each student within each collection of the portfolio they must identify the level of proficiency for point A and point B within the online platform where portfolios are submitted. The process of identifying student proficiency levels for each point in time, within the submission platform, is identified as the self-scoring process. After all student samples have been self-scored teachers will submit their portfolios. Submitted portfolio collections are distributed to peer reviewers who have been trained and certified by the TDOE. Through this consensus scoring process the teachers' self-scores and the peer reviewer scores are compared. If there is a discrepancy of two or more performance levels between the self-score and the peer reviewer score, for any evidence within the portfolio, the collection is sent to an executive reviewer for final scoring (TDOE, 2017). Within each collection a portfolio will receive a level of growth for an emerging, proficient, and advanced student, and these three growth scores are then averaged to reflect the level of student growth for each domain. The average level of growth for each domain is then used to determine a student growth indicator using a scaled value of 1-5 as shown in figure 7. This scoring process is repeated for all collections within the portfolio to calculate four student growth indicators. The student growth indicators are then averaged to calculate a raw score; from then, the raw score is applied to the scaled value of 1-5 as shown in figure 8.

Level 5 Significantly Above Expectations	Students demonstrate, on average, three of more levels (columns) of student growth (= or > 3 levels of growth)
Level 4 Above Expectations	Students demonstrate, on average, two levels (columns) of student growth, but less than three levels of student growth (=2 levels of growth, but < 3 levels of growth)
Level 3 At Expectations	Students demonstrate, on average, one, but less than two levels (columns) of student growth (=1 level of growth but <2 levels of growth)
Level 2 Below Expectations	Students demonstrate, on average, less than one level (column) of student growth (>0 levels of growth but <1 level of growth)
Level 1 Significantly Below Expectations	Students demonstrated, on average, no growth or negative growth.

Figure 8. 2017-2018 Student growth indicator for pre-K and kindergarten student growth portfolio models (TDOE, 2017, p. 7).

Growth Level	Portfolio Cut Scores
Level 1	1.00-1.79
Level 2	1.80-2.59
Level 3	2.60-3.39
Level 4	3.40-4.19
Level 5	4.20-5.00

Figure 9. Teacher effectiveness indicator (TDOE, 2017, p. 8)

Chapter Summary

The opportunities that children are given during the stages of early childhood could have an effect on their later school performance (Burger, 2009). It is critical for early childhood educators to understand the aspects of developmentally appropriate practice and the complicated process of how children learn. The theories of Dewey, Vygotsky, Erikson, Piaget, and Tyler have all contributed to early childhood education by providing different views of how children learn. While the views of these well-known theorists are in some ways different, the commonality

among their philosophies can be summarized by affirming that children learn best by being active and interactive through engagement with learning that is fun and exciting and when curiosity is not fully satisfied (Copple & Bredekamp, 2009; Hlebowitsh & Tyler, 2013; Mooney, 2013).

At the ages of 3 to 5 years children become very curious and begin to pay close attention to their surroundings; and develop an awareness of time through the understanding of their daily routines. At these ages, there are typically an influx of questions asked daily that are usually very abstract, and while it is sometimes difficult, it is very important for adults to respond to these questions in order to foster curiosity. Educators must provide learning opportunities that are engaging for children and at the same time meeting them at their developmental levels. Problem solving and building vocabulary establishes the foundation for success in math and literacy (Purpura & Reid, 2015). Children should not feel pressured to learn (AAP, n.d.); in fact, children's learning at this stage is a process that takes several years due to their brains maturity and the lack of experiences they are given using new skills (Copple & Bredekamp, 2009).

There are many assessments that can be used in early childhood, but for an assessment to be more accurate and provide a fuller picture it requires time. Successful assessments allow students to present themselves and become decision makers in the assessment process (Meier & Knoester, 2017). Assessments in pre-K and kindergarten should be an integrated and ongoing process in which teachers observe children while they are engaged in learning and document what is observed (Copple & Bredecamp, 2009; Hughes & Gullo, 2010). The process of documenting children's learning through observation can be categorized as an alternate assessment. Alternate assessments have been identified as the best method to enhance students' potential (Nasri et al., 2010). Portfolio assessments are alternative to standardized testing and

considered an acceptable assessment that evaluates student growth through daily activities by providing a holistic view of children's understanding (Engel & Gronlund, 2001; Martin, 2014). There are different approaches that can be taken in the process of portfolio assessments, but all portfolios can be identified as being a collection of students' ongoing work over a period of time (Grunlund, 2001; Herbert, 2001; Kingore, 2008; MacDonald, 1997; Popham, 2012). While portfolios have a positive effect on students' learning there is lack of evidence that supports the use of portfolios when implemented on a large-scale (Haertal, 1999). The purpose of a portfolio is to capture students' growth over a period of time, and for a portfolio assessment to be reliable it must have clear and measurable criteria that produce consistent results (Baki & Birgin, 2007; Brown, 1997; Herman & Winters, 1994). The reliability in gathering scores for portfolios is low, but this can be overcome through the use of rubrics when scoring student work (Baki & Birgin, 2007).

The Student Growth Portfolio Model in Tennessee was implemented as a way to collect information about teachers' effectiveness and provide them the support they need in their classrooms. The purpose of the Student Growth Portfolio Model is to be a natural collection of student work produced in the learning environment that encourages thinking, speaking, writing, reading, and problem solving. The SGPM include a sampling of the students within the class and their performances on particular math and English language arts standards that have been included in the design of the portfolio model. Individual student scores are not reported in the scoring process of The SGPM; however, scoring guides that are similar to rubrics have been designed by the TDOE for teachers to use when identifying student proficiency in particular skills. These scoring guides are then used in an extensive review process to determine student growth. Once the student growth averages are determined the portfolio collection averages are

applied to the protocols within The teacher effectiveness indicator to become the overall portfolio score received for the portfolio (TDOE, 2017).

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of the study was to discover the perceptions of pre-K and kindergarten teachers within public schools in Tennessee regarding the appropriateness of the student growth portfolio model. This study researched teachers' perceptions of appropriateness of the math standards, ELA standard groupings, and the scoring guide within the pre-K and kindergarten portfolio models. Information regarding current perceptions of pre-K and kindergarten teachers was collected from data provided by a web-based survey instrument. The Statistical Package for IBM-SPSS was used to calculate results of pre-K and kindergarten teachers' perceptions of the appropriateness of the 2017-2018 student growth portfolio model in Tennessee.

Research Questions and Null Hypotheses

The study was guided by the following eleven research questions and null hypotheses:

Research Question 1

Do pre-K teachers in Tennessee public schools perceive the math standards included for the counting and cardinality domain within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent?

$H_0$1: Pre-K teachers in Tennessee public schools do not perceive the math standards included for the counting and cardinality domain within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent.

Research Question 2

Do pre-K teachers in Tennessee public schools perceive the math standards included for the measurement and data domain within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent?

$H_0$2: Pre-K teachers in Tennessee public schools do not perceive the math standards included for the measurement and data domain within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent.

Research Question 3

Do pre-K teachers in Tennessee public schools perceive the math standards included for the geometry domain within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent?

$H_0$3: Pre-K teachers in Tennessee public schools do not perceive the math standards included for the geometry domain within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent.

Research Question 4

Do pre-K teachers in Tennessee public schools perceive the English language arts narrative standard groupings included within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent?

$H_0$4: Pre-K teachers in Tennessee public schools do not perceive the English language arts narrative standard groupings included within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent.

Research Question 5

Do pre-K teachers in Tennessee public schools perceive the English language arts informative standard groupings included within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent?

$H_0$5: Pre-K teachers in Tennessee public schools do not perceive the English language arts informative standard groupings included within the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent.

Research Question 6

Do pre-K teachers in Tennessee public schools perceive the scoring guide for the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent?

$H_0$6: Pre-K teachers in Tennessee public schools do not perceive the scoring guide for the student growth portfolio model as appropriate for measuring the growth of pre-K students to a significant extent.

Research Question 7

Do kindergarten teachers in Tennessee public schools perceive the math standards included for the counting and cardinality domain within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent?

$H_0$7: Kindergarten teachers in Tennessee public schools do not perceive the math standards included for the counting and cardinality domain within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent.

Research Question 8

Do kindergarten teachers in Tennessee public schools perceive the math standards included for the operations and algebraic thinking domain within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent?

$H_0$8: Kindergarten teachers in Tennessee public schools do not perceive the math standards included for the operations and algebraic thinking domain within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent.

Research Question 9

Do kindergarten teachers in Tennessee public schools perceive the English language arts narrative standard groupings included within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent?

$H_0$9: Kindergarten teachers in Tennessee public schools do not perceive the English language arts narrative standard groupings included within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent.

Research Question 10

Do kindergarten teachers in Tennessee public schools perceive the English language arts informative standard groupings included within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent?

$H_0$10: Kindergarten teachers in Tennessee public schools do not perceive the English language arts informative standard groupings included within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent.

Research Question 11

Do kindergarten teachers in Tennessee public schools perceive the scoring guide for the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent?

$H_0$11: Kindergarten teachers in Tennessee public schools do not perceive the scoring guide for the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent.

Sample

The participating school districts are located in East, Middle, and West Tennessee. Pre-K and kindergarten public school teachers were solicited for this study via email from 11 Tennessee public school districts: Lincoln County, Humphreys County, Bradley County, Weakley County, Trenton Special, Bradford Special, Benton County, Sevier County, Marshall County, Claiborne County, and Fayetteville City. Once districts agreed to participate in the research, they disseminated the survey to pre-K and kindergarten teachers. There were 22 pre-K teachers who started the survey with 16 pre-K teachers who completed all responses. There were 75 kindergarten teachers who started the survey with 51 kindergarten teachers who completed all responses. More information on the demographic background of participants is reported in Chapter 4.

Instrumentation

The web-based survey platform, Survey Monkey, was used as a resource for developing and disseminating the research instrument. Information regarding pre-k and kindergarten teacher perceptions were collected from data provided by a Likert scale survey to measure responses with a mean of 2.5 for the categories of *Strongly Disagree*, *Disagree, Agree*, and *Strongly Agree*. There were two sections in the survey. The first section was used to gather demographic data of the teachers participating in the survey. The second section of the survey measured teacher perceptions of the appropriateness in three areas: math standards, ELA standard groupings, and the scoring guide within the SGPM in Tennessee after the 2017-2018 implementation. Table 1 shows the stratification of questions used in the pre-K survey and Table 2 shows the stratification of questions used in the kindergarten survey. The survey was designed to be answered anonymously with no identification of participants and included randomized questions. A pretest was conducted to ensure clarity and wording of the questions and revisions were made where necessary. Once the items were revised, and the survey drafted, a pilot was conducted. After the pilot was conducted the survey was revised. The survey is included in the Appendix.

Table 1: Stratification of Questions from Pre-K Survey

Demographic Information	Question Numbers for Standards	Question Numbers for Scoring Guide
2	Counting and Cardinality	ELA Scoring Guide
3	6	21
4	15	26
5	16	27
	Measurement and Data	Math Scoring Guide
	8	22
	17	23
	18	24
	Geometry	25
	7	
	19	
	20	
	ELA Narrative Groupings	
	10	
	12	
	14	
	ELA Informative Groupings	
	9	
	11	
	13	

Table 2: Stratification of Questions from Kindergarten Survey

Demographic Information	Question Numbers for Standards	Question Numbers for Scoring Guide
2	Counting and Cardinality	ELA Scoring Guide
3	28	40
4	36	44
5	37	45
	Operations and Algebraic Thinking	Math Scoring Guide
	29	41
	38	42
	39	43
	ELA Narrative Groupings	
	31	
	33	
	35	
	ELA Informative Groupings	
	30	
	32	
	34	

Data Collection

Prior to data collection, approval from the dissertation committee was granted and a request was submitted to the Institutional Review Board (IRB). A permission letter and copy of the survey was emailed to the early childhood supervisors within 11 Tennessee school districts. Upon receipt of IRB and school system approval, the survey was distributed through Survey Monkey to the district supervisors to disseminate to pre-K and kindergarten teachers in the identified school systems for voluntary completion. There were 11 districts' pre-K and kindergarten teachers that received the survey. Data were collected after the portfolio submission date on April, 15, 2018. A 2-week window was allotted for responses to be collected, with a reminder sent to districts after 1-week.

Data Analysis

A quantitative survey was used to understand pre-K and kindergarten teachers' perceptions of the appropriateness of the 2017-2018 SGPM. Single sample t-tests were used to analyze responses. All data were analyzed at the .05 level of significance. The analysis was conducted using the SPSS (Statistical Package for Social Sciences), Version 23 for Windows software.

CHAPTER 4

ANALYSIS AND PRESENTATION OF DATA

The purpose of the study was to discover the perceptions of pre-K and kindergarten teachers within public schools in Tennessee regarding the appropriateness of the student growth portfolio model (SGPM). This chapter addresses the research questions and hypotheses that were introduced in Chapters 1 and 3. Data from 51 kindergarten teachers and 16 pre-K teachers in 11 school districts within Tennessee were used for the analysis. All research questions were analyzed using single sample t-tests to determine pre-K and kindergarten teachers' perceptions of the student growth portfolio model in Tennessee.

The educators involved in this study were teachers from public schools in Tennessee. The Tennessee school districts that participated in this study include the following: Lincoln County, Humphreys County, Bradley County, Weakley County, Trenton Special, Bradford Special, Sevier County, Marshall County, Claiborne County, Fayetteville City, and Benton County.

Pre-K and kindergarten teachers' perceptions were collected from a 4-point Likert scale survey to measure responses with a mean of 2.5 for the following categories: *Strongly Disagree (1), Disagree (2), Agree (3), and Strongly Agree (5)*. The respondents provided demographic data. Teachers respondes to items about the appropriateness of the SGPM was measured in three areas: math standards, ELA standards, and the scoring guide.

Analysis of Demographics

The survey contained questions regarding specific demographic data about the educators within each participating school. Questions about years of experience, school's last reported

effectiveness composite score, salary compensation based on level of effectiveness score, and the grade level currently taught were asked on the survey. There were 16 pre-K teachers, representing 23.9% of the total sample, who participated in the survey. Fifty-one kindergarten teachers, representing 76.1% of the total sample, participated in the survey. A total of 67 teachers participated in the survey. Tables 3 through 9 shows the results from the demographic section of the survey.

Table 3, Participants' Grade Levels

Grade Level	**Frequency**	**Percent**
Pre-K	16	23.9
Kindergarten	51	76.1
Total	**67**	**100**

The first question asked the participants to indicate how many years of teaching experience they have. Six educators, representing 37.5% of the pre-K sample, had been teaching for 9 or fewer years. Ten educators, representing 62.6% of the pre-K sample, had been teaching for 10 or more years. Table 4 shows the range of pre-K teachers' years of experience. Thirteen educators, representing 25.4% of the kindergarten sample, had been teaching for 9 or fewer years. Twenty-nine educators, representing 56.8% of the kindergarten sample, had been teaching for 10 to 24 years. Nine educators, representing 17.6% of the kindergarten sample, had been teaching for 25 years or more. Table 5 shows the range of kindergarten teachers' years of experience.

Table 4, Pre-K Participants' Years of Teaching Experience

Years of Teaching Experience	Frequency	Percent
1-4 years	2	12.5
5-9 years	4	25.0
10-14 years	3	18.8
15-19 years	2	12.5
20-24 years	5	31.3
Total	16	100

Table 5, Kindergarten Participants' Years of Teaching Experience

Years of Teaching Experience	Frequency	Percent
1-4 years	9	17.6
5-9 years	4	7.8
10-14 years	15	29.4
15-19 years	10	19.6
20-24 years	4	7.8
25 or more	9	17.6
Total	51	100

The next question inquired about the composite scores of the schools where the participants work. Composite scores are reported on a 1-5 scale with levels 1 and 2 indicating that schools are making less than the expected growth, level 3 indicating that schools are making expected growth, and levels 4 and 5 indicating that they are exceeding expected growth (TDOE, 2016). Participants were given the option to skip this question. There were no pre-K teachers who reported having a school composite score of one or two. Three teachers, representing 18.8%

of the pre-K sample, reported to have a school composite score of level three. Two teachers, representing 12.5% of the pre-K sample, reported to have a school composite score of level four. Eight teachers, representing 50% of the pre-K sample, reported to have a school composite score of level five. There were three pre-K teachers, representing 18.8% of the sample, who skipped this question. Table 6 shows the frequency of pre-K teachers' last reported school composite score. There were five teachers, representing 9.8% of the kindergarten sample, that reported a school composite score of level one. Two teachers, representing 3.9% of the kindergarten sample reported a school composite score of level two. Seventeen teachers, representing 33.3% of the kindergarten sample reported a school composite score of level three. Nine teachers, representing 17.6% of the kindergarten sample, reported having a school composite score of level four. Twelve teachers, representing 23.5% of the kindergarten sample, reported a school composite score of level five. There were six teachers, representing 11.8% of the kindergarten sample, who skipped this question. Table 7 shows the frequency of kindergarten teachers' last reported school composite score.

Table 6, Pre-K Participants' Schools' Last Reported School Composite Score

Last Reported School Composite Score	**Frequency**	**Percent**
1	0	0
2	0	0
3	3	18.8
4	2	12.5
5	8	50.0
Skipped	3	18.8
Total	16	100

Table 7, Kindergarten Participants' Schools' Last Reported School Composite Score

Last Reported School Composite Score	Frequency	Percent
1	5	9.8
2	2	3.9
3	17	33.3
4	9	17.6
5	12	23.5
Skipped	6	11.8
Total	**51**	**100**

The last question asked if participants received salary compensation based on their teacher level of effectiveness (LOE) score. Four teachers, representing 25% of the pre-K sample, indicated that they did receive salary compensation based on their teacher LOE score. Nine teachers, representing 56.3% of the pre-K sample, indicated that they did not receive salary compensation based on their teacher LOE score. There were three teachers, representing 18.8% of the pre-K sample, who were unsure if they received salary compensation based on their teacher LOE. Table 8 shows the frequency of pre-K teachers who receive compensation based on their LOE and those who do not. Of the kindergarten teachers who participated in the survey, there were six, representing 11.8% of the kindergarten sample, who indicated that they did receive salary compensation based on their teacher LOE score. There were 39 teachers, representing 76.5% of the kindergarten sample who indicated that they did not receive salary compensation based on their teacher LOE score. Six of the teachers, representing 11.8% of the kindergarten teacher sample, indicated that they were not sure if they received salary

compensation based on their LOE. Table 9 shows the frequency of kindergarten teachers who receive compensation based on their LOE and those who do not.

Table 8, Salary Compensation Based on LOE for Pre-K Teachers

Receives Salary Compensation based on LOE	**Frequency**	**Percent**
yes	4	25
no	9	56.3
unsure	3	18.8
Total	16	100

Table 9, Salary Compensation Based on LOE for Kindergarten Teachers

Receives Salary Compensation based on LOE	**Frequency**	**Percent**
yes	6	11.8
no	39	76.5
unsure	6	11.8
Total	51	100

The participants' demographic data may be summarized as follows: 67 teachers responded to the survey. Of the 67 teachers, 16 taught pre-K and 51 taught kindergarten. The highest number of pre-K respondents had been teaching for 5 to 9 years (25%), and the highest number of kindergarten respondents had been teaching for 10 to 14 years (29.4%). The highest number of pre-K respondents (50%) reported a school composite score of a level 5, and the highest number of kindergarten respondents (33.3%) reported a school composite score of a level 3. The highest reported pre-K respondents (56.3%) indicated that they did not receive salary

compensation; similarly, the highest reported kindergarten respondents (76.5%) indicated that they did not receive salary compensation.

Analysis of Research Questions

Pre-K Results

Research Question 1

Do pre-K teachers in Tennessee public schools perceive the math standards included for the counting and cardinality domain within the Student Growth Portfolio Model as appropriate for measuring the growth of pre-K students to a significant extent?

$H_0$1: Pre-K teachers in Tennessee public schools do not perceive the math standards included for the counting and cardinality domain within the Student Growth Portfolio Model as appropriate for measuring the growth of pre-K students to a significant extent.

A one-tailed single sample t-test was conducted to evaluate whether pre-K teachers perceive the counting and cardinality domain within the student growth portfolio as appropriate for measuring the growth of pre-K students to a significant extent. With alpha set at .05 the sample mean of 2.83 (SD = .38) was significantly higher than the test value 2.5, $t(15) = 3.464$, $p = .002$. Therefore, $H_0$1 was rejected. The 95% confidence interval for the difference in mean was .1282 to .5384. The results suggest that pre-K teachers perceive the math standards included for the counting and cardinality domain within the student growth portfolio model as appropriate for measuring the growth of the pre-K students to a significant extent. However, the number of respondents is too few to make any generalizations. Figure 10 shows the distribution of results for teachers' perceptions of the counting and cardinality domain within the student growth portfolio and its appropriateness for measuring the growth of pre-K students.

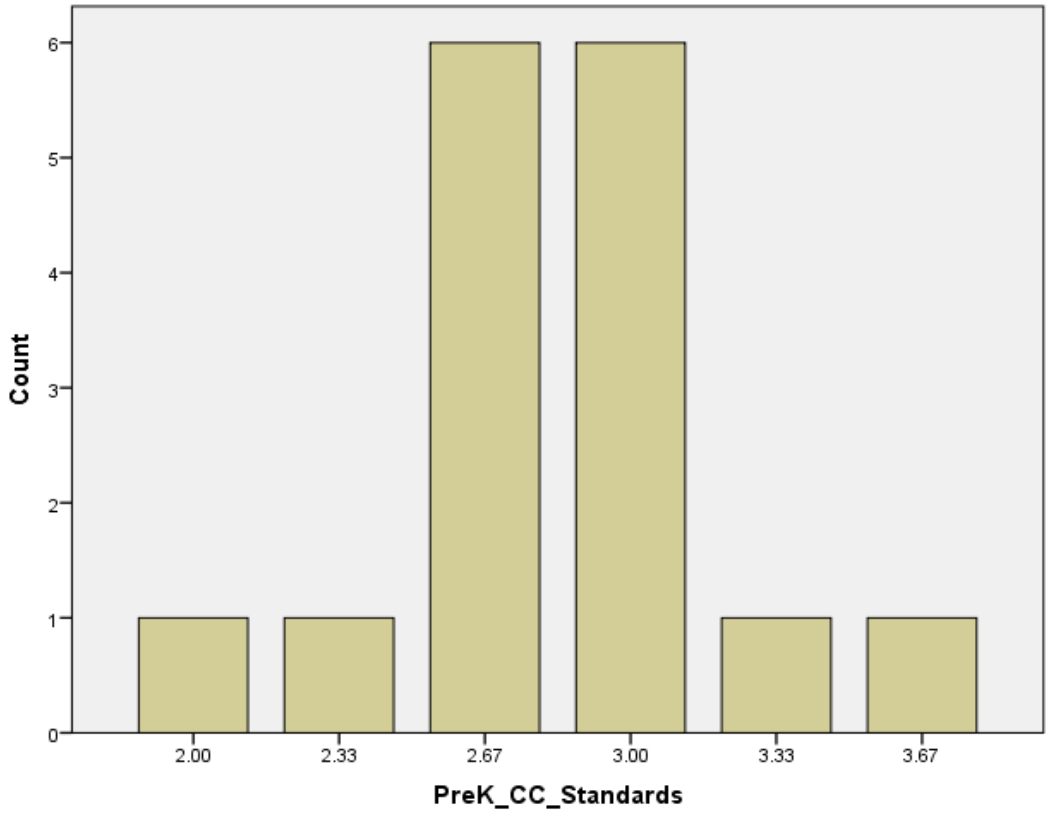

Figure 10: Distribution of results for pre-K teachers' perceptions of the counting and cardinality standards

Research Question 2

Do pre-K teachers in Tennessee public schools perceive the math standards included for the measurement and data domain within the Student Growth Portfolio Model as appropriate for measuring the growth of pre-K students to a significant extent?

$H_0$2: Pre-K teachers in Tennessee public schools do not perceive the math standards included for the measurement and data domain within the Student Growth Portfolio Model as appropriate for measuring the growth of pre-K students to a significant extent.

A one-tailed single sample t-test was conducted to evaluate whether pre-K teachers perceive the measurement and data domain within the student growth portfolio as appropriate for measuring the growth of pre-K students to a significant extent. With alpha set at .05 the sample mean of 2.81 (SD = .38) was significantly higher than the test value 2.5, $t(15) = 3.253$, $p = .003$. Therefore, $H_0 2$ was rejected. The 95% confidence interval for the difference in mean was .1077 to .5173. The results suggest that pre-K teachers perceive the math standards included for the measurement and data domain within the student growth portfolio model as appropriate for measuring the growth of the pre-K students to a significant extent. However, the number of respondents is too few to make any generalizations. Figure 11 shows the distribution of results for teachers' perceptions of the measurement and data domain within the student growth portfolio and its appropriateness for measuring the growth of pre-K students.

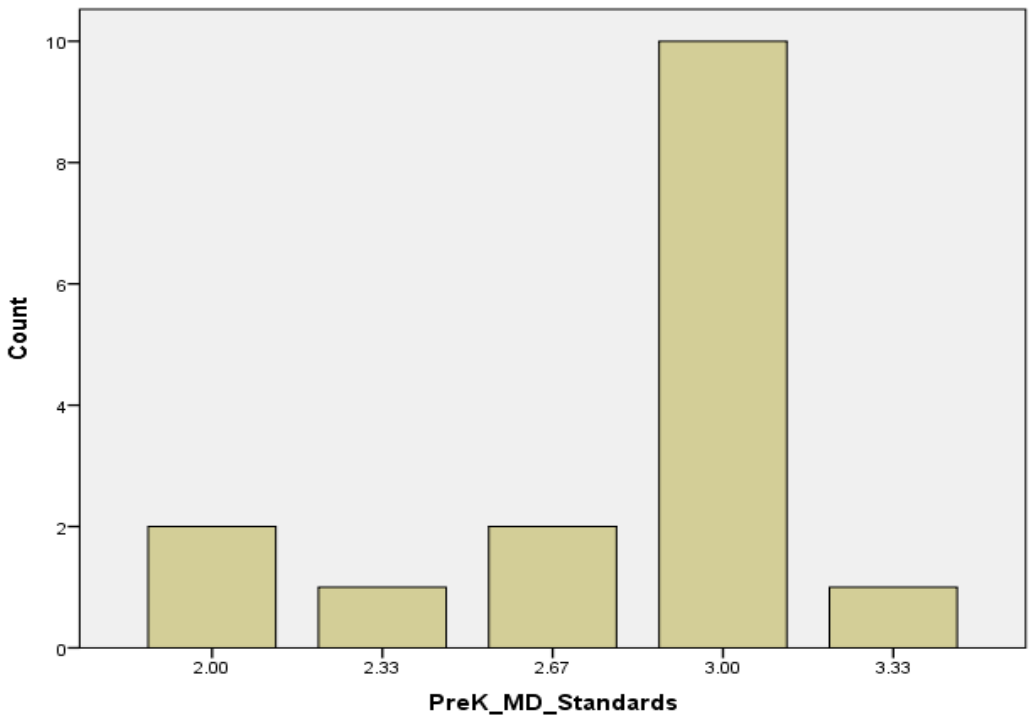

Figure 11: Distribution of results for pre-K teachers' perceptions of the measurement and data standards

Research Question 3

Do pre-K teachers in Tennessee public schools perceive the math standards included for the geometry domain within the Student Growth Portfolio Model as appropriate for measuring the growth of pre-K students to a significant extent?

$H_0$3: Pre-K teachers in Tennessee public schools do not perceive the math standards included for the geometry domain within the Student Growth Portfolio Model as appropriate for measuring the growth of pre-K students to a significant extent.

A one-tailed single sample t-test was conducted to evaluate whether pre-K teachers perceive the geometry domain within the student growth portfolio as appropriate for measuring the growth of pre-K students to a significant extent. With alpha set at .05, the sample mean of 2.50 (SD = .53) was approximately equal to the test value 2.5, $t(15) = .000$, $p = .50$. Therefore, $H_0$3 was retained. The 95% confidence interval for the difference in mean was -.2827 to .2827. There is not enough evidence to infer whether or not pre-K teachers perceive the math standards included for the geometry domain within the student growth portfolio model as appropriate for measuring the growth of the pre-K students to a significant extent. The number of respondents is too few to make any generalizations. Figure 12 shows the distribution of results for teachers' perceptions of the geometry domain within the student growth portfolio and its appropriateness for measuring the growth of pre-K students.

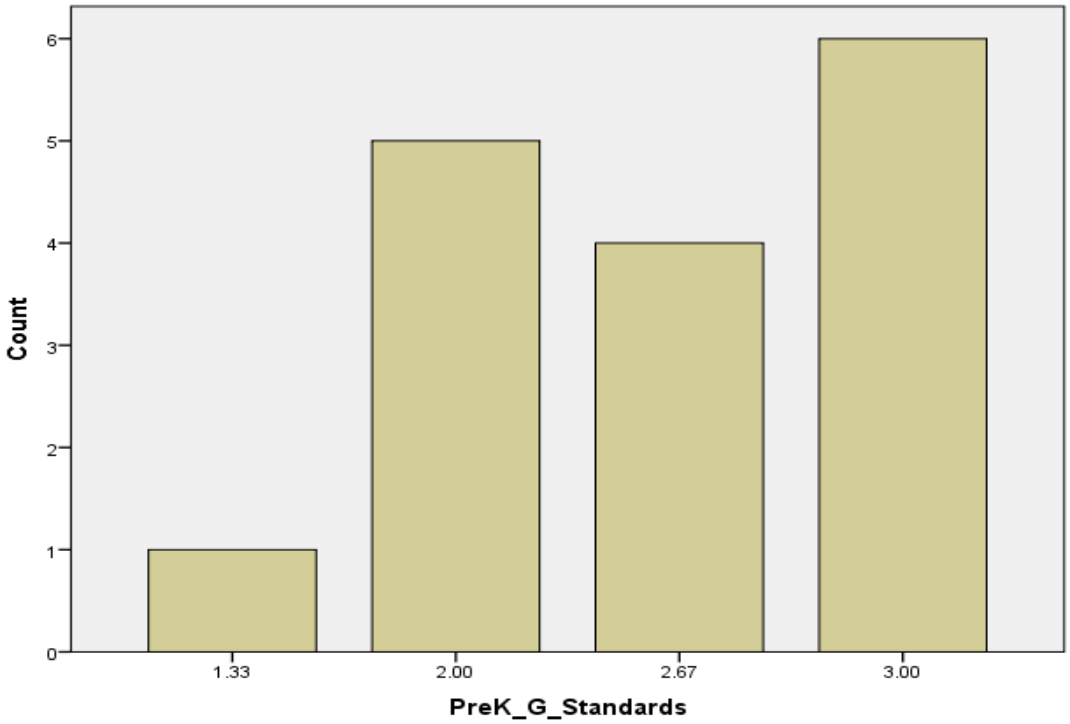

Figure 12: Distribution of results for pre-K teachers' perceptions of the geometry standards

Research Question 4

Do pre-K teachers in Tennessee public schools perceive the English language arts narrative standard groupings included within the Student Growth Portfolio Model as appropriate for measuring the growth of pre-K students to a significant extent?

$H_0$4: Pre-K teachers in Tennessee public schools do not perceive the English language arts narrative standard groupings included within the Student Growth Portfolio Model as appropriate for measuring the growth of pre-K students to a significant extent.

A one-tailed single sample t-test was conducted to evaluate whether pre-K teachers perceive the ELA narrative standards groupings within the student growth portfolio as appropriate for measuring the growth of pre-K students to a significant extent. With alpha set at .05, the sample mean of 2.52 (SD = .52) was approximately equal to the test value 2.5, $t(15)$ =

.162, p = .437. Therefore, $H_0$4 was retained. The 95% confidence interval for the difference in mean was -.2541 to .2958. There is not enough evidence to infer whether or not pre-K teachers in Tennessee public schools perceive the ELA narrative standard groupings within the student growth portfolio model as appropriate for measuring the growth of the pre-K students to a significant extent. Figure 13 shows the distribution of results for teachers' perceptions of the ELA narrative standard groupings within the student growth portfolio and its appropriateness for measuring the growth of pre-K students.

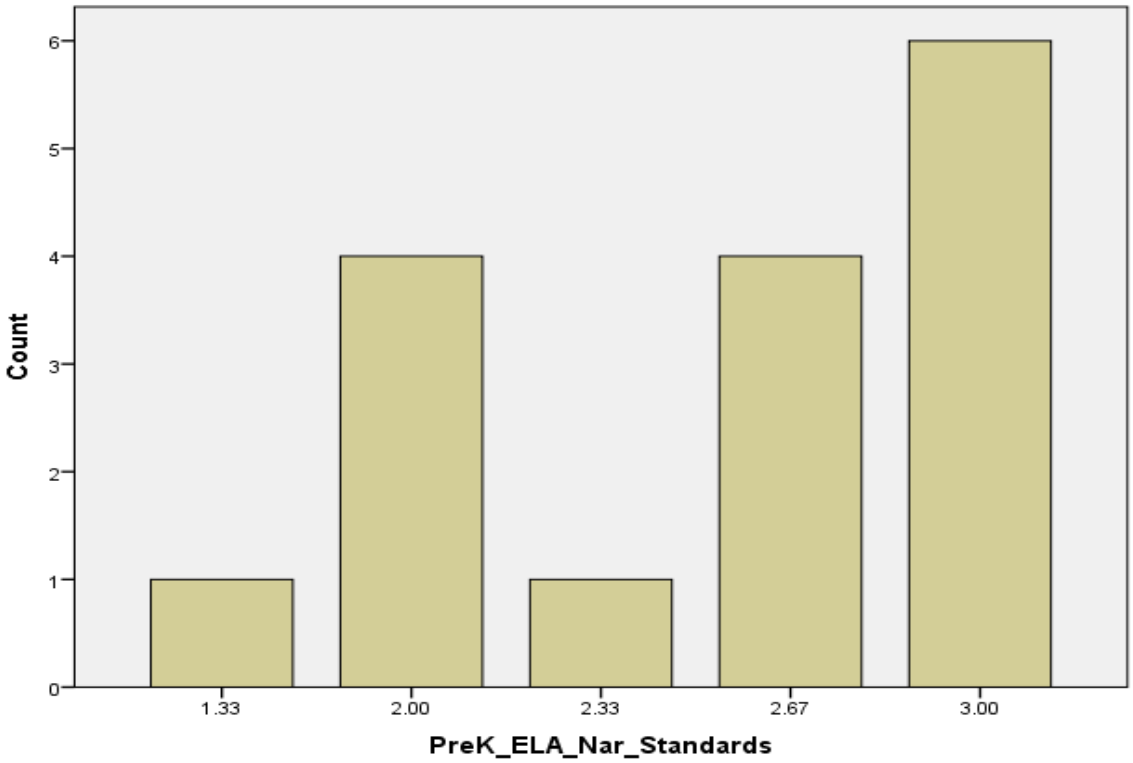

Figure 13: Distribution of results for pre-K teachers' perceptions of the ELA narrative standard groupings

Research Question 5

Do pre-K teachers in Tennessee public schools perceive the English language arts informative standard groupings included within the Student Growth Portfolio Model as appropriate for measuring the growth of pre-K students to a significant extent?

$H_0$5: Pre-K teachers in Tennessee public schools do not perceive the English language arts informative standard groupings included within the Student Growth Portfolio Model as appropriate for measuring the growth of pre-K students to a significant extent.

A one-tailed single sample t-test was conducted to evaluate whether pre-K teachers perceive the ELA informative standards grouping within the student growth portfolio as appropriate for measuring the growth of pre-K students to a significant extent. With alpha set at .05, the sample mean of 2.50 (SD = .53) was approximately equal to the test value 2.5, $t(15) = .00$, $p = .50$. Therefore, $H_0$5 was retained. The 95% confidence interval for the difference in mean was -.2827 to .2827. There is not enough evidence to infer whether or not pre-K teachers in Tennessee public schools perceive the ELA informative standard groupings within the student growth portfolio model as appropriate for measuring the growth of the pre-K students to a significant extent. Figure 14 shows the distribution of results for teachers' perceptions of the ELA informative standards within the student growth portfolio and its appropriateness for measuring the growth of pre-K students.

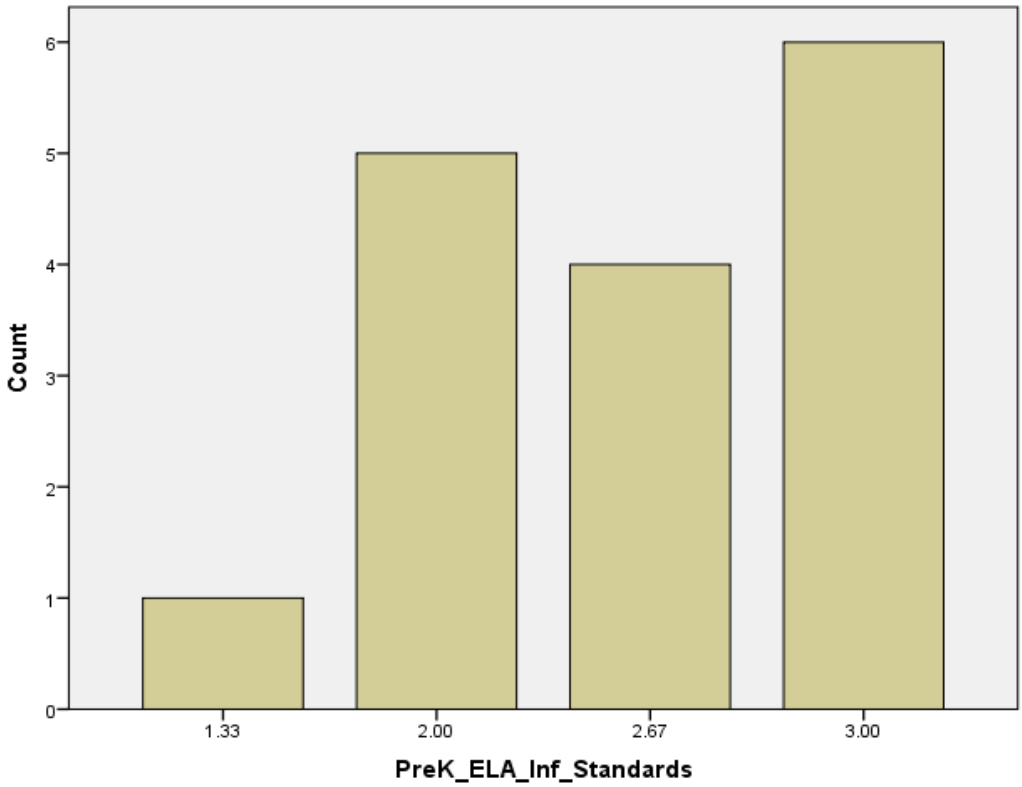

Figure 14: Distribution of results for pre-K teachers' perceptions of the ELA informative standard groupings

Research Question 6

Do pre-K teachers in Tennessee public schools perceive the scoring guide for the Student Growth Portfolio Model as appropriate for measuring the growth of pre-K students to a significant extent?

$H_0$6: Pre-K teachers in Tennessee public schools do not perceive the scoring guide for the Student Growth Portfolio Model as appropriate for measuring the growth of pre-K students to a significant extent.

A one-tailed single sample t-test was conducted to evaluate whether pre-K teachers perceive the scoring guide within the student growth portfolio as appropriate for measuring the

growth of pre-K students to a significant extent. With alpha set at .05, the sample mean of 2.37 (SD = .48) was approximately equal to the test value 2.5, $t(15) = -1.121$, $p = .14$. Therefore, $H_0 6$ was retained. The 95% confidence interval for the difference in mean was -.3886 to .1208. There is not enough evidence to infer whether or not pre-K teachers perceive the scoring guide within the student growth portfolio model as appropriate for measuring the growth of the pre-K students to a significant extent. Figure 15 shows the distribution of results for teachers' perceptions of the scoring guide within the student growth portfolio and its appropriateness for measuring the growth of pre-K students.

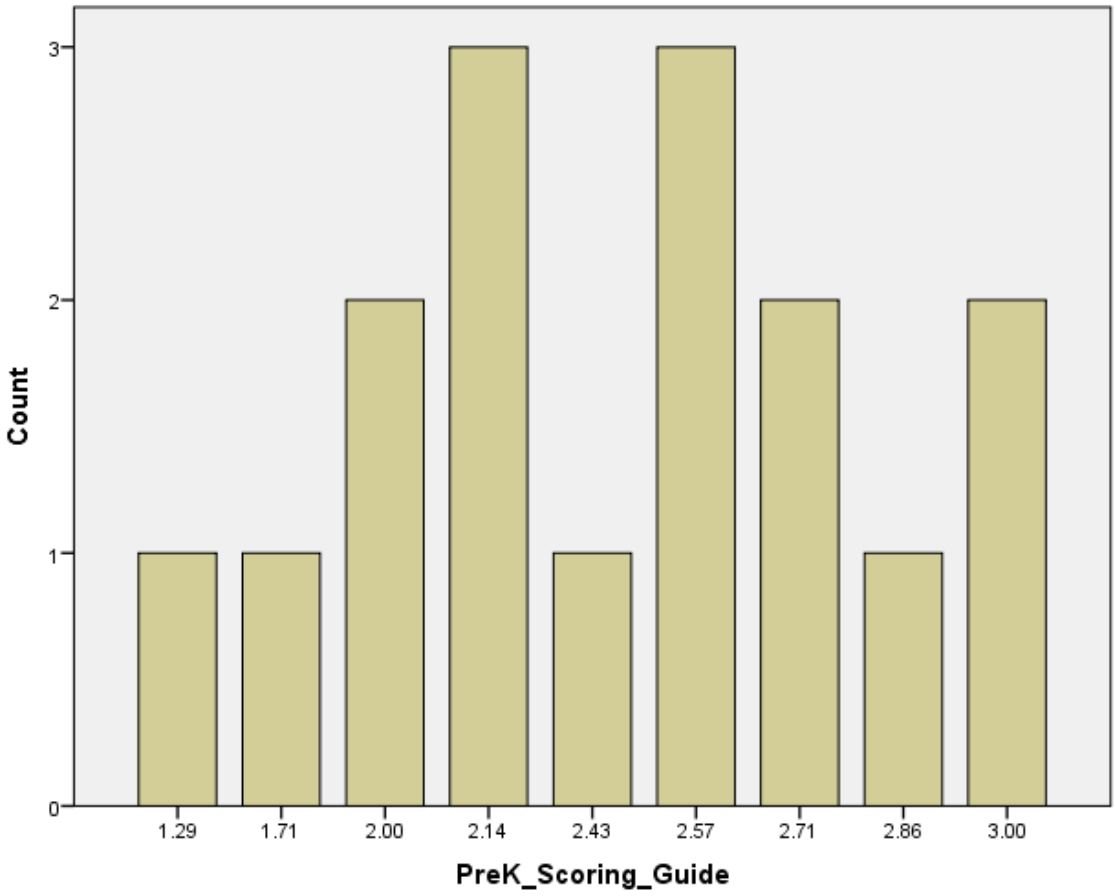

Figure 15: Distribution of results for pre-K teachers' perceptions of the scoring guide

Kindergarten Results

Research Question 7

Do kindergarten teachers in Tennessee public schools perceive the math standards included for the counting and cardinality domain within the Student Growth Portfolio Model as appropriate for measuring the growth of kindergarten students to a significant extent?

$H_0$7: Kindergarten teachers in Tennessee public schools do not perceive the math standards included for the counting and cardinality domain within the Student Growth Portfolio Model as appropriate for measuring the growth of kindergarten students to a significant extent.

A one-tailed single sample t-test was conducted to evaluate whether kindergarten teachers perceive the counting and cardinality domain within the student growth portfolio as appropriate for measuring the growth of kindergarten students to a significant extent. With alpha set at .05, the sample mean of 2.36 (SD = .16) was significantly lower than the test value 2.5, $t(50) = -6.227$, $p < .001$. Because the mean was not significantly higher than the test value, $H_0$7 was retained. The 95% confidence interval for the difference in mean was -.1858 to -.0952. The results suggest that kindergarten teachers do not perceive the math standards included for the counting and cardinality domain within the student growth portfolio model as appropriate for measuring the growth of the kindergarten students to a significant extent. Figure 16 shows the distribution of results for teachers' perceptions of the counting and cardinality domain within the student growth portfolio and its appropriateness for measuring the growth of kindergarten students.

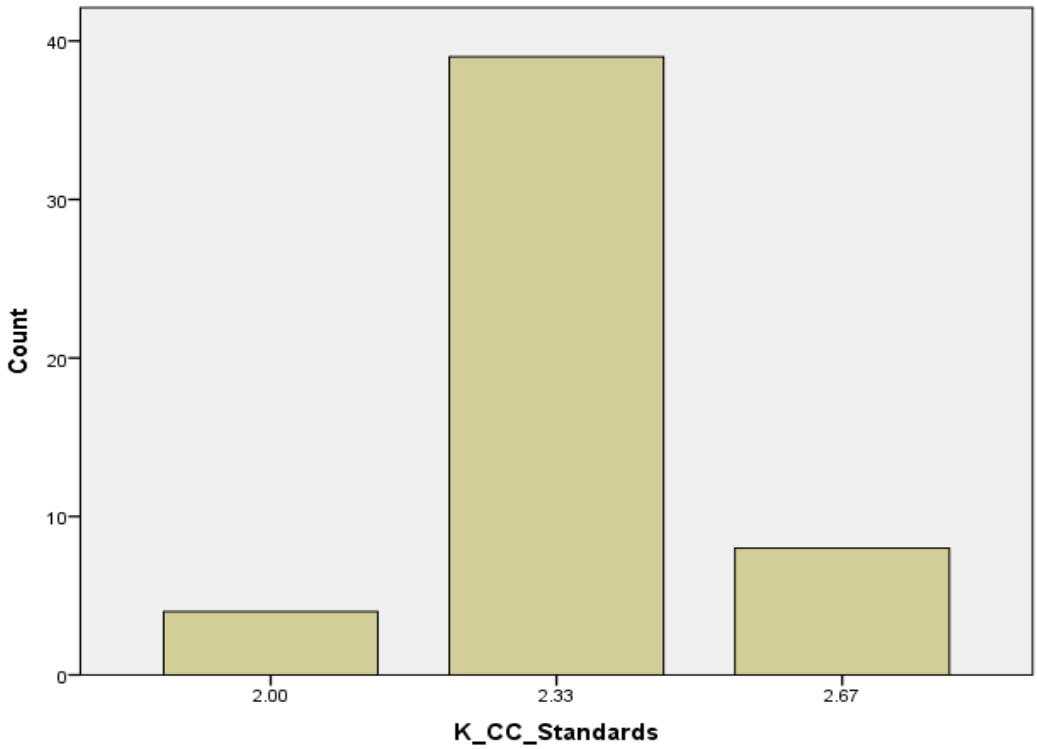

Figure 16: Distribution of results for kindergarten teachers' perceptions of the counting and cardinality standards

Research Question 8

Do kindergarten teachers in Tennessee public schools perceive the math standards included for the operations and algebraic thinking domain within the Student Growth Portfolio Model as appropriate for measuring the growth of kindergarten students to a significant extent?

$H_0$8: Kindergarten teachers in Tennessee public schools do not perceive the math standards included for the operations and algebraic thinking domain within the Student Growth Portfolio Model as appropriate for measuring the growth of kindergarten students to a significant extent.

A one-tailed single sample t-test was conducted to evaluate whether kindergarten teachers perceive the operations and algebraic thinking domain within the student growth portfolio as appropriate for measuring the growth of kindergarten students to a significant extent.

With alpha set at .05, the sample mean of 2.31 (SD = .34) was significantly lower than the test value 2.5, $t(50) = -3.883$, $p < .001$. Because the mean was not significantly higher than the test value, $H_0$8 was retained. The 95% confidence interval for the difference in mean was -.2826 to -.0899. The results suggest that kindergarten teachers do not perceive the math standards included for the operations and algebraic thinking domain within the student growth portfolio model as appropriate for measuring the growth of the pre-K students to a significant extent. Figure 17 shows the distribution of results for teachers' perceptions of the operations and algebraic thinking domain within the student growth portfolio and its appropriateness for measuring the growth of kindergarten students.

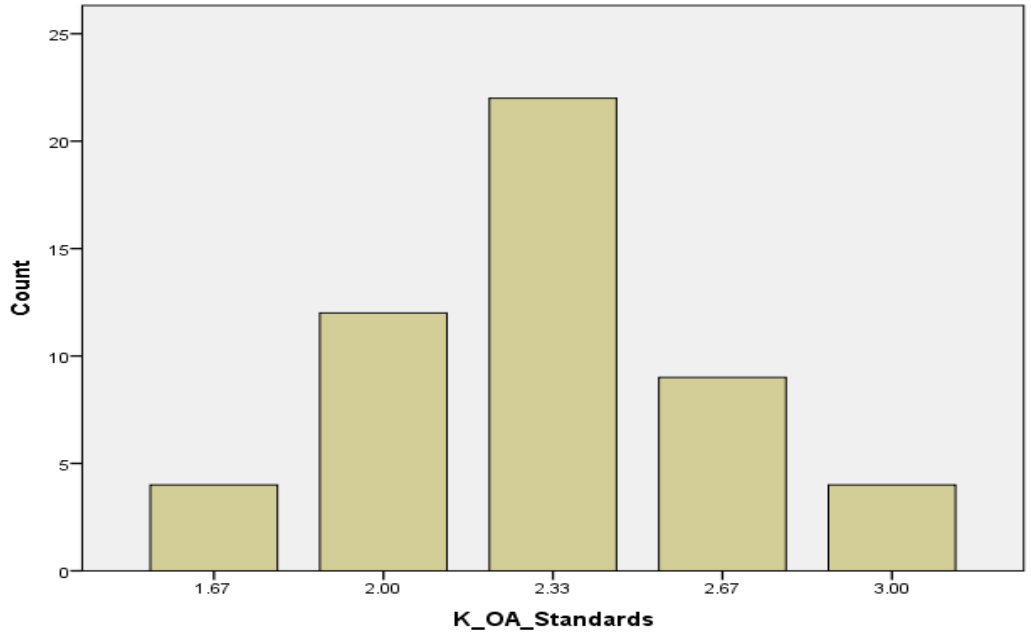

Figure 17: Distribution of results for kindergarten teachers' perceptions of the operations and algebraic expressions standards

Research Question 9

Do kindergarten teachers in Tennessee public schools perceive the English language arts narrative standard groupings included within the Student Growth Portfolio Model as appropriate for measuring the growth of kindergarten students to a significant extent?

$H_0$9: Kindergarten teachers in Tennessee public schools do not perceive the English language arts narrative standard groupings included within the Student Growth Portfolio Model as appropriate for measuring the growth of kindergarten students to a significant extent.

A one-tailed single sample t-test was conducted to evaluate whether kindergarten teachers perceive the ELA narrative standard grouping within the student growth portfolio as appropriate for measuring the growth of kindergarten students to a significant extent. With alpha set at .05, the sample mean 2.14 (SD = .67) was significantly lower than the test value 2.5, $t(50) = -3.863$, $p < .001$. Because the mean was not significantly higher than the test value, $H_0$9 was retained. The 95% confidence interval for the difference in mean was -.5513 to -.1741. The results suggest that there is enough evidence to infer that kindergarten teachers do not perceive the ELA narrative standard groupings within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent. Figure 18 shows the distribution of results for teachers' perceptions of the ELA groupings within the student growth portfolio and its appropriateness for measuring the growth of kindergarten students.

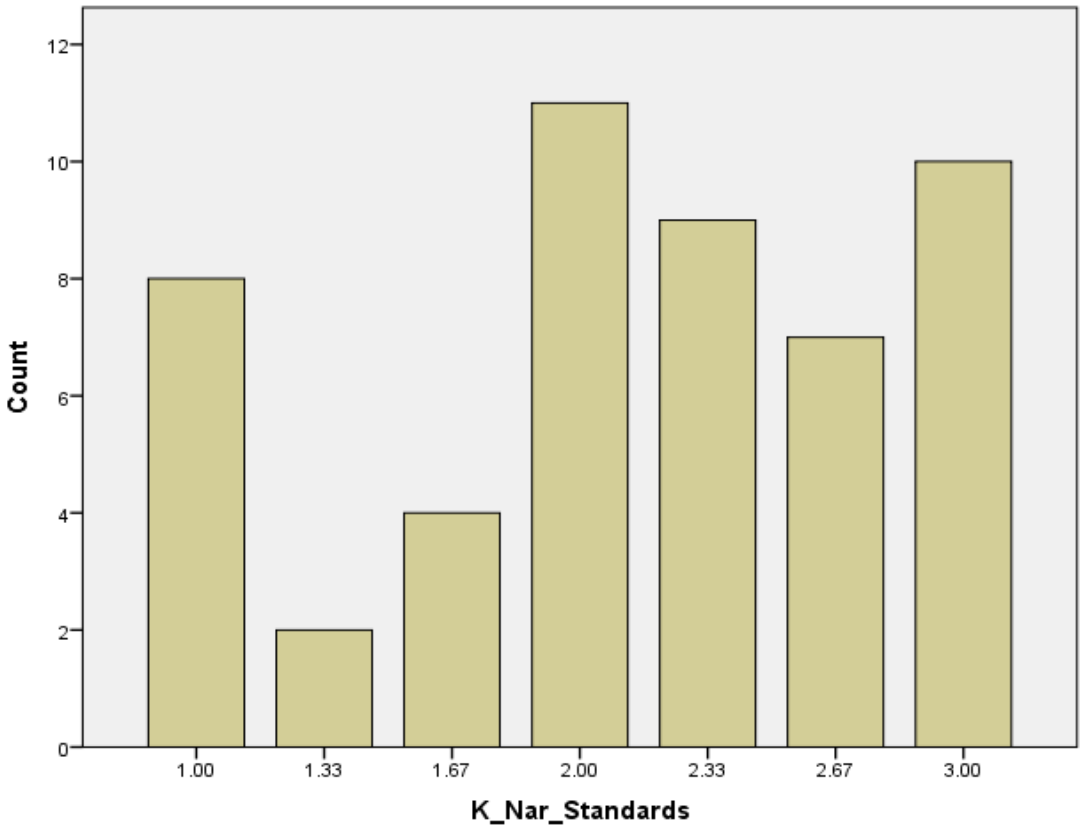

Figure 18: Distribution of results for kindergarten teachers' perceptions of the ELA narrative standard groupings

Research Question 10

Do kindergarten teachers in Tennessee public schools perceive the English language arts informative standard groupings included within the Student Growth Portfolio Model as appropriate for measuring the growth of kindergarten students to a significant extent?

$H_0$10: Kindergarten teachers in Tennessee public schools do not perceive the English language arts informative standard groupings included within the Student Growth Portfolio Model as appropriate for measuring the growth of kindergarten students to a significant extent.

A one-tailed single sample t-test was conducted to evaluate whether kindergarten teachers perceive the ELA informative standard groupings within the student growth portfolio as

appropriate for measuring the growth of kindergarten students to a significant extent. With alpha set at .05, the sample mean of 2.52 (SD = .40) was approximately equal to the test value 2.5, $t(50) = .413$, $p = .341$. Therefore, $H_0$10 was retained. The 95% confidence interval for the difference in mean was -.0885 to .1342. The results suggest that there is not enough evidence to infer whether or not kindergarten teachers perceive the ELA informative standard groupings within the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent. Figure 19 shows the distribution of results for teachers' perceptions of the ELA informative standard groupings within the student growth portfolio and its appropriateness for measuring the growth of kindergarten students.

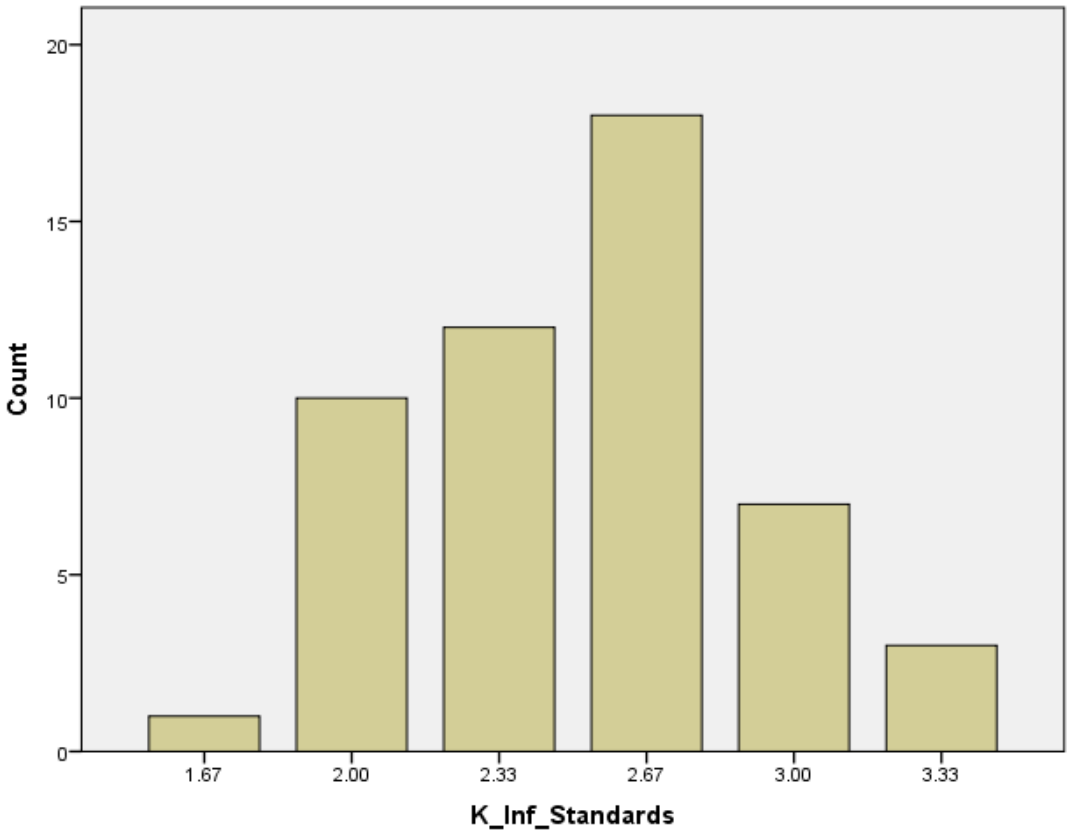

Figure 19: Distribution of results for kindergarten teachers' perceptions of the ELA informative standard groupings

Research Question 11

Do kindergarten teachers in Tennessee public schools perceive the scoring guide for the Student Growth Portfolio Model as appropriate for measuring the growth of kindergarten students to a significant extent?

$H_0$11: Kindergarten teachers in Tennessee public schools do not perceive the scoring guide for the Student Growth Portfolio Model as appropriate for measuring the growth of kindergarten students to a significant extent.

A one-tailed single sample t-test was conducted to evaluate whether kindergarten teachers perceive the scoring guide for the student growth portfolio as appropriate for measuring the growth of kindergarten students to a significant extent. With alpha set at .05, the sample mean 2.24 (SD = .50) was significantly lower than the test value 2.5, $t(50) = -3.699$, $p < .001$. Because the mean was not significantly higher than the test value, $H_0$11 was retained. The 95% confidence interval for the difference in mean was -.4034 to -.1195. The results suggest that kindergarten teachers do not perceive the scoring guide for the student growth portfolio model as appropriate for measuring the growth of kindergarten students to a significant extent. Figure 20 shows the distribution of results for teachers' perceptions of the scoring guide within the student growth portfolio and its appropriateness for measuring the growth of kindergarten students.

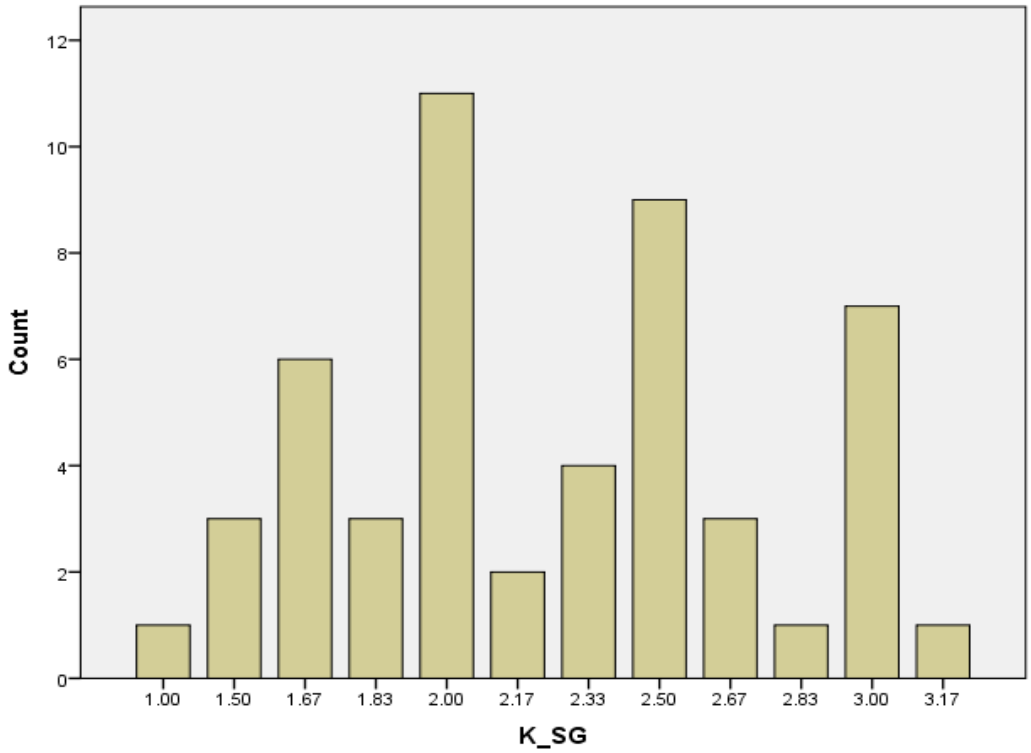

Figure 20: Distribution of results for kindergarten teachers' perceptions of the scoring guide

Chapter Summary

Summary data from the survey that was used to collect pre-K and kindergarten teachers' perceptions of the student growth portfolio model, as well as a description of the demographic characteristics for 16 pre-K teachers and 51 kindergarten teachers were presented with accompanying analysis in this chapter. Data were collected from pre-K and kindergarten teachers within Tennessee public schools from 11 districts. Teachers perceptions were analyzed by 11 research questions that addressed three areas of the SGPM. The areas addressed in the survey were the math standards, ELA standards, and the scoring guide. In summary, pre-K teachers do perceive the counting and cardinality and measurement and data math standards within the portfolio growth model as appropriate for measuring student growth. There is not enough evidence to infer that pre-K teachers perceive the geometry standards, ELA standards, or the scoring guide as appropriate for measuring student growth. Kindergarten teachers do not

perceive the math standards, ELA narrative standards, or the scoring guide as being appropriate for measuring student growth. There is not enough evidence to infer that kindergarten teachers perceive the ELA informative standards as appropriate for measuring student growth.

An analysis of the results of the study highlighted in this chapter is presented in Chapter 5. A summary of the study and presentation of the findings associated with each research question is also provided in Chapter 5. Additionally, conclusions that may be drawn from the study are included in the final chapter as well as recommendations for practice and further study.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

This chapter includes the findings and conclusions discovered during this study of pre-K and kindergarten teachers' perceptions regarding the appropriateness of the student growth portfolio model in Tennessee. The purpose of this quantitative study was to discover perceptions of pre-K and kindergarten teachers within public schools in Tennessee regarding the appropriateness of the student growth portfolio model. This study explored teachers' perceptions of the appropriateness of the math standards, ELA standards, and the scoring guide included within the SGPM. The results were summarized to report teachers' perceptions of the content within the portfolio model and its appropriateness for measuring growth of pre-K and kindergarten students. There were 51 kindergarten teachers and 16 pre-K teachers from 11 school districts within Tennessee who participated in this study. Implications for practice have been included in this chapter for teachers and districts interested in information regarding the use of the SGPM. Implications for further research have also been included in this chapter.

Discussion and Conclusions

This study was guided by 11 research questions that were first presented in chapter 1. The data were analyzed using Statistical Package IBM-SPSS with single sample t-tests:

Research Questions 1, 2, and 3 focused on the appropriateness of the math standards that are included within the SGPM. The results provided enough evidence to conclude that these 16 pre-K teachers do perceive the math standards included for the counting and cardinality and measurement and data domains appropriate for measuring pre-K students' growth. There was not enough evidence to infer that these 16 pre-K teachers perceive the math standards included for

the geometry domain within the student growth portfolio model as appropriate or inappropriate for measuring the growth of pre-K students to a significant extent. This is similar to the American Academy of Pediatrics (n.d.) who reported that children at the age of 4 and 5 may comprehend the ideas of counting, identifying shapes, and size relationship. However, these processes may take several years to become well developed in children who are 3 to 5 years of age (Copple & Bredekamp, 2009).

Research Questions 4 and 5 focused on the appropriateness of the ELA standard groupings that are included within the SGPM. With only 16 respondents there was not enough statistical evidence to conclude that pre-K teachers in Tennessee public schools perceive the ELA standards included for narrative and informative grouping as appropriate for measuring pre-K students' growth to a significant extent. Through the comments section of the survey some teachers indicated that the ELA standards "work well together" and that the "ELA standards are reasonable expectations." The findings are similiar to what research presents as appropriate for language and literacy development and what the TDOE has established as appropriate standards for pre-K students. Copple and Bredekamp (2009) indicated that as children become more aware of letters, they should be engaged in early writing that goes beyond drawings; and in pre-K early writing may be in the form of scribbles at first, but eventually letter-like forms. Similar to Gillion (2018) who affirmed that the primary purpose of reading and writing is the comprehension of ideas that are expressed through a written medium and is a life-long developmental process. For both the narrative and informative standard groupings the same foundational and writing standards were included. The foundational standards in each group states that students should "demonstrate understanding of basic features of print; and distinguish between words and pictures through representation" (TDOE, 2017, p. 12). The writing standards in each group states

"with prompting and support, use a combination of drawing, dictating, and emergent writing to tell a real or imagined story indicating some order of the events" (TDOE, 2017, p. 12). When reviewing the foundational and writing standards above, the words "demonstrate understanding, through representation, and with prompting and support" delineates that pre-K students' writing expectations may or may not go beyond drawings (TDOE, 2017, p.12). While the reading standard included is different for each ELA grouping, all of the reading standards begins with the words "with prompting and support", which can be understood as students may or may not be able to accomplish the expectations within the standard independently (TDOE, 2017, p.12).

The results do not provide enough evidence to infer that pre-K teachers perceive the scoring guide within the student growth portfolio model as appropriate for measuring the growth of the pre-K students. Through the comments section of the survey some teachers indicated that the "gaps between the levels are very broad" and the "scoring rubrics need a complete overhaul." Specifically, teachers seem to be concerned about the expectations beyond level three on all scoring guides. Many teachers pointed out a great concern for what it takes to get a five on the portfolio due to the high expectations in levels four through seven. One teacher reported that "in order for me to earn a level five I must push students well beyond the realistic standards." Another teacher indicated that "the standards are appropriate, but the rubric is not developmentally appropriate." The comments retrieved from the survey provides evidence to infer that these 16 pre-K teachers in public schools do not perceive the scoring guide within the SGPM as appropriate. The findings are consistent with research in the area of early childhood development. The AAP reported that there is no advantage to children learning concepts earlier, and the pressure for them to perform now could result in resistance to learn later. Similarly, Tyler reported that teachers must begin were students are, and "if the learning experience involves the

kind of behavior which the student is not yet able to make, then it fails in its purpose" (Tyler, 2013, p. 67).

Research Questions 7 and 8 focused on the appropriateness of the math standards that are included within the SGPM. The results provided evidence to indicate that kindergarten teachers do not perceive the math standards included for the counting and cardinality and operations and algebraic domains appropriate for measuring kindergarten students' growth to a significant extent. The counting and cardinality standards that are included within the SGPM expect students to do the following: count to 100 by ones, fives, and tens; count forward beginning from a given number within a known sequence; writes numbers from 0 to 20; uses one-to-one correspondence when counting objects up to 20; identify whether a number of objects is greater than, less than, or equal to the number of objects in another group; and compare two written numerals up to 10 using the terms greater than, less than, or qual to (TDOE, 2017). When commenting on the counting and cardinality standards within the SGPM one teacher indicated that "counting by fives is a difficult skill for kindergarten students." The operations and algebraic thinking standards that are included within the SGPM expect students to do the following: represent addition and subtraction within 10 with objects; add and subtract within 10 to solve contextual problems using objects or drawings; decompose numbers less than or equal to 10 into addend pairs in more than one way by using objects or drawings; and find the number that makes 10 when added to any given number from 1 to 9 using objects. There were several comments documented by teachers indicating their perceptions of the operations and algebraic thinking standards as not being appropriate. There were concerns that asking students to add and subtract are two concepts that can be easily confused. Another concern that was made apparent in several comments was the expectations for students to use mental strategies to fluently add and subtract.

One teacher argued that “mental strategies are abstract” and another stated that “fluently is subjective.” These findings are contrary to what research has found in the development of math skills in early childhood. For example, Geary (2011) reported early numeracy skills that are important for later math achievement include: counting, number fluency, decomposing number, and early fact fluency. Copple and Bredekamp (2009) noted that as children make the transition to kindergarten the math curriculum continues to develop their mathematical knowledge through daily encounters that encourage reasoning, problem solving, and communication.

Research Questions 9 and 10 focused on the appropriateness of the ELA standard groupings that are included within the SGPM. The results provided enough statistical evidence to conclude that kindergarten teachers do not perceive the ELA standards included for the narrative groupings as appropriate for measuring kindergarten students’ growth to a significant extent. The results did not provide enough statistical evidence to conclude that kindergarten teachers perceive the ELA informative standard groupings as appropriate for measuring kindergarten students’ growth to a significant extent. Through the comments section of the survey some teachers indicated that the ELA standard groupings are not appropriate because “the reading and writing portions cause discrepancy due to the standards being worded differently” and these standards “should be separate activities.” One teacher specifically argued that “most students cannot write all the details needed” when the standards are integrated and only one piece of evidence is required.

The findings are contrary to what has been reported in the research on language and literacy development. For example, Copple and Bredekamp (2009) indicated that children in kindergarten will eventually produce recognizable letters and words; and often tell stories by drawing with an incorporation of print to express ideas. For both the narrative and informative

standard groupings the same foundational and writing standards were included. The foundational standards in each group states that students should "know and apply grade-level phonics and word analysis skills when encoding words; and write legibly" (TDOE, 2017, p. 12). The writing standards in each group states "with prompting and support, use a combination of drawing, dictating, and/or writing to narrate a single event" (TDOE, 2017, p. 12). When deconstructing the foundational and writing standards above, the words "know and apply grade-level phonics, write legibly, and/or, and with prompting and support" offers enough flexibility that is conducive to the integration of these two standards (TDOE, 2017, p.12). The reading standards for each grouping states that students will "orally identify with prompting and support"; therefore, when integrating all three standards students may produce words that are grade-level appropriate, include pictures with more details about what they are trying to write, and orally explain in detail what they have drawn and written about.

The results suggested that kindergarten teachers do not perceive the scoring guide for the student growth portfolio model as appropriate for measuring growth for the kindergarten students to a significant extent. Through the comments section of the survey some teachers indicated that the expectations between levels were inconsistent and the math and ELA scoring guides did not progress appropriately. Several teachers argued that the expectations within the scoring guide are not aligned with the expectations of the standards. Specifically, when comparing the ELA standards to the scoring guide expectations teachers noted that the word "*orally*" was removed from the scoring guide across all seven levels presenting the expectation that students should only write. The findings are consistent with research in the area of early childhood development. When children grow into kindergarteners their awareness becomes more apparent in following years as they begin to become motivated by stories and the connections between plot lines and

characters' emotions (Copple and Bredekamp, 2009). Copple and Bredekamp asserted that at this early stage of early writing children can become easily frustrated, so it is important to remember that this development is a lengthy process which is partly due to their brains not yet maturing in some important ways.

At the end of the survey, teachers were given the opportunity to provide additional comments. There were many arguments documented by pre-K and kindergarten teachers regarding the amount of time it took to implement the SGPM in the classroom. One teacher stated that she felt like she was teaching more to the portfolio and "there was more focus on the 12 students [those children being used for the portfolio] than the 20 children we were serving in the classroom". Another teacher excoriated that "the portfolio is the single most time-consuming and developmentally inappropriate assessment that I have ever had to complete". The comments provided by pre-K and kindergarten teachers are similar to the disadvantages found in research on portfolio assessment, one disadvantage being that teachers have been faced with the challenge of finding time for effective portfolio implementation to understand individual student's strengths (Alacam & Olgan, 2015; Kim & Yazdan, 2014; Popham, 2012; Redwick, 2017).

Implications for Practice

Researchers (Gullo, 1994; Losardo & Syverson, 2011) identified portfolio assessments as an ideal alternative to paper and pencil tests. In fact, Gullo (1994) discussed alternate assessments and defined them as being options for assessment that are not focused on strict adherence to standard tests and measurement paradigm. Losardo and Syverson (2011) discussed portfolios and explained that they are a performance assessment that is used as a way to document children's functioning in authentic tasks that are part of their daily routines. Early

childhood educators must understand the aspects of developmentally appropriate practice and the complicated process of how children learn.

Dewey, Vygotsky, Erikson, Piaget, and Tyler have all contributed to early childhood education by providing different views of how children learn. The commonality among these philosophies can be summarized by affirming that children learn best by being active and interactive through engagement with learning that is fun and exciting and when curiosity is not fully satisfied. (Copple & Bredekamp, 2009; Hlebowitsh & Tyler, 2013; Mooney, 2013).

While some of the evidence from this study is similar to what theorist purport to be appropriate, what is contrary to these beliefs is how the SGPM is implemented within classrooms. The following recommendations for practice support the findings and are available to teachers, school leads, district leads, and state leads who are involved in the SGPM in Tennessee.

- An immediate need for practice is ongoing professional learning throughout the school year to help teachers better understand the process of the portfolio. Focus needs to be placed on the expectations teachers have for students and setting expectations that are in line with individual abilities and childhood development.
- Schools should implement weekly PLCs for pre-K and kindergarten teachers in order to discuss student progress with administrators, coaches, or mentors. Portfolios are only an effective assessment if teachers are involved in deep conversation regarding results and use these results to guide the instructional planning process.
- Teachers should not put an extensive amount of focus on the product of the portfolio and place the real focus on the process and documenting children's developmental progress over time. If students are not ready to perform at the expectations set forth by the first-

grade standards within levels four though seven of the scoring guides, then teachers should not force this.

- The TDOE should revise the SGPM scoring guides so that they are correctly aligned to the Tennessee ELA standards for kindergarten, the Tennessee math standards for kindergarten, and the Tennessee Early Learning Developmental Standards for pre-K.

Implications for Further Research

This quantitative study focused on teachers' perceptions of the appropriateness of the math standards, ELA standards, and the scoring guide included within the SGPM. Through this study it can be concluded that a great deal of instruction time is being taken from pre-K and kindergarten teachers in order to gather evidence for the SGPM. This is contrary to Sweet (1993) who reported that gathering student work to include in a portfolio can be integrated into the curriculum, and unlike tests, they supplement instruction time. The TDOE's intention for the SGPM is to be a natural collection of student work that is produced in the learning environment that encourages thinking, speaking, writing, reading, and problem solving (TDOE, 2017). Nonetheless, teachers are not perceiving the SGPM as an alternate assessment that happens naturally in classrooms.

The research gathered in this study has presented new questions for further research beyond the eleven original research questions. The questions below may provide teachers, state leads, district leads, and school leads with opportunities for dialogue and reflection:

- District leaders could be surveyed to discover how schools and districts supported the implementation of the SGPM within pre-K and kindergarten classrooms.

- A qualitative approach could be used to understand how to effectively implement the SGPM within pre-K and kindergarten classrooms.
- A qualitative approach could be used to understand how teachers perceive the SGPM beneficial as a measure for student growth.

Chapter Summary

The evidence suggested that pre-K teachers who responded do perceive the counting and cardinality standards and the measurement and data standards as appropriate for measuring student growth. There was not enough statistical evidence to infer that the pre-K teachers who responded perceive the geometry standards or the ELA standards as appropriate for measuring student growth. However, through deconstruction, the standards can be identified appropriate when comparing them to the research in language and literacy development. Kindergarten teachers do not perceive the math or the ELA narrative standards as appropriate for measuring kindergarten student growth. There was not enough statistical evidence to infer that kindergarten teachers perceive the ELA informative standards as appropriate or inappropriate for measuring student growth. However, through deconstruction, the standards provided clearer evidence of the appropriateness when compared to research in language and literacy development. The results of this study suggested that pre-K and kindergarten teachers have a great deal of concern with the appropriateness of the scoring guides within the SGPM.

Neither pre-K or kindergarten teachers perceived the scoring guides as appropriate for measuring student growth. In fact, throughout most of the comments documented by pre-K and kindergarten teachers their concerns were always brought back to the scoring guides. Furthermore, the results suggest that teachers are frustrated over the expectations beyond level three on the scoring guides, which reflect standards above the grade level. Level three has been

identified by the TDOE as aligning with the grade level standard; however, the verbiage within the kindergarten scoring guide does not align. On the scoring guide the word *"orally"* is omitted as an option for students when telling across levels one through seven. One kindergarten teacher stated in a comment that "she pushed all of her students to a level seven." When comparing the scoring guide to the ELA state standards, the level seven on the kindergarten scoring guides align to first grade expectations. If the TDOE has identified level three as grade level, and any performance above level three is above grade level, then including first grade standards on the scoring guide is reasonable.

The portfolio serves as the growth measure for 35% of pre-K and kindergarten teachers' LOE. Some teachers receive differentiated pay based on their LOE. Data gathered from the survey reported that 25% of the pre-K teachers and 11.8% of the kindergarten teachers who participated in the study did receive pay increases based on their LOE. Teachers are pushing students to perform at levels that are well above where their abilities are. This is contrary to Lynch and Struewing (2001) who discussed the importance of not putting an extensive amount of focus on the product of the portfolio and indicated that the real focus of teachers' efforts should be on the process and documenting children's developmental progress over time. This is similar to Herbert (1999) who reported that in the past it proved to be unrealistic when the qualitative nature of portfolios was reworked to accommodate a quantitative ideology.

No matter what mandates are being established by the TDOE pre-K and kindergarten teachers, district leaders, and school leaders need to remember appropriate instructional practices for early childhood. While it is important that educators set high expectations, Pre-K and kindergarten teachers must understand that all students should not be expected to perform beyond grade level; therefore, teachers must not focus on setting an expectation for student work

to reflect standards that are well above grade level unless the student is developmentally ready. The focus should be on student learning, not on teachers' growth score. This is supported by the work of Erikson, Dewey, Piaget, Vygotsky (Mooney, 2013) and Tyler (2013).

In addition, there should be further training for district and school leaders, as well as teachers to understand the expectations that the state has for portfolio implementation. The TDOE should suspend the use of the SGPM until an appropriate scoring guide has been developed that aligns with pre-K and kindergarten standards. Once revisions have been completed, all districts should pilot a newly established model and be given the opportunity to provide feedback regarding the revisions. Finally, the pilot feedback from pre-K and kindergarten teachers should be used for a final revision. A process such as this should be taken seriously and at length. There should be an extensive amount of time spent on improving the SGPM which should go beyond one school year.

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APPENDIX

SURVEY

Pre-K and Kindergarten Teacher Perception Survey on the 2017-2018 Student Growth Portfolio Model in Tennessee

Consent for Participation

Dear Participant,

My name is Amanda Pickens, and I am a doctoral student at East Tennessee State University. I am working on my doctorate degree in educational leadership. In order to finish my studies, I need to complete a research study. The name of the study is Pre-kindergarten and Kindergarten Teachers' Perceptions of the Portfolio Growth Model in Tennessee.

The purpose of this study is to discover perceptions of pre-K and kindergarten teachers within public schools in Tennessee regarding the appropriateness of the Student Growth Portfolio Model. I would like to give a brief survey to pre-K and kindergarten teachers using Survey Monkey. It should only take about five minutes to finish. You will be asked questions about the pre-K and kindergarten Student Growth Portfolio Model.

Your confidentiality will be protected as best we can. Since we are using technology no guarantees can be made about the interception of data sent over the Internet by any third parties, just like with emails. We will make every effort to make sure that your name is not linked with your answers. Survey Monkey has security features that will be used. Although your rights and privacy will be protected, the East Tennessee State University (ETSU) Institutional Board (IRB) can view the study records.

Taking part in this study is voluntary. You may decide not to take part in this study. You can quit at any time. You may exit the online survey form if you want to stop completely.

If you have any research-related questions or problems, you may contact me, Amanda Pickens, at 256-656-8519. I am working on this project with my research chair, Dr. Virginia Foley. You may reach her at 423-439-7615. Also, you may call the chairperson of the IRB at ETSU at (423) 439-6054 if you have questions about your rights as a research subject. If you have any questions or concerns about the research and want to talk to someone who is not with the research team or if you cannot reach the research team, you may call an IRB Coordinator at (423) 439-6055 or (423) 439-6002.

Version: 4/25/2018

1

* 1. Clicking the AGREE button below indicates

- I have read the above information
- I agree to volunteer
- I am at least 18 years old

☐ I AGREE

☐ I DO NOT AGREE

Pre-K and Kindergarten Teacher Perception Survey on the 2017-2018 Student Growth Portfolio Model in Tennessee

Demographics

Please answer all questions to the best of your ability. You are not obligated to participate in this survey.

2. About how many years have you been teaching?

- 1-4
- 5-9
- 10-14
- 15-19
- 20-24
- 25 or more

3. What was your school's last reported composite score?

- 1
- 2
- 3
- 4
- 5

4. Do you receive salary compensation based on your teacher level of effectiveness score?

- yes
- no
- unsure

* 5. What grade level do you currently teach?

- [ ] Pre-K
- [ ] Kindergarten

Pre-K and Kindergarten Teacher Perception Survey on the 2017-2018 Student Growth Portfolio Model in Tennessee

Pre-K Portfolio Standards

Please mark the appropriate space that reflects your opinion of the 2017-2018 Student Growth Portfolio Model. Please answer all questions to the best of your ability. You are not obligated to participate in this survey.

* 6. The pre-K math standards included for the counting and cardinality domain within the Student Growth Portfolio Model are appropriate.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comment:

* 7. The pre-K math standards included for the geometry domain within the Student Growth Portfolio Model are appropriate.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comment:

* 8. The pre-K math standards included for the measurement and data domain within the Student Growth Portfolio Model are appropriate.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comment:

11. Informative standard grouping B is appropriate for measuring pre-K students' growth in ELA.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

This literature standard grouping for pre-K ELA standard integration from the pre-K portfolio model will assist in answering the next question.

Literature/Narrative

Option 3

RF.PK.1. Demonstrate understanding of basic features of print; distinguish between words and pictures [through representation.]

RL.PK.2. With guidance and support, recall important facts to retell a familiar story in sequence.

W.PK.3 With modeling and support, use a combination of drawing, dictating, and emergent writing to tell a real or imagined story indicating some order of the events.

12. Literature standard grouping 3 is appropriate for measuring pre-K students' growth in ELA.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

This informative standard grouping for pre-K ELA standard integration from the pre-K portfolio model will assist in answering the next question.

Informational/Expository

Option C

RF.PK.1. Demonstrate understanding of basic features of print; distinguish between words and pictures [through representation.]

RI.PK.2. With modeling and support, recall important age appropriate facts from informational text by engaging in meaningful discussions and activities

W.PK.2. With modeling and support, use a combination of drawing, dictating, and letters to explain information about a familiar topic or informational text.

13. Informative standard grouping C is appropriate for measuring pre-K students' growth in ELA.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

7

This literature standard grouping for the pre-K portfolio model will assist in answering the next question.

Literature/Narrative

Option 1

RF.PK.1. Demonstrate understanding of basic features of print; distinguish between words and pictures [through representation.]

RL.PK.9. With guidance and support, relate the story to previously read stories, ideas in the themes, or personal life experiences.

W.PK.3 With modeling and support, use a combination of drawing, dictating, and emergent writing to tell a real or imagined story indicating some order of the events.

14. Literature standard grouping 1 is appropriate for measuring pre-K students' growth in ELA.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

15. The counting and cardinality standard below is appropriate for measuring student growth in the pre-K portfolio model.

PK.CC.2 Verbally count forward in sequence from 1-30.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comments:

8

16. The counting and cardinality standard below is appropriate for measuring student growth in the pre-K portfolio model.

PK.CC.4a Use one-to-one correspondence to accurately count up to 10 objects in a scattered configuration.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

17. The measurement and data standard below is appropriate for measuring student growth in the pre-K portfolio model.

PK.MD.1 Recognize the attributes of length, (how long, tall, short), area (how much it covers), weight (how heavy or light), and volume or capacity (how much it holds) of everyday objects using appropriate vocabulary.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

18. The measurement and data standard below is appropriate for measuring student growth in the pre-K portfolio model.

PK.MD.3 Sort, categorize, and classify objects by more than one attribute.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

19. The geometry standard below is appropriate for measuring student growth in the pre-k portfolio model.

PK.G.6 With guidance and support, create and name new shapes formed when putting two shapes together (i.e. two right triangles of the same size put together would make a rectangle).

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

20. The geometry standard below is appropriate for measuring student growth in the pre-k portfolio model.

PK.G.2 Identify several basic shapes.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

Pre-k Portfolio Scoring Guide

Please mark the appropriate space that reflects your opinion of the 2017-2018 Student Growth Portfolio Model. Please answer all questions to the best of your ability. You are not obligated to participate in this survey.

* 21. The pre-K English language arts scoring guides for the Student Growth Portfolio Model are appropriate.

Strongly Agree ○ Agree ○ Disagree ○ Strongly Disagree ○

Comment:

* 22. The pre-K math scoring guides for the Student Growth Portfolio Model are appropriate.

Strongly Agree ○ Agree ○ Disagree ○ Strongly Agree ○

Comment:

This counting and cardinality section from the pre-K math scoring guide will assist in answering the next question.

Pre-Kindergarten Mathematics							
Counting and Cardinality (CC)							
Cluster: Know number names and the count sequence.							
Standard	**1**	**2**	**3**	**4**	**5**	**6**	**7**
PK.CC.2	Does not verbally count forward in a sequence from 1-10.	Verbally counts forward in a sequence from 1-10.	Verbally counts forward in sequence from 1-30.	Verbally counts forward in sequence from 1-50.	Verbally counts forward in sequence from 1-100.	Counts forward (3 numbers) beginning from a given number within the known sequence between 11 and 20 (instead of having to begin at 1).	Counts forward (3 numbers) beginning from a given number within the known sequence between 21 and 50 (instead of having to begin at 1).

* 23. Standard PK.CC.2 is appropriately measured on the the scoring guide for the pre-K math portfolio.

Strongly Agree ○ Agree ○ Disagree ○ Strongly Disagree ○

Comments:

This geometry section of the pre-K math scoring guide will assist in answering the next question.

PK.G.2	Unable to identify basic shapes (e.g., squares, circle, triangle, rectangle, hexagon) in the classroom setting or real-world environment.	Identifies fewer than four basic shapes (e.g., squares, circle, triangle, rectangle, hexagon) in the classroom setting or real-world environment.	Identifies four basic shapes (e.g., squares, circle, triangle, rectangle, and hexagon) in the classroom setting or real-world environment.	Identifies five basic shapes (e.g., squares, circle, triangle, rectangle, hexagon) in the classroom setting or real-world environment.	Identifies all five basic shapes (e.g., squares, circle, triangle, rectangle, hexagon), AND can identify one basic three-dimensional shape (cone, cylinder, cube, sphere) in the classroom setting or real-world environment.	Correctly names shapes (both 2-and 3-dimensional) regardless of their orientations or overall size.	Manipulates shapes to create a composite shape or picture.

* 24. Standard PK.G.2 is appropriately measured on the the scoring guide for the pre-K math portfolio.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

This data and measurement section of the pre-K math scoring guide with assist in answering the next question.

Measurement and Data (MD)							
Cluster: Describe and compare measurable attributes.							
Standard	**1**	**2**	**3**	**4**	**5**	**6**	**7**
PK.MD.1	Unable to recognize the attributes of length (how long, tall, short) and weight (how heavy or light), of everyday objects using appropriate vocabulary.	Recognizes the attributes of length (how long, tall, short) and weight (how heavy or light), of everyday objects using appropriate vocabulary.	Explores the concept of measurement to compare the attributes or two or more concrete objects and use words to define attributes of the objects (e.g., heavier/lighter, longer/shorter, covers less, holds more/ holds less).	With guidance and support, compares everyday objects in using the attributes of length (longer/shorter) and weight (heavier/lighter), using appropriate vocabulary.	With guidance and support, compares everyday objects using the attributes of length (longer/shorter), area (covers more/covers less), weight (heavier/lighter), and volume or capacity (holds more/holds less) using appropriate vocabulary.	Directly compares two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.	Orders three objects by length and compares the lengths of two objects indirectly by using a third object.

* 25. Standard PK.MD.1 is appropriately measured on the the scoring guide for the pre-K math portfolio.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

12

This reading foundations standard from the pre-K ELA scoring guide will assist in answering the next question.

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
RF.PK.1	Writes with only pictures with no connection between sounds and initial letters	Writes in scribbles or random strings with their drawings to show the distinction between pictures and words but not yet connecting sounds to initial letters or words	Writes strings of letter-like formations and mock words to show the distinction between pictures and words **AND** beginning to use sound spelling to generate words with accurate beginning and ending sounds	Writes word clusters to show the distinction between pictures and words **AND** to show knowledge of connecting sounds to initial and ending letters in some words written from left to right and top to bottom on the page	Writes word clusters with spaces and in lines (left to right, top to bottom), **AND** use a use of invented spelling written from left to right and top to bottom of the page	Writes words with accurate one-to-one correspondence with the most frequent sound for each consonant **AND** writes words VC (at, it), CVC (pet, mud), AND CV (be, go) words with long vowels	Writes words with accurate decodable letter-sound relationships including VC (at, it), CVC (pet, mud), **AND** CV (be, go) words with long vowels AND CCVC with blends and digraphs

* 26. Standard RF.PK.1 is appropriately measured on the the scoring guide for the pre-K ELA portfolio.

Strongly Agree ○ Agree ○ Disagree ○ Strongly Disagree ○

Comments:

This writing standard from the pre-K ELA scoring guide will assist in answering the next question.

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
W.PK.2	With prompting and support, writes with pictures and words that **do not relate** to the assigned text	With prompting and support, writes with pictures and words to **name** a word in isolation about the assigned text	With modeling and support, writes with pictures and words to **tell** about the topic or concept AND includes **one fact** about the assigned text	With limited modeling and support, writes with pictures and words to **tell** about the topic or concept AND includes **two facts** about the assigned text	Independently writes with words and pictures to **tell** about a single topic or concept AND includes **three facts** about the assigned text	With prompting and support, writes with words and pictures to **identify** a single topic or concept AND includes **four facts** about the assigned text	With prompting and support, writes with words and pictures to **identify the topic** or concept AND includes **four facts** AND a sense of **closure** about the assigned text

* 27. Standard W.PK.2 is appropriately measured on the the scoring guide for the pre-K ELA portfolio.

Strongly Agree ○ Agree ○ Disagree ○ Strongly Disagree ○

Comments:

28. Do you have anymore comments you wish to add about the pre-K student growth portfolio model?

Pre-K and Kindergarten Teacher Perception Survey on the 2017-2018 Student Growth Portfolio Model in Tennessee

Kindergarten Portfolio Standards

Please mark the appropriate space that reflects your opinion of the 2017-2018 Student Growth Portfolio Model. Please answer all questions to the best of your ability. You are not obligated to participate in this survey.

* 29. The kindergarten math standards included for the counting and cardinality domain within the Student Growth Portfolio Model are appropriate.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comments:

* 30. The kindergarten math standards included for the operations and algebraic thinking domain within the Student Growth Portfolio Model are appropriate.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comment:

* 31. The kindergarten English language arts informative standard groupings included within the Student Growth Portfolio Model are appropriate.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comment:

* 32. The kindergarten English language arts narrative standard groupings located within the Student Growth Portfolio Model are appropriate.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comment:

This informative standard grouping for kindergarten ELA standard integration from the kindergarten portfolio model will assist in answering the next question.

Informational/Expository

Option C

K.FL.WC.4 Know and apply grade-level phonics and word analysis skills when encoding words; write legibly

K.RI.KID.2 With prompting and support, orally identify the main topic and retell key details of a text.
K.W.TTP.2 With prompting and support, use a combination of drawing, dictating, and/or writing to compose informative/explanatory texts.

* 33. Informative standard grouping C is appropriate for measuring kindergarten students' growth for ELA.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

This literature standard grouping for kindergarten ELA standard integration from the kindergarten portfolio model will assist in answering the next question.

Literature/Narrative

Option 1

K.FL.WC.4 Know and apply grade-level phonics and word analysis skills when encoding words; write legibly

K.RL.IKI.9 With prompting and support, orally compare and contrast the adventures and experiences of characters in familiar stories.

K.W.TTP.3 With prompting and support, use a combination of drawing, dictating, and/or writing to narrate a single event.

* 34. Literature standard grouping 1 is appropriate for measuring kindergarten students' growth in ELA.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comments:

16

This informative standard grouping for kindergarten ELA standard integration from the kindergarten portfolio model will assist in answering the next question.

Informational/Expository

Option A

K.FL.WC.4 Know and apply grade-level phonics and word analysis skills when encoding words; write legibly

K.RI.IKI.9 With prompting and support, orally identify basic similarities and differences between two texts on the same topic.

K.W.TTP.2 With prompting and support, use a combination of drawing, dictating, and/or writing to compose informative/explanatory texts.

* 35. Informative standard grouping A is appropriate for measuring kindergarten students' growth in ELA.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

17

This literature standard grouping for kindergarten ELA from the kindergarten portfolio model will assist in answering the next question.

Literature/Narrative

Option 3

K.FL.WC.4 Know and apply grade-level phonics and word analysis skills when encoding words; write legibly

K.RL.KID.2 With prompting and support, orally retell familiar stories, including key details.

K.W.TTP.3 With prompting and support, use a combination of drawing, dictating, and/or writing to narrate a single event.

* 36. Literature standard grouping 3 is appropriate for measuring kindergarten students' growth in ELA.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

* 37. The counting and cardinality standard below is appropriate for measuring student growth in the kindergarten portfolio model.

K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, equal to the number of objects in another group.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

* 38. The counting and cardinality standard below is appropriate for measuring student growth in the kindergarten portfolio model.

K.CC.B.5 Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangle array, a circle, or as many as 10 things in a scattered configuration. Given a number from 1-20, count out that many objects.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comments:

* 39. The operations and algebraic thinking standard below is appropriate for measuring student growth in the kindergarten portfolio model.

K.OA.A.3 Decompose numbers less than or equal to 10 into addend pairs in more than one way (e.g., 5 = 2 + 3 and 5 = 4 + 1) by using objects or drawings. Record each decomposition using a drawing or writing an equation.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comments:

* 40. The operations and algebraic thinking standard below is appropriate for measuring student growth in the kindergarten portfolio model.

K.OA.A.5 Fluently add and subtract within 10 using mental strategies.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comments:

Kindergarten Portfolio Scoring Guide

Please mark the appropriate space that reflects your opinion of the 2017-2018 Student Growth Portfolio Model. Please answer all questions to the best of your ability. You are not obligated to participate in this survey.

* 41. The kindergarten English language arts scoring guides for the Student GrowthPortfolio Model are appropriate.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comment:

* 42. The kindergarten math scoring guides for the Student Growth Portfolio Model are appropriate.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

This operations and algebraic thinking section of the kindergarten math scoring guide will assist in answering the next question.

Kindergarten Mathematics							
Operations and Algebraic Thinking (OA)							
Cluster: A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.							
Standard	**1**	**2**	**3**	**4**	**5**	**6**	**7**
K.OA.A.3	Unable to decompose numbers less than or equal to 5 into pairs (parts) in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5=2+3 and 5=4+1).	Decomposes numbers less than or equal to 5 into pairs (parts) in more than one way, e.g., by using objects or drawings, and records each decomposition by a drawing or equation (e.g., 5=2+3 and 5=4+1).	Decomposes numbers less than or equal to 10 into addend pairs in more than one way (e.g., 5 = 2 + 3 and 5 = 4 + 1) by using objects or drawings, and records each decomposition using a drawing or writing an equation.	Decomposes numbers less than or equal to 10 into pairs (parts) in more than one way, e.g., by using objects or drawings, and records each decomposition by a drawing or equation (e.g., 5=2+3 and 5=4+1).	Decomposes numbers less than or equal to 20 into pairs (parts) in more than one way, e.g., by using objects or drawings, and records each decomposition by a drawing or equation (e.g., 5=2+3 and 5=4+1).	Determines the unknown whole number in an addition equation up to 20, with the unknown in any position.	Determines the unknown whole number in addition or subtraction equations up to 20, with the unknown in any position.

* 43. Standard K.OA.A.3 is appropriately measured on the scoring guide for the math portfolio.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comments:

This counting and cardinality section of the kindergarten math scoring guide will assist in answering the next question.

K.CC.C.7	Unable to compare two given numbers up to 5, when written as numerals, using the terms greater than, less than, or equal to.	Compares two given numbers up to 5, when written as numerals, using the terms greater than, less than, or equal to.	Compares two given numbers up to 10, when written as numerals, using the terms greater than, less than, or equal to.	Compares two given numbers up to 20, when written as numerals, using the terms greater than, less than, or equal to.	Compares two given numbers up to 30, when written as numerals, using the terms greater than, less than, or equal to **AND** using signals >, <, and =.	Compares two given numbers up to 40, when written as numerals, using the terms greater than, less than, or equal to **AND** using signals >, <, and =.	Compares two given numbers up to 50, when written as numerals, using the terms greater than, less than, or equal to **AND** using signals >, <, and =.

* 44. Standard K.CC.C.7 is appropriately measured on the scoring guide for the math portfolio.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Comments:

This reading literature standard from the kindergarten ELA scoring guide will assist in answering the next question.

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
K.RL.IKI.9	With prompting and support, writes pictures and words unrelated to the text	With prompting and support, writes words and pictures that tell about characters within one or both of the texts, but there is not comparison of the similarities or contrasting the differences of the characters	With prompting and support, writes words and pictures that compares **one similarity** AND contrasts **one difference** about how two characters reacted to an event OR one character's reaction to events from the beginning of the narrative to the end	With prompting and support, writes words and pictures that compares **two similarities** AND contrasts **two differences** about how two characters reacted to an event OR one character's reaction to events from the beginning of the narrative text to the end	Independently writes words that compare and contrast in **at least two ways each** how two characters reacted to an event AND includes details about how it made the **characters feel** OR one character's reaction to events from the beginning of the narrative text to the end AND includes details about how it made the **character feel**	Independently writes words that compare and contrast in **at least two ways each** how two characters reacted to an event AND includes details about how it made the **characters feel** AND **why** OR one character's reaction to events from the beginning of the narrative text to the end AND includes details about how it made the **character feel** AND **why**	Independently writes words that compare and contrast in **at least three ways each** how two characters reacted to an event AND includes details about how it made the **characters feel** AND **why** OR one character's reaction to events from the beginning of the narrative text to the end AND includes details about how it made the **character feel** AND **why**

* 45. Standard K.RL.IKI.9 is appropriately measured on the scoring guide for the kindergarten ELA portfolio.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

This writing standard from the kindergarten ELA scoring guide will assist in answering the next question.

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
K.W.TTP.2	With prompting and support, writes with words and pictures that do not identify the topic of the assigned text	With prompting and support, writes with words and pictures to **identify** the topic and **no details** about the assigned text	With prompting and support, writes with words and pictures to **identify** a **single topic** AND includes **two details** about the assigned text	With **little** prompting and support, writes with words and pictures to **identify** a **single topic** AND includes **three details** about the assigned text	**Independently** writes with words and pictures to **identify** a single topic AND includes **three details** AND includes a sense of **closure** about the topic of the assigned text	**Independently** writes with words and pictures to **identify** the topic AND includes **at least three details** AND includes a **sense of introduction** AND **closure** about the topic of the assigned text	With prompting and support, **writes** words that **introduce** the topic, AND includes at least **four facts** to **support the topic**, AND includes a **concluding statement**

* 46. Standard K.W.TTP.2 is appropriately measured on the scoring guide for the kindergarten ELA portfolio.

Strongly Agree | Agree | Disagree | Strongly Disagree

Comments:

47. Do you have anymore comments you wish to add about the kindergarten student growth portfolio model?

VITA

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